

# New Zealand Out in Front *on GM Sterile Seeds*

## Summary

- An international understanding restraining the use of techniques to make plants sterile is being challenged by a small group of countries that includes New Zealand. Decisions are scheduled to take place in late March.
- The techniques in question involve genetically engineering sterility into plants, and are known as Genetic Use Restriction Technologies (GURTs). They are considered to pose significant risks that are as yet poorly understood. The potential effects are sufficiently serious that a consensus recommendation was reached by parties to the Convention on Biodiversity (CBD) not to move ahead until the risks are adequately researched.
- New Zealand is one of a small group of countries advancing the weakest interpretation of the approach set out by the international community. Many nations are understood to interpret the consensus as requiring that research is completed to the satisfaction of CBD parties before any field trialling is approved. New Zealand, on the other hand, views the resolution as simply a voluntary guideline and is pushing for a “clarification” to be adopted that would instead interpret the CBD position as allowing individual countries to set their own standards as to what is an adequate level of prior research.
- For New Zealand to gain the right to itself decide what is an acceptable standard, other states with far less developed regulatory systems must also gain that right, and with it the ability to commercialise sterile seeds. This would expose the international community by incentivising GURT developers to undertake early field experimentation in countries with the lowest regulatory requirements. Moreover, just as other altered genetic material has shown itself capable of spreading beyond the area it is released into, and beyond the plant into which it was first inserted, once commercialised there is the prospect of unintended transfer of risk to other countries. So holding back field trialling until parties to the CBD are satisfied there is a good basis to assess the risks is prudent biosecurity.
- Implicitly, New Zealand and other supporters of “case-by-case” assessment seek a blank cheque to decide what standard each will set. It is reasonable to expect that these parties would provide evidence of the inability to advance research on ecological risks within the lab, or else completed research showing the scope of risks is not as significant as first thought, yet this is not apparent. Equally, there is no evidence of a New Zealand work programme that would provide the analysis to properly inform a case-by-case assessment.
- New Zealand should not support the proposed text or other measures that favour individual countries setting their own standards to evaluate GURTs field trial proposals. Instead, it should work with the international community to identify the research required before field trial proposals can be adequately assessed.

## Genetic Use Restriction Technologies

The use of genetic modification (GM) to make plants, animals and microbes infertile is an increasing focus of experimental research. As their name suggests, the purpose of GURTs is to provide a biological lock on plants to prevent growers from saving commercial seeds so they must return to the market every season to buy seeds or crop stock..<sup>1</sup> The most renowned form of GURTs is being developed jointly by the US Department of Agriculture and Delta & Pine Land Inc (a subsidiary of Monsanto) and has been dubbed “Terminator Technology”.

GURTs pose a wide array of risks that have yet to be properly researched. The most concerning environmental one is the potential transfer of GM sterility characteristics to native and agricultural ecosystems. Concerns about the effects of eliminating seed saving on farmers (particularly subsistence and indigenous farming communities) and on agricultural biodiversity, and the role that GURTs might play in facilitating private sector monopolies over agricultural seed lines and, by implication, the food chain have also been central to the international debate about GURTs. Some potential benefits have also been identified, including the ability to biologically contain gene flow and to increase agricultural productivity through relief of reproductive functions.<sup>2</sup>

## International Community Develops Common Approach to GURTs

Experiments to develop GURTs first came to light almost a decade ago. In response to the nature and scale of the risks identified, GURTs have been addressed by parties to the United Nations Convention on Biological Diversity (CBD), a treaty New Zealand has ratified.

