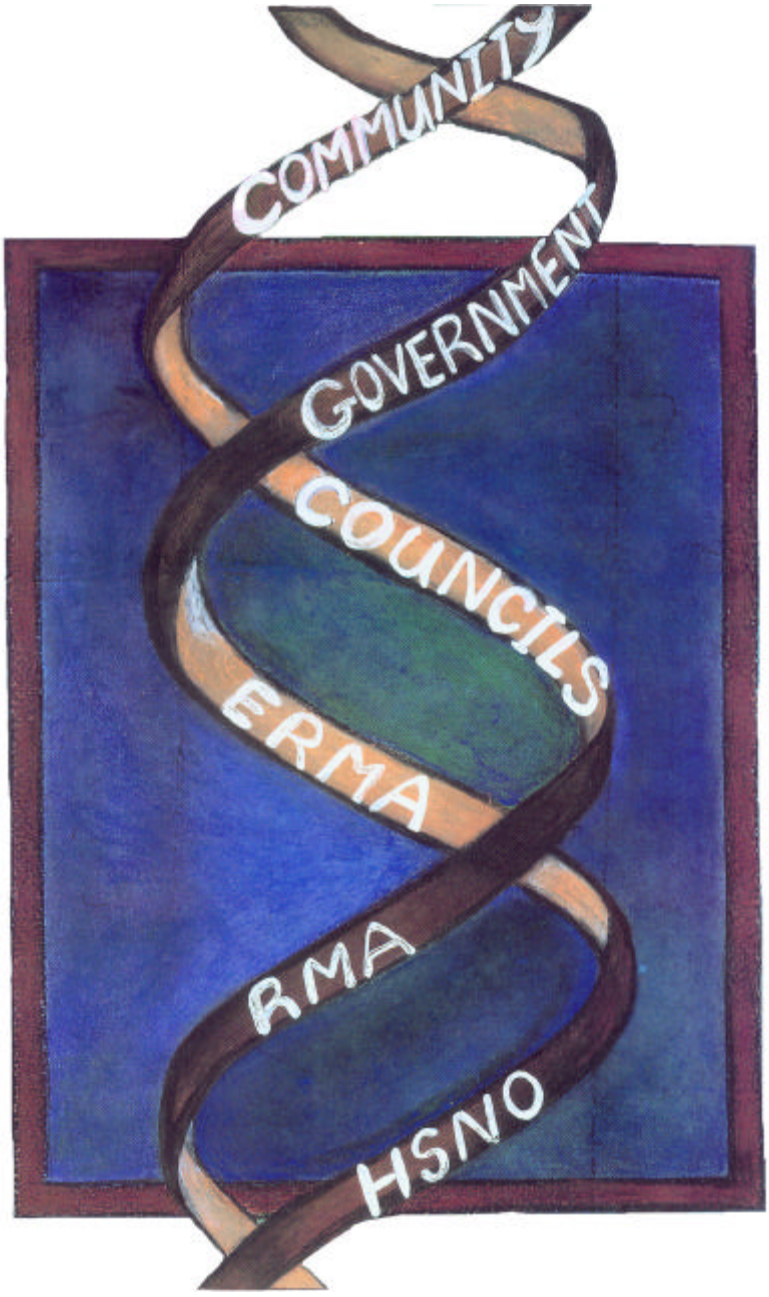
Community Management of GMOs III

Recommended Response Option



Simon Terry Associates

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Community Management of GMOs III

Recommended Response Option

Prepared for

Working Party on
GMO Risk Evaluation and
Management Options

by

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&
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Summary

1. This report extends earlier research examining options available to councils under the RMA for responding to outdoor activities involving genetically modified organisms (GMOs). It identifies a preferred response option for managing GMOs through change to the district plan.

2. A Colmar Brunton survey of resident opinion reported:
   - Strong support for local or regional councils to have a role in regulating GMOs in their areas;
   - Strong support for regulation of at least a strength that would make users of GMOs legally responsible for any environmental or economic harm; and
   - Around half the residents want councils to have the right to prohibit GM plants and animals.

3. The first preference of councils has been for central government to remedy the gaps in the national level regulation of GMOs and to also provide communities with the ability to add local level conditions to any ERMA approval for a GMO activity. The consistent response from central government over 6 years has been that it does not intend to make such changes and this leaves councils with little choice but to pursue parallel reform at the local level, through the RMA, if they wish to deliver stricter regulation.

4. Different types of GMOs carry different risks. However similar GMOs can be brought together into classes of like organisms which can be expected to have similar types of effects that councils may be required to avoid, remedy or mitigate.

5. The key decision councils and their communities need to make is which classes of GMOs and modes of use should be unregulated, which should be made discretionary activities, and which prohibited - based on their tolerance for risk.

6. Councils have good grounds for adopting plan changes that at least make all GMO activities discretionary and provide for the following:
   - Recovery of costs for undertaking any monitoring that is required;
   - Conditions designed to secure compensation in the event that an activity causes harm; and
   - Bond requirements to ensure funds are available to meet claims.

   Such a plan change would involve a sharing of costs between participating councils, while costs arising from contamination in absence of a plan change would tend to be faced by councils and their communities alone.

7. The essential question posed by the RMA's structure is whether the risks and costs of particular GMO activities warrant councils raising the level of protection further to prohibit these.

8. Field trials are designed with the objective of ensuring that no altered genetic material leaves the test site and this greatly reduces the risks of harm arising. Making all field trials a discretionary activity nonetheless provides greater protection for the community by making the GMO operator financially accountable should harm arise from a breach of conditions.

9. When considering a GMO release, the main differences between making a release a discretionary activity versus a prohibited activity are:
   - There is uncertainty whether a discretionary approach would provide compensation for economic damage, and it seems very unlikely that it would provide compensation for opportunity costs.
   - Under a discretionary approach, the Minister for the Environment could call in an application or it could be referred directly to the Environment Court and a council's autonomy would be considerably diluted.
   - Costs could arise from legal challenges to decisions made under a discretionary approach, while no applications can be made if the activity is prohibited.