The CBD is an international agreement dedicated to the conservation of biodiversity, the sustainable use of the components of biodiversity, and to sharing the benefits arising from the commercial and other utilization of genetic resources in a fair and equitable way. Underlying the convention is the recognition that biological diversity is the ‘common concern of humanity’.<sup>3</sup>

At a conference of the parties to the CBD in 2000, the nations present concluded that there was insufficient scientific knowledge to allow proper risk assessment of these sterility technologies. In light of this, the parties agreed to adopt a common international approach

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<sup>1</sup> The term GURT designates the purpose of the GM sterility mechanism (to prevent seed saving) rather than any difference in the type of GMO. As it is claimed that these same mechanisms may now be used to confine gene flow from GM crops (and thereby fulfilling an environmental protection function), there is some unclarity about which GM sterility technologies to include as GURTs. This briefing uses the UN Food and Agriculture Organisation definition of GURTs as “biotechnology-based switch mechanisms to restrict the unauthorized use of genetic material”. The FAO identifies two types of GURTs: (1) variety GURTs, which makes the seed sterile, so that no viable seed is produced; and (2) trait GURTs, where the desired GM trait in a crop variety is not accessible to the farmer unless inducers (such as a chemical) is externally applied to the crop. FAO Commission on Genetic Resources for Food and Agriculture. Working Group on Plant Genetic Resources for Food and Agriculture (2001) *Potential Impacts of Genetic Use Restriction Technologies (GURTs) on Agricultural Biodiversity and Agricultural Production Systems*.

<sup>2</sup> For discussion on risks and potential benefits: US National Research Council (2004) *Biological Confinement of Genetically Engineered Organisms* and the above mentioned FAO report, *Potential Impacts of Genetic Use Restriction Technologies (GURTs) on Agricultural Biodiversity and Agricultural Production Systems*.

<sup>3</sup> *Sustaining Life on Earth How the Convention on Biological Diversity promotes nature and human well-being*. <http://www.biodiv.org>

and to recommend to each of their Governments: that no party to the Convention allow GURTs to move to field trialling until “appropriate scientific data can justify such testing”.

### *The Current CBD Position on GURTs*

The Conference of the Parties,

[...]

23. Recommends that, in the current absence of reliable data on genetic use restriction technologies, without which there is an inadequate basis on which to assess their potential risks, and in accordance with the precautionary approach, products incorporating such technologies should not be approved by Parties for field testing until appropriate scientific data can justify such testing, and for commercial use until appropriate, authorized and strictly controlled scientific assessments with regard to, inter alia, their ecological and socio-economic impacts and any adverse effects for biological diversity, food security and human health have been carried out in a transparent manner and the conditions for their safe and beneficial use validated. In order to enhance the capacity of all countries to address these issues, Parties should widely disseminate information on scientific assessments, including through the clearing-house mechanism, and share their expertise in this regard.<sup>4</sup>

## **Current CBD Decision and Implications of the Proposed Change**

While the CBD position on GURTs (the decision quoted above)<sup>5</sup> is a recommendation, rather than a legally binding prohibition, it has moral authority, because it is a consensus decision of the CBD parties and also because one nation’s experimentation and later commercialisation could impact on others. Critical to its interpretation is who determines what level of scientific understanding is sufficient to support a move to field trialling – whether this rests with the parties to the CBD as a whole, or is at the discretion of individual states. Of the CBD members, the Africa group, Norway, the Philippines, Egypt, India (and apparently the European Union) are among those understood to back an interpretation that would see decisions coming back to the CBD members. However a small group, including New Zealand and Canada, take the interpretation that individual parties have the authority to themselves determine at what point scientific understanding is sufficient to assess field trial proposals.

New Zealand and Australia are now at the forefront of moves designed to promote the interpretation that it is nation states that decide the standards. These moves have been advanced under the banner of a call for “case-by-case” assessment. In line with New Zealand’s interpretation, the Ministry of Foreign Affairs and Trade (MFAT) describes the proposed additional text as a “clarification”.

A case-by-case interpretation would effectively remove the international community as the standard setter – the agent that determines what constitutes ‘appropriate scientific data’ and

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<sup>4</sup> Decision V5, COP 7. <http://www.biodiv.org/decisions/default.asp?lg=0&dec=V/>

<sup>5</sup> There are notable parties standing outside this agreement to treat GURTs with the utmost caution, including the United States - a significant GURTs developer – which is not a party to the convention.

acceptable levels of risk associated with GURTs. Instead, member countries would be able to move into the field with GURTs in accordance with their own assessments of risk, and without needing to satisfy other nations as to the risks GURTs might pose for them.