10. The indications to date are that the Auckland and Northland communities seek a relatively strong degree of protection but also want to remain open to opportunities that new GMOs may provide. Given the high levels of potential harm and the uncertainties surrounding the extent of costs and benefits that could be expected from GMO releases, rather than attempting to pre-determine the level of risk posed by each class of GMO, a precautionary approach would be to initially make GMO releases a prohibited activity and periodically review whether particular classes or individual GMOs should be made discretionary activities.

11. At the point a set of GMOs demonstrated potential to provide net benefits, a change to the plan could then make these subject to its discretionary provisions. As an application requirement would be that ERMA had already approved such a release, the council's role would be limited to determining whether there were additional conditions that would make release in the district satisfactory, or whether to decline the application.

12. We recommend that a plan change be advanced in line with the above and that the consultation document group GMO outdoor uses into three simplified categories to produce the following general proposal:
   - Field Trials — Discretionary Activity
   - Food-related GMO Releases — Prohibited Activity
   - Releases that are Not Food-related — Prohibited Activity

   Consultation needs to be conducted on a broad basis, needs to actively engage with key stakeholders, and needs to show that it is effectively achieving these goals.

13. The additional work required for a plan change is perhaps best divided into two blocks: that required to be undertaken in order to have a plan change "ready to go", and that required to take it to completion. Such a division allows a council to first advance to the "ready to go" stage and to then be fully informed to consider the second stage of implementation.

14. Assuming an approval in principle is given for a plan change, the following tasks will need to be addressed:
   - Further development of objectives, policies and rules to support a plan change, and the precise framing and legal review of the provisions;
   - Execution of consultation process and modifications to the original proposal;
   - Establishment of a memorandum of understanding between councils to a joint defence of any challenges to a related plan change; and
   - Preparation of RMA s32 analyses for the proposed plan changes.

1. Introduction and Background

1.1 Introduction

The Working Party on GMO Risk Evaluation and Management Options has asked Simon Terry Associates Research Ltd and Mitchell Partnerships to extend our earlier research examining options available to councils under the RMA for responding to activities involving genetically modified organisms (GMOs). Our report, *Community Management of GMOs II*, described the issues confronting communities and set out options for addressing these.[1] The Working Party has requested that these options be further analysed and that the scope of options be reduced with a view to identifying a preferred option for further development and consultation.[2]

In this further stage of reporting, consideration is similarly limited to the outdoor use of living GMOs, and in particular to field trials and releases to the environment. There is currently no outdoor use of GM plants or animals in the Auckland and Northland regions.

1.2 Prior Assessment Undertaken

The following provides a high level overview of the scope and findings of our previous report. Some of these points are expanded in later sections and parts of our previous work are restated for ease of reference, but for a full treatment of what are often complex issues readers are directed to the full report.[3]

- A wide range of types of GMOs are being developed for commercialisation. As the types of potential benefits available from new GMOs are generally available by alternative mechanisms, gains available from GM products need to be measured in terms of their net benefit over those alternative means.

- Sources of risk from the outdoor use of GMOs include:
- The risk that cultivation of GM crops will cause economic damage through trace GM contamination appearing in non-GM crops.
- Environmental risks include: adverse effects on non-target species (e.g. birds and insects), GM plants becoming invasive and disrupting ecosystems, and altered genes transferring to other organisms - and few have been researched sufficiently.
- Concerns of Maori include: preserving the integrity of nature, the mixing of genes from unrelated species, and which parts of the community stand to the benefit from the technology.
- There are important deficiencies in the national level regulation of GMOs.

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1 Simon Terry Associates and Mitchell Partnerships, *Community Management of GMOs II: Risks and Response Options, May 2005.*

2 The Working Party comprises: Far North, Kaipara, Rodney and Whangarei District Councils, Waitakere City Council, Auckland Regional Council and Northland Regional Council. This report was funded by the councils for: the Far North, Kaipara, Rodney, Whangarei and the Auckland Region.

3 The report is available at: http://www.wdc.govt.nz/customerservice/?lc=reader&m=tssd&i=3433

- A key gap is the absence of adequate liability provisions. There is no liability under the Hazardous Substances and New Organisms Act (HSNO) for damage arising as a result of an activity carried out in accordance with an approval from ERMA (the Environmental Risk Management Authority). Innocent parties will tend to bear any losses arising from unexpected events and ineffective regulation of GMOs.
- A further important deficiency is that HSNO makes the exercise of precaution a matter for ERMA's discretion. Precaution is an option, not a requirement.

- The RMA provides communities with the ability to set rules that embody community determined outcomes, including the level of risk it is willing to accept with respect to activities such as the management of GMOs. District councils have jurisdiction under the RMA to set rules for GMOs that act in addition to those that may be set under HSNO or by ERMA. Given a district council's general duties of care for its financial position and that of its constituents, there is a ready justification for mandatory conditions to provide for both financial accountability and avoidance of economic damage. If additional conditions would be insufficient to address the risks a GMO activity presents, the RMA also provides the basis for communities to prohibit classes of activity.

- Different GMOs and their uses pose different levels of risk. The key high level decision councils and their communities need to make is which classes of GMOs should be unregulated, which should be made discretionary activities, and which prohibited - based on their tolerance for, or aversion to, risk.

Four options were presented:

A. All GMO activities are discretionary with each assessed on a case by case basis. Accountability provisions designed to ensure damage is remedied or compensated for, to the extent possible, would be mandatory.

B. All releases involving food plants or food animals are prohibited. Other activities are in general discretionary activities, as in Option A.

C. All releases involving food plants, food animals, and production of fibre and biopharmaceuticals are prohibited. Other activities are in general discretionary activities, as in Option A.

D. All release activities would be prohibited.

- With respect to the four options:
- There is a progressive increase in the level of precaution applied in moving from Option A to D.
- Prohibiting an activity removes the need for consent-related financial accountability measures. If an activity is discretionary, effectiveness depends on the scope of accountability provided for in the RMA and on successful implementation.
- Implementation of each option is likely to involve much the same level of expenditure. While ongoing administration costs are uncertain, the RMA provides for full cost recovery from the applicant.

- Whether to intervene turns on whether the benefits of taking action outweigh the costs. Implementation costs are modest when shared between councils and the risk of a legal challenge would be reduced by thorough legal vetting prior to any plan change, and by agreements between councils to share any costs should a challenge arise.

- The analysis suggested that a minimum level of joint council response would be for all outdoor GMO activities to be made subject to mandatory provisions designed to ensure funds are available to remedy or compensate for damage, to the extent the RMA will allow. The report also set out analysis that could be used as the reliable basis for a policy of prohibiting classes of GMOs, were a community to seek this.

- When large parts of the assessment are characterised by indeterminacy and the potential effects are significant, a community's tolerance for risk becomes a critical input to policy formation. Thus while the report provided the baseline information required to select between options for GMO management, it noted that community consultation forms a further vital component.

1.3 Pubic Attitudes Survey

In late 2009, the Working Party commissioned Colmar Brunton to survey residents in each of the areas controlled by councils in the Auckland and Northland regions - representing over a third of the population of New Zealand.[4] Results were presented for each jurisdiction and were also aggregated by region. The following summarises key findings.[5]

- Two thirds or more of the residents polled want local or regional councils to have a role in regulating GMOs in their areas, either by setting local rules or by a change of legislation at the national level. Support in the Auckland region averaged 68% and 74% in Northland.

- Around two thirds of the respondents also favoured regulation of at least a strength that would make users of GMOs legally responsible for any environmental or economic harm - either through local regulation or by way of changes to national legislation (Auckland 64%, Northland 67%).

- The survey indicated that around half the residents (Auckland 44% and Northland 53%) want councils to have the right to prohibit GM plants and animals, either by setting local rules or allowing communities, through their councils, the right to reject use of a particular GMO in its area when the national regulator, ERMA, is processing applications.

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4 Those councils that commissioned the survey through the Working Party are: Whangarei, Far North, Kaipara and Rodney District Councils, Waitakere City Council, and Auckland Regional Council.

5 This summary is adapted from that presented in the media release prepared by the Working Party. For a full interpretation and the detailed results, see www.wdc.govt.nz

- When questioned whether councils should set rules in addition to those set by ERMA, 40% of Auckland respondents supported this mechanism and 46% of Northland respondents were in support. Amongst those respondents who support their council setting rules, total prohibition is the most favoured level of regulation (a range of 39-57% across all council areas), with strict liability provisions the next most favoured (a range of 22-32%), and prohibiting only GMOs for food production the third favoured (a range of 18-27%).

- Within the Auckland region there is considerable variation in support for local regulation between individual council areas. For the Waitakere, Auckland and Franklin communities, levels of support for local regulation were significantly higher than for not utilising local regulation while for Manukau, North Shore and Rodney, the levels of support for and against local regulation were more evenly matched.

- However, all communities strongly favour making users of GMOs legally responsible for any economic or environmental harm that may result. Support for regulation to make users of GMOs strictly liable for any harm caused ranged from 63% to 72% for individual councils.

- Support for local regulation is strongest amongst Maori, particularly in the Northland region. It is also strongest amongst semi-rural and rural residents while urban views vary by region. Rural residents are more likely to favour prohibiting GMOs in both Northland and Auckland than are semi-rural or urban residents. Females are more likely to support local regulation than are males, and support is greater amongst 18-39 year olds than older age groups.

- The poll also found that there is clear support from the Auckland and Northland communities for only producing food that is GM free but strong support for leaving options open for GM plants and animals in the future. While the results showed an even stronger opinion against people being able to produce GM plants and animals simply if they choose to, views were less strongly divided over the economic impacts of GMOs. Across the Auckland region, residents believed GMOs would harm local food industries but that there would be economic benefits overall, while Northland respondents saw GMOs harming local food industries and not providing economic benefits for their districts.

2. Rationale for Local Level Regulation

2.1 Change at Central Government or Council Level?

The Colmar Brunton survey provides a first evaluation of community perceptions concerning the local regulation of GMOs. It is useful to examine key results from this while reviewing decision points councils face when assessing how to respond to GMO activities. Two strong findings address the question of whether any form of change should be made:

- **Residents seek the ability to exercise local control:** two thirds or more want local or regional councils to have a role in regulating GMOs in their areas, either by setting local rules or by a change of legislation at the national level.

- **Residents seek a stricter regulatory framework for GMO activities in their areas:** Around two thirds judge the current level of protection as inadequate. They favour regulation of at least a strength that would make users of GMOs legally responsible for any environmental or economic harm - either through local regulation or by way of changes to national legislation.

The question of how councils could exercise local control has been the subject of ongoing dialogue with central government for over a decade, and particularly since the amendment of the HSNO Act in 2003. The first preference of councils has been for central government to remedy the gaps in the national level regulation and to also provide communities with the ability to add local level conditions to any approval for GMO activity that is granted by ERMA through the HSNO process.

Such positions were first detailed in a letter to the Minister for the Environment in October 2006.[6] The response to this and subsequent letters, including the most recent to the Working Party of August 2010, has been that the Government:

- Has no plans to amend the HSNO Act or institute alternative arrangements that would address the concerns of local government with respect to liability;
- Does not propose to provide any mechanism for councils to influence the outcomes of ERMA assessments beyond those available to any other submitter.

The consistent response from central government, across 6 years and two administrations, has left councils with little choice but to pursue parallel reform at the local level if they wish to deliver stricter regulation on the local use of GMOs. While it is not their first preference, and not that of a significant minority of the constituents surveyed, central government responses have been unusually clear-cut, leaving no apparent opening for a compromise position.

Given the nature of the gaps identified in the national regulatory regime, the GMO activities of concern, and the statutory powers available to local government, the RMA emerges as the best mechanism for providing stricter control over GMOs at the

[6] Similar responses were received as early as July 2004, when the Ministry for the Environment wrote to the Far North District Council.

local level.[7] It allows precisely targeted rules to be set under a district plan so that specific concerns can be addressed without compromising other activities. The availability of the RMA for use by councils to manage GMO activities was a matter considered in detail by Dr Royden Somerville QC in March 2004 and his conclusion that district councils have jurisdiction in this regard has also been the interpretation offered by Crown Law opinions.[8]

While the RMA embodies an approach to environmental management that differs from the HSNO Act, the key finding from analysis of the two is that additional protections framed under the RMA can act alongside the HSNO process without conflict. To the extent that such additions satisfy the section 32 test that benefits of the regulation exceed costs, these would satisfy the RMA's statutory requirement.

2.2 "Do Nothing" a Difficult Option to Sustain

Another way of approaching the question of whether or not a council should act is to work through the pressures likely to be placed on a council in the event a GMO release was planned for its district, and no local plan-based mechanism for response had been put in place.

A first issue would be whether ERMA has made monitoring of the release a condition of its approval, and required monitoring for that district in particular. Historically, ERMA has set few meaningful monitoring requirements. Further, ERMA can only require this where it is relevant to assessing environmental risk when economic risks will often be a major source of concern. Information from such monitoring would be valued by those who were concerned about GM contamination risks as it could be used to underpin claims for compensation.

If monitoring has not been required by ERMA, or is not in the form constituents seek, then it is likely the council will face a call for it to undertake monitoring as a part of its own duties under RMA sections 35(2)(d) and (e). Such a call could become mandatory if a constituent succeeds in obtaining an enforcement order through the Environment Court.

Monitoring can be expensive but a council can require the GMO operator to meet the costs under either the RMA or the Local Government Act (LGA). The LGA is the simpler option as it does not involve a plan change – otherwise required under the RMA route.

However, those concerned about liability for harm caused by any GMO contamination will wish to ensure that more than just monitoring provisions are in

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7 For further discussion, see Simon Terry Associates, *Community Management of GMOs: Issues, Options and Partnership with Government,* 2004.

8 See: Dr R J Somerville QC (2004) *Opinion on Land Use Controls and GMOs*; and Crown Law, *Advice on potential for council liability arising from rules controlling GMOs*, 3 November 2004. Crown Law does however question whether a s32 analysis would support the use of such powers and this position is critiqued in detail in our earlier report: *Community Management of GMOs: Issues, Options and Partnership with Government, p 30-32*.

place. They will be particularly concerned about having mechanisms for financial accountability in place and the LGA cannot deliver this effectively.

Thus a council could expect to face significant pressure to complete a plan change that would at least make GMO activities subject to council consent. This would be directed at having a council incorporate conditions or performance standards that would make a GMO operator liable for harm caused, and would specify how bonds could be taken to ensure liability claims are met.

Such additional changes would align with a council's desire to avoid having to carry the costs of cleaning up should a GMO activity cause unexpected effects, or the site becomes abandoned. MAF is only obliged to clean up illegal releases, not those approved by ERMA which have unexpected effects. The thousands of so-called "orphan" toxic contaminated sites the Environment Ministry estimates are present provides a clear example of what results when there is no prior allocation of liability.[9] Council's also have a stake in any economic loss resulting from GM contamination. A single contamination incident can cost millions. The three major incidents in New Zealand to date have cost between $0.5 and 1 million each, simply from imported seed having been contaminated. When such damage occurs across groups of producers it becomes a community concern and councils owe a duty of care to their constituents. This means they are expected to provide due protection for constituents against threats to their financial resources.

A council's exposure to paying for clean-up costs, and constituents' exposure to losses from GM contamination are key foreseeable risks and if a council chose not to make a plan change, key stakeholders may well ask the courts to rule whether the council was adequately discharging its duty of care. Were councils to make a plan change, either pro-actively or in response to a court ruling, this would be a shared cost between participating councils. There is also the prospect that a plan change will attract a legal challenge - though it is envisaged that this too would be a shared cost.[10]

The following table sets out the expected and potential costs to a council and its community of taking no action, or making a plan change of the form recommended in the following section. The cells are coloured to represent relative costs. Those coloured green are the lowest cost components and are shared costs. Cells coloured orange show the potential for considerably higher costs, and those coloured red for higher costs still. These red and orange cell costs arise only if harm occurs (e.g. a contamination incident) and could be low if the event is not serious. However, if these types of costs are triggered, a single event has the potential to be many times the cost of a plan change and any legal challenge to it. Further, they are expenses councils and their communities would tend to face alone in absence of government assistance.

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9 Central government provides a fund of $1 million a year to local government to assist in their cleanup and directly funds a tiny number of high priority sites while the great majority remain not funded.

10 To the extent a plan makes any GMO activities discretionary, the possibility of consent decisions being challenged is also opened up and this is discussed in the following section.

Plan Change (Expected & Potential Costs - Shared)	**No Plan Change** (Potential Costs – Not Shared)
Making a Plan Change	
	Contamination
	Litigation
	Cleanup
Legal Challenge to Plan (and consent decisions where plan allows)	

In summary, a council which did not act in advance of a GMO release taking place in its district is likely to find itself pressed by key stakeholders to at least adopt a minimum set of new provisions in its plan. These make up the core of what we termed "Option A" in our earlier report.

While it is possible that no releases will be planned for the Auckland or Northland regions, this seems unlikely on the basis of current developer intentions.[11] If councils wish to be in a position to at least impose conditions designed to address liability and redress concerns, then they will need to pursue a change to their plan.

[11] For example, the plans for GM forage grasses under development by three research groups. The economic modeling for one of these assumes widespread distribution among dairy farms and it is likely that the others will also be looking to achieve widespread adoption.

3. Selecting Between RMA Options

3.1 Key Variables

How to apply the RMA so as to enable communities to secure the level of protection they seek depends on the nature of the risks. Our previous report provided a detailed survey of the sources of risk and identified classes of GMOs with similar risk profiles and the modes of GMO activities that needed to be considered.[12] The following summarises those findings.

3.1.1 Classes of GMO Activities

Different types of GMOs carry different risks. However similar GMOs can be brought together into classes of 'like organisms' which could be expected to have similar types of effects that councils may be required to avoid, remedy or mitigate. In this way, response options can be framed to govern classes of GMOs.

The very wide scope of research into GMOs means a large number of types of potential activities have to be considered. However, classes often share similarities with respect to key potential effects so that very similar controls can be used to regulate not just classes of GMOs but groups of such classes. In particular, the following distinctions are central to assessing the scope of risk.

- Whether the GMO is one normally used for the production of food: The economic effects of these GMOs have the potential to be significantly greater than for GMOs that are not food-related.

- Whether the GM organism is a plant, an animal, or a microorganism: The nature of the risks and the ability to control the spread of a GMO differs greatly between plants and animals in particular.

Based on these distinctions, five high level groupings have been identified.

GM (food) plants
GM (non-food) plants
GM (food) animals
GM (non-food) animals
GM microorganisms

These high level groupings can be subdivided into individual classes of activities based on the intended purpose of the GMO:

Food production;
Fibre production;
Pharmaceutical and industrial substances production;
Biocontrol or bioremediation;

[12] See sections 2 and 5 and the Appendix for details.

Our survey showed at least 20 classes of activities under the five high level groupings. Only three of these classes have been commercialised to date – with GM plants used to produce food the overwhelmingly dominant one.[13] Identification of these classes offers a means by which councils and their communities can structure effects-based assessment for community management of GMOs.

3.1.2 Modes of Outdoor GMO Activities

The HSNO Act provides for three distinct modes of outdoor use for GMOs:

> *Field Trials:* This provides for experimental trials to be carried out under controls that have the objective of ensuring no altered genetic material leaves the test site during the trial and that all heritable material is removed upon its conclusion.[14]
>
> *Conditional Release:* Release under case specific controls that can range from those only slightly less restrictive than a field trial or only slightly more encumbering than an unrestricted release.[15] Conditional release covers both more extensive experimental activities (e.g., allowing for some release of GM material from the test organisms) through to commercial activities (where the GMOs are cultivated or bred for market). The nature and strength of the conditions is at ERMA's discretion. Only one application for conditional release of a GMO has been made since it was introduced to HSNO in 2003, and no release has so far taken place under that approval for a veterinary vaccine.
>
> *Release (unrestricted):* Release of a GMO without any conditions on the use of it, or restraint on the time for which approval is given.[16] The new organism is accepted as a part of New Zealand's biological stock. No unrestricted releases of a GMO have been authorised in New Zealand.

3.2 Discretionary vs Prohibited Activity Status

Our previous paper identified two categories of activity under the RMA that seem appropriate to select between when regulating each class of GMOs:[17]

> *a) Discretionary Activity:* A council may decline the consent or grant the consent with or without conditions; and
>
> *b) Prohibited Activity:* An application cannot be made and a consent cannot be given for the activity.

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13 Other classes of GMOs for which one or more approvals for commercial use overseas have been made include: GM vaccines used in animals (also approved but not yet used in New Zealand) and GM animals to produce food (fish).

14 While there have been a number of breaches of field trial conditions - even for the relatively limited number undertaken in New Zealand, and those with respect to a Northland based GM tamarillo trial were among the most serious to date – the intent of the legislation is to keep the altered genetic material within the test site and remove it after the trial.

15 These are regulated under HSNO s38.

16 These are regulated under HSNO s34.

17 See section 4.2. The classes of activity permitted under the RMA are set out in s87A.

As outlined in the last chapter, councils have good grounds for adopting plan changes that at a minimum provide for the following with respect to GMO activities:

- Recovery of costs for undertaking any monitoring that is required;
- Conditions designed to allow compensation to be secured in the event that an activity causes harm; and
- Bond requirements to ensure funds are available to meet claims against the GMO operator.

Such strengthening of the regulatory framework can be achieved by making GMO activities a discretionary activity. They become minimum specified conditions that an applicant must meet, while a council nonetheless retains the right to approve or decline the application.

Our previous report also found evidence that would support the use of a strong precautionary approach under the RMA. In particular it would appear that the extent of risk posed, or indeterminacy in the face of serious potential effects, could be used as the reliable basis for a policy of prohibiting classes of GMOs, were a community to seek this.

The essential question posed by the RMA's structure is whether the risks and costs of particular classes of GMOs warrants councils raising the level of protection further to make these prohibited activities. The following subsections address this issue.

3.2.1 Field Trials

As noted above, field trials under New Zealand law are designed with the objective of ensuring that no altered genetic material leaves the test site during the trial and that all heritable material is removed upon its conclusion.[18] This greatly reduces the prospect for harm arising from any trial.

Nonetheless, breaches of trial conditions that could have lead to GMOs escaping the trial site have already occurred in New Zealand.[19] Although none have been reported to have had caused adverse effects, they illustrate the potential for even field trials to result in unintended consequences that could impose costs on the host community. Having the ability to require monitoring of such trials at the operator's cost, and to set trigger conditions for liability and bond requirements, therefore remain important additional safeguards given the gaps in the HSNO regime. Holding these options need not oblige a council to do more than simply consider placing conditions additional to those already imposed by ERMA.

If a council did not believe the risks accompanying the trial warranted monitoring, then providing the trial went as planned, the requirement to obtain council consent would not impose any additional costs on the GMO operator, beyond administration charges associated with issuing the consent. To the extent monitoring is seen as

[18] Also provided for under HSNO s40 is the contained development of a GMO. This involves somewhat different statutory requirements but for the purposes of this report, the term "field trials" also encompasses outdoor GMO development projects.

[19] The most recent was the December 2008 breach of conditions for the trial involving GM Brassica by the Plant and Food Institute when plant flowering was discovered.

important for a trial, those costs belong with the operator. Thus making all field trials a discretionary activity provides greater protection for the community while allowing responsibly managed field trials to proceed.[20]

In order for field trials to be made a prohibited activity, this would require evidence of a very high level of protection by the community being deemed to be appropriate in terms of section 32 of the Act, such that the additional protection justified the removal of the ability to undertake a trial.[21]

3.2.2 GMO Releases – Differences Between Discretionary and Prohibited Status

Given the serious scale of losses that can arise from GMOs contaminating non-GM food production, and the uncertainties surrounding the environmental risks posed by GMOs that are not food-related, it is instructive to examine in general the costs and benefits of a discretionary activity status for the release of GMOs versus a prohibited activity status.

Administration Costs

As the costs of responding to an application are fully recoverable under the RMA, there would be no additional net cost in administering consents under a discretionary regime, and no administration costs if GMO releases were prohibited.

Compensation for Economic Damage

Consent conditions can be set to guard against harm arising, and any breach of these can trigger an enforcement order under RMA s314. Such an order can clearly provide compensation for "any adverse effect on the environment" as a result of a breach, and so any ecological damage. Whether an enforcement order can also be used to recover economic losses is unclear however. The RMA definition of "environment" is inclusive of economic conditions which affect not only natural and physical resources but also all people and communities, and this provides a good base for the proposition that economic losses are covered as well as ecological damage. However, we are not aware of case law on this point and further investigation would be required to develop the proposition.

A key question that remains in the case where economic damage is serious is whether the Court would order payment to be made from a bond taken to secure performance of conditions set to protect against physical harm. In absence of such an order, or if it were to eventuate that neither bonds nor

[20] A further sub-option is for some or all field trials to be made restricted discretionary activities. This would restrict the extent to which a council could exercise its discretion in determining the merits of the proposal and the extent to which it could set conditions.

[21] While even field trials have lead to purchasers raising questions about potential impacts on conventional exports (for example, when approval for a GM onion trial was being sought, one of the six major buyers of New Zealand onions raised concerns about the trials with exporters), it appears that deliberate commercial release is a much more significant threshold for market responses. However, trials involving biopharming applications pose unusual risks for food growing regions and while these could be addressed under a discretionary status, this sub-class of trials may attract stringer levels of concern.

enforcement orders were able to be used to protect against most forms of economic damage, there is a significant risk that such damage of any serious scale will not be paid for by the consent holder, and that the losses would lie where they fell - with innocent individuals and businesses.

Thus there is uncertainty whether a discretionary regime would provide compensation for economic damage.

Opportunity Costs

It seems very unlikely that RMA instruments would provide compensation for costs not actually suffered – costs that instead involve the loss of anticipated future earnings. Such opportunity costs may take the form of a non-GM farmer who suffers GM contamination in one year, losing a premium contract for future years due to buyer concern that contamination will recur. At the district-wide level, such contamination incidents could take the form of a lost ability for non-GM farmers to access markets that require surety of the absence of trace contamination. Similarly, it seems very unlikely that any brand value built under a proposition such as "GM Free Northland" could be recovered if this were lost.

Local Autonomy

A distinction between a discretionary activity and one that is prohibited is the degree to which local control over decisions is assured. For any class of GMO that was made a discretionary activity, the Minister for the Environment could call in an application under the RMA and the minister would then decide it as part of a process that included council representation, but which considerably diluted council autonomy. Similarly, an application can be referred directly to the Environment Court. Alternatively, if an activity is prohibited, nether the Minister nor the Court can intervene as no application can then be made. If a GMO related application were important enough to be considered for call in, it would likely be one that a community would especially want to exercise control in respect of.

Legal Costs

Any plan change, whether to make GMO releases discretionary or prohibited, would involve similar costs to design and implement.

Either plan change is probably equally at risk of attracting a legal challenge. This is because GMO developers will regard the emergence of local controls on GMO activities as a barrier to business development and a plan change could attract a challenge that has a strategic purpose of overturning any form of local control. Councils that adopt the new rules will naturally have undertaken extensive legal reviews prior to implementing a plan change, and refined the proposals to be robust to litigation. This of itself will tend to reduce the prospect of a challenge coming forward, as the strategic value of a threat of court action would be diminished once a legal review suggests a plan change would survive challenge. Should the need to defend a plan arise, such costs are expected to be shared between councils adopting similar plan provisions.

The strength of any particular plan change will ultimately depend on the provisions inserted and the basis for these. However, we understand that if a community seeks a high level of protection against risk, and frames plan provisions that largely prohibit GMO release, that there may well be no greater risk than to a plan based on a community's desire for a level of protection consistent with a plan that makes most GMO releases a discretionary activity. We also understand that if a court did find fault with a plan, it would tend to amend the plan rather than reject it.

The main point of difference between making a set of GMO activities either discretionary or prohibited is the costs that could arise from legal challenges to individual decisions that are made under a discretionary regime. As a prohibited status prevents applications coming forward, there would be no legal challenges arising from particular project proposals. However, if a GMO release were a discretionary activity, there is potential for legal challenges to be mounted by either GMO operators or opponents of the application on a case by case basis. Although the scope for challenges could be largely mitigated by a council adhering to conditions that are predefined in the plan, this would tend to remove the ability to respond flexibly.

3.2.3 GMO Releases – Risks, Costs and Benefits

In summary, a regime that prohibited the release of GMOs would provide a number of additional protections including those against uncompensated economic losses, and avoidance of costs associated with challenges to council decisions on individual applications. However this status would rule out obtaining benefits from the release of GMOs. The RMA section 32 test in essence is whether such extra protections against losses would justify ruling out potential gains. The following points are important to consider as part of such an assessment.

Food-Related GMOs

- Food-related GMOs have a well-demonstrated ability to cause economic harm far beyond the entities that undertake the original land use. A major source of such "spillover" effects is cultivation of GM crops leading to economic damage through trace GM contamination appearing in non-GM crops. Sustained high levels of consumer resistance to eating GM foods in Europe and the wealthier Asian nations in particular is demonstrated most clearly through examples of rejection by major buyers of product that is found to contain trace levels of GM contamination, regardless of whether those products meet food safety requirements. Such contamination may be physical and measurable. However economic harm can also arise from perceived contamination - through retail gatekeepers losing confidence that a country, region or individual product line is free of altered genetic material to the level that meets their standards. Each domestic contamination incident has been in the $0.5 – $1 million range and the costs incurred in many overseas incidents have amounted to tens of millions of dollars or more. Precisely which markets will exhibit intolerance to trace contamination and to what threshold levels is

an unfolding picture and the total cost of the potential harm can vary considerably depending on the produce in question.

- A wide range of research is underway to expand the scope of food-related GMOs available to producers, including research targeting their use in New Zealand.[22] However, we are not aware of any commercially available food-related GMOs that offer gains under New Zealand conditions and are traditionally produced in New Zealand.[23] Thus it is not clear that any net economic benefits are currently available from food-related GMOs.[24]

GMOs that are Not Food-Related

- There are also a great many GMOs in development that are not food-related, but globally they are relatively rare in the outdoors at present. In the New Zealand context, the leading example is development work being conducted on GM pine trees. For these GMOs, the risk of economic damage is expected to be lower than for food-related GMOs. However, in many cases rather little is known about their environmental risks, and some pose novel risks.[25] The scale of damage to the environment that can result from a single organism being introduced and then found to have unexpected consequences is well understood through past experience in New Zealand, and the cost of programmes to eradicate or control unwanted organisms has been recently demonstrated by those for the painted apple moth and varroa mite which each ran to tens of millions of dollars.

- Beyond GMO veterinary vaccines, we are unaware of commercially available GMOs that are not food-related and are said to offer net benefits to New Zealand under local conditions.

Ability to Change an Activity's Status Under the Plan

- The lead-time for development of new GM plant varieties is typically 8 – 10 years - and is similar for other forms. To the extent GMOs under development demonstrate characteristics that would make them attractive for Auckland and Northland, there is considerable time to review whether to change a prohibited status regime to a discretionary one for a class or individual GMO.

- ERMA has made clear that in order for a GMO to gain approval for release, it wishes to first see effects research undertaken. That will require at least field trials to be carried out and assessed prior to any release application being received. Availability of the results of such research, including field trial work potentially undertaken in the Auckland and Northland regions, could provide the basis for assessing whether a GMO activity that was previously prohibited should instead be made a discretionary activity.

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22 See sections 2.1 and A1 of our pervious report.

23 See section A1 of our pervious report.

24 GM forage grasses under development locally that are estimated by consultants to the developer to provide a commercial benefit (rather than a net national benefit) are not expected to be commercialised before 2019.

25 These include the use of plants to produce pharmaceuticals and industrial substances, and the use of sterility technology in trees.

4. Proposed Approach to GMO Activities

4.1 Strong Protection but Open to Opportunities

The RMA provides a council with the ability to set rules that embody the level of risk a community is willing to tolerate with respect to particular activities, including GMOs. It allows communities to set a floor on the extent of precaution to be specified for their district (they being the ultimate risk bearers). There is no objective standard as to what is a correct level of risk as it is not an objectively determinable factor. The indications to date are that the Auckland and Northland communities seek a relatively strong degree of protection but also want to remain open to opportunities that new GMOs may provide.[26]

Given the high levels of potential harm and the uncertainties surrounding the extent of costs and benefits that could be expected, what the above discussion suggests is that rather than attempting to pre-determine the level of risk posed by each class of GMO under release conditions, a precautionary approach would be to initially make GMO releases a prohibited activity and periodically review if particular classes or individual GMOs should be subject to an alternative activity class, such as discretionary.

This prescription could be met by a plan change that at first prohibited all GMO releases except veterinary vaccines,[27] but also set out plan provisions for handling GMOs as discretionary activities. This alternative track would be required for field trials, and review procedures would allow particular GMO release activities to be reclassified so they too could operate under this track, as set out in the table below.

Proposed RMA Status for GMO Activities

	Unregulated	Discretionary	Prohibited
GMO Field Trials		●	
GMO Releases – *Food-Related*		○ ?	◀……●
GMO Releases – *Not Food-Related*		○ ?	◀……●
GMO Veterinary Vaccines	●		

[26] See the results of the Colmar Brunton survey reported in section 1 and the policies of councils and LTCCP provisions detailed in our earlier report.

[27] Veterinary vaccines tend not to persist in the environment and to date have appeared to be low risk. They would also be very difficult to monitor. However, if left unregulated by councils, the appropriateness of this classification could also be periodically reviewed.

Classes of GMOs would be periodically reviewed as field trial information became available that would allow adequate assessment of the potential benefits to a district or region to be made. At the point a class or set of GMOs demonstrated potential to provide net benefits, a change to the plan could then make these subject to its discretionary provisions that would initially solely cater to field trials. As field trials occur a number of years before commercialisation takes place, if a bi-annual review was programmed for example, consequent amendments to the plan could be implemented without delaying the introduction of any GMOs that appeared to carry net benefits for the district or region.

Ideally reviews would be carried out jointly by collaborating councils in order to minimise duplication of effort, and to encourage a harmonized approach to plan amendments. Should councils not bring forward proposed amendments in a timely manner, the option is also open to the proponent of a GMO release to request a private plan change.

At the point a particular GMO release was to be considered under the discretionary provisions, an ERMA hearing would have already set conditions for its use that would usually apply nationally. The council's role would in essence be limited to determining whether there were additional resource management based conditions that would make release in the district satisfactory, or whether to decline the application.

Such an approach would provide surety of outcomes for a community as follows:

1. The level of risk considered acceptable by the community would determine whether and under what conditions a particular GMO activity would take place, rather than the acceptable level of risk being determined by ERMA. This would allow not only local perceptions of risk and benefits to dominate, but would also mean assessments of economic costs and benefits would be those applying to the local economy (whereas ERMA assesses applications with respect to the national economy).[28] ERMA's assessment methods may also differ from those used by a council.

2. Communities would retain the ability to prohibit a particular GMO or class of GMOs and would not be exposed to its autonomy being significantly diluted if an application for a GMO release were able to be made and that application were called in.

This approach is also not reliant on a series of councils acting in unison. So long as the high level template for a plan change is agreed by collaborating councils, the time at which individual councils alter their plans is not critical and administration of the provisions does not depend on joint action, in the early stages at least.

[28] Note that a refusal to release a particular GMO at a district level need not shut out national benefits if the release can take place in another district where the costs and benefits are different, or perceived to be different. Further, trials often need not take place in New Zealand in order to obtain information relevant to local conditions (as trials of GM grasses in Australia by New Zealand developers indicate).