### ***Proposal to move the CBD to agreement on case-by-case assessment***

An unofficial version of the text obtained by the Sustainability Council (which New Zealand apparently supported the precursor to at a February meeting), would commit the CBD members to:

[...]

Promote cooperation and synergies between agencies and experts in order to undertake further research and studies on potential impacts and other aspects of genetic use restriction technologies, including their ecological, socio-economic and cultural impacts on indigenous and local communities, including on a case-by-case risk assessment basis with respect to different categories of GURTs technology subject to the precautionary approach;<sup>6</sup>

Given the current gaps in scientific understanding, it is not prudent to advocate a shift from lab research to consideration of field trials at this time. For even if some countries feel confident in their own processes, the current approach is also designed to protect biodiversity in other countries, many with much less well developed regulatory structures than New Zealand's. If the parties to the CBD must determine when there is sufficient knowledge and evaluate its meaning before individual jurisdictions consider field trial proposals, then this protects those with weak or inadequate systems for assessing GURTs proposals. In particular, it would prevent GURTs developers shopping beyond their host nation for the least restrictive regime if the one they are domiciled in will not approve a project.

This approach is not just a lofty contribution to protection of global biodiversity. Ultimately it is biosecurity in the interests of all parties. This is because GMOs carrying sterility characteristics techniques pose transboundary risks, and thus risks to biodiversity as a whole which under the CBD is considered a global common.

Such risks arise because the right of a party to unilaterally determine when to field trial would also carry the right to proceed to commercialisation. At that point, just as other altered genetic material has shown itself capable of spreading beyond not just a geographical location, but beyond the plant into which it was first inserted, it must be assumed that this risk will also need to be protected against for GMOs containing GURTs. That means attempting to check the unintended transfer between nations of GMOs carrying sterility characteristics.

Refraining from field trialling until parties to the CBD are satisfied that there is a good basis to assess the risks is prudent biosecurity. This holds even if New Zealand were to support requirements for the labelling of unintended content of shipments under the Cartagena Protocol - and is more important if it continues not to.

A key benefit of the collective approach is that it incentivises developers and proponents of GURTs to ensure that research capable of being undertaken prior to field trialling is properly exploited before the additional risks associated with outdoor research are contemplated.

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<sup>6</sup> Draft recommendation from the Ad Hoc Open-ended Inter-Sessional Working Group on Article 8(j) and Related Provisions at its fourth meeting in Granada, Spain, January 2006.

While there are no GURTs in commercial use anywhere in the world<sup>7</sup>, the FAO estimated in 2001 that GURTs and their products should become functional within 5-10 years.<sup>8</sup> This suggests that in the next half-decade, a considerable amount of research will need to be done so that countries are well-briefed on the risks of GURTs.

## **Rationale for New Zealand's Position**

New Zealand's stance to the CBD approach to GURTs was set out in a cabinet paper prepared in February 2005. There, Government approved officials' advice that:

- “there should be no recommendations [from the CBD] that could curtail future study potentially important for interested, and affected, parties”;
- “GURTs and other GMOs are not inherently good or bad for the environment, smallholder farmers or indigenous and local communities”; and
- “to gain the knowledge necessary to fully assess the risks and benefits of GURTs that may impact on indigenous and local communities and farmers rights, a case-by-case approach (given that positive and negative effects have been identified) and controlled field trials will be required.”<sup>9</sup>

New Zealand's position hinges on the last proposition – that to gain the knowledge necessary to assess the risks, “field trials will be required”. To the extent that laboratory work can not answer all the questions that field work can, the claim is self-evident. However, it side-steps the relevant question the CBD poses: can more research within the lab be carried out now at low risk and add greater understanding before the risks of outdoor work need to be contemplated? Here the answer is also a clear yes. So what would be the basis for New Zealand advocating processes that would be less precautionary than this?