While this report focuses on the response options available to district councils, it is also of relevance to regional councils. There is potential for regional councils to at least set high level policy that underpinned a consistent approach and promoted integrated management across a region. The Auckland Regional Council has affirmed a precautionary approach to the outdoor use of GMOs in its region with the aim of managing these to prevent any adverse effects.[29] Regional Councils may also be able to develop specific regulatory approaches to the management of GMOs if legal opinion indicates such management falls within the scope of matters they can develop rules for within regional plans. For example, in relation to the coastal marine area (e.g. aquaculture), the maintenance of indigenous biodiversity (e.g. GMO weeds), or if GMOs are identified as a contaminant. Further investigation would be required if such mechanisms were to be pursued.

4.2 Plan Change Specification and Community Consultation

In our previous report we set out consultation principles for a plan change of the form described above. As noted in that discussion, a robust approach to consultation does not preclude a party such as a council having a proposed plan change already in mind.

Given that the councils making up the Working Party have been proactive in seeking public opinion about GMO issues and methods available for community based management, we see the setting of a proposed response option as being a logical next step. A high level description of the changes recommended in this report is set out in the appendix. If the participating councils see the proposed option as worthy of being advanced, we nonetheless suggest that some additional work needs to be undertaken to show how the suggested approach would manifest as actual plan provisions. This would then be outlined in a public discussion paper that was essentially the same for each council jurisdiction.[30]

The paper would discuss the council's intent to insert provisions governing GMO activities into the relevant plans. There is certainly no impediment to an option being portrayed as the council's preferred approach, so long as it is made abundantly clear that in the minds of the councils, there remains an openness to considering the merits of alternatives.

The document would outline that the different levels of risk that accompany different GMOs and modes of use suggest a sliding scale approach to their control, based on degree of risk. Where a GMO activity is accepted as being able to occur in the district, but not in every instance, this can become a discretionary activity with minimum protections that are predefined in the plan. GMO activities that are regarded as presenting unacceptable levels of risk can be prohibited.

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29 The draft Auckland RPS currently contains the following policies with respect to GMOs: "A precautionary approach shall be taken to the outdoor use of GMOs in the Auckland Region in response to their potential to cause adverse effects", and "District and regional plans shall ensure that the outdoor use of GMOs in the Auckland Region is managed to prevent any actual adverse effects".

30 Noting of course that all of the participating districts have different structures and approaches to the various Resource Management Plans.

We recommend that GMO outdoor uses be grouped into three simplified categories and an activity status be suggested for each of these to produce the following general proposal:

- Field Trials — Discretionary Activity
- Food-related GMO Releases — Prohibited Activity
- Releases that are Not Food-related[31] — Prohibited Activity

The consultation document would outline the minimum requirements that would apply to any discretionary GMO activity that was approved, including: recovering monitoring costs, setting conditions to provide for compensation in the event of harm, and establishing bond requirements. It would then describe why field trials are proposed to be treated as discretionary activities, and why releases are proposed to be prohibited activities, with individual release prospects periodically reviewed, as outlined in the previous section.

Given that the proposed option would prohibit some activities (which of course is the strongest level of regulation available under the RMA), we strongly believe that the consultation process needs to be conducted on a broad basis, needs to actively engage key stakeholders, and needs to show that it is effectively achieving these goals.[32] This will require considerable effort on the part of the councils involved and a detailed consultation plan should be prepared which identifies key stakeholders, relevant ad hoc authorities, and how best to engage with the public more generally in a meaningful way. This plan should incorporate an appropriate range of methods for engaging with the various stakeholders and the community. The plan should indicate key milestones and clearly convey that the results of the consultation will be drawn on when determining whether the proposed option, or alternatives to it, are to be pursued. Promulgation of the consultation plan will need both expert input, and input from those closest to the community - council officers and perhaps councillors themselves.

There is no question in our minds that given the level of regulation that could result for GMO activities, and the importance of community attitudes to determining what constitutes tolerable risk, that good management of this process is imperative for advancing any plan change proposal. If consultation is done well, it will lend significant strength to the plan change process, both in terms of the support it is able to achieve at a community level, and in making it more robust to legal challenge.

4.3 Further Steps

An option to significantly reduce risk at relatively low cost has been identified in this report. It arises from a sustained effort by the Working Party to identify and assess options and has involved gathering a considerable body of information that can be used to underpin a plan change.

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31 Other than veterinary vaccines that would remain unregulated.

32 For relevant case law see: McGechan, J., *Wellington International Airport Ltd v Air New Zealand*, 1993, and Allan, J., *Waikato Tainui Te Kauhanganui Inc v Hamilton City Council*, 2010,

The additional work required for a plan change is perhaps best divided into two stages: that required to be undertaken in order to have a plan change framed up, suitable for public consultation; and that required to take the plan change to public notification. Such a division allows a council to first advance to the "ready to go" stage (and so minimise the time to completion at any point), and to then be fully informed to consider the second stage of implementation.

Assuming further advancement of the plan change option is favoured, the following outlines the key tasks required to be addressed. There is considerable overlap between many of these such that sequencing and allocation between stages is best addressed when implementation is being planned at a more detailed level, but the first four are clearly a core part of stage one.

- Establishment of a memorandum of understanding between participating councils to jointly fund and advance a plan change, including responses to any legal challenge to the change in order to optimise the form of response and share costs.

- Approval in principle is given to proceed with a plan change, noting that there is particular benefit in its further development to at least the point where it can be put in place in a timely manner.

- Development of the precise framing of objectives, policies and rules to be advanced through the plan change. This would involve research into the particular mechanisms to be used and a legal review of the proposal.

- Preparation of consultation documentation and identification of stakeholders.

- Execution of consultation process, analysis of stakeholder concerns and suggested alternatives, and modifications to the original proposal.

- Development of individual plan changes or variations required to implement a generic set of rules into the plan of each participating council.

- Preparation of RMA s32 analyses to ensure each proposed plan change meets the tests this section sets.

- Notification of plan changes and processing of plan changes according to the relevant statutory provisions.

It is assumed here that such work will continue to proceed under the auspices of the Working Party and thus issues of timetable co-ordination and development of a joint implementation strategy will be addressed through this group.

Appendix: High Level Description of Proposed Rules

The rules would divide all outdoor GMO activities into three categories:

- Permitted Activities;
- Discretionary Activities; and
- Prohibited Activities.

The GMOs listed under each category would be set out in a schedule to the plan