It is not due to conflict with New Zealand's case-by-case regulatory approach. The model that the CBD community has set up for addressing risks associated with GURTs is not a ‘no, never’ but rather a ‘not until’ approach. Field trialling may proceed, but only once sufficient scientific knowledge has been generated that will properly inform decisions on whether it is safe to move to the field, and, if so, how field trialling should be conducted. New Zealand's regulatory model also requires that there is sufficient information available to the regulator to conduct an assessment. The Hazardous Substances and New Organisms Act (HSNO) otherwise empowers ERMA to decline an application. The current CBD position therefore does not clash with a case-by-case approach.

The apparent rationale remaining is that New Zealand and others supporting a “clarification” in favour of case-by-case want to themselves decide what is sufficient prior research and do not want to submit to the test of an international consensus. As noted above, even if New Zealand could be considered to have the highest of precautionary standards, a relaxation of the de facto moratorium would have implications for the ability to field trial in other nations. So in order to achieve autonomy in its own jurisdiction, New Zealand would be lowering the protection in other nations.

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<sup>7</sup> Section of a Cabinet Paper released under the OIA regarding the CBD 10<sup>th</sup> Session of the Subsidiary Body on Scientific, Technical and Technological Advice (STBTTA), February 7-11 2005 (hereafter the ‘Cabinet paper’)

<sup>8</sup> FAO (2001) *Potential Impacts of Genetic Use Restriction Technologies (GURTs) on Agricultural Biodiversity and Agricultural Production Systems*, p. 11.

<sup>9</sup> Cabinet paper

Against this, a proposal for all CBD parties to adopt a case-by-case interpretation is in effect a request for the international community to give New Zealand and other supporters of this move a blank cheque as to what level of research will be conducted prior to field trials in absence of a remotely adequate research programme to date.

Prior to looking for a shift to a common acceptance of case-by-case, one would expect to see either evidence of the inability to advance useful research on ecological risks within the lab, or else completed research showing the scope of risks is not as significant as first thought. Yet neither is apparent. Given this, and New Zealand's avowed policy of precaution in the assessment of GMOs, one would then expect to see at least nationally-focussed research and analysis into the possible effects of the deliberate field use of GURTs as well as the effects of accidental release of the technology through contamination of seed and food imports. This would first focus on a gaps analysis of work undertaken at the international level to determine what pre-field trial research has been done. It would then focus on research specific to New Zealand conditions that would be required before risks could be adequately assessed for this country's conditions.

Again, there is no evidence of any such work programme undertaken by New Zealand at the domestic level that would provide the baseline analysis to properly inform a case-by-case assessment. New Zealand thus does not have a case for seeking a case-by-case interpretation based on it being unnecessarily held up, and has not filed with the CBD clearing house research into the potential environmental effects of GURTs. Given this absence of research and the small funding pool for ecological effects research, New Zealand would benefit from an international collaborative effort to understand the risks that GURTs pose.

In absence of evidence of the required investigations, the question left hanging is: "Why exactly should the parties to the CBD agree to any new text that would support a case-by-case interpretation, one that would allow a lower standard of precaution and care than many parties hold to, when the risks are thought to be serious and sufficient research is far from having been done to show they are not".

### **Better Paths for Countries Espousing Precaution and Case-by-Case**

Better options are available to New Zealand for the upcoming negotiations than those it has recently advanced - ones that will allow it to adhere to its stated precautionary approach to GMOs and to demonstrate New Zealand is taking responsibility to ensure that the policies it wishes to adopt will not harm other countries if applied internationally. New Zealand should not support the additional text currently proposed and should instead commit to:

- Working with the international community to develop criteria that will determine what level of knowledge is sufficient to properly inform any decision about moving GURTs into the field;
- Identifying gaps in pre-field trial research about the potential effects of GURTs, and those New Zealand may be able to address within its own research programme;
- Identifying the biosecurity and other risks that New Zealand faces should GURTs be trialled or commercialised elsewhere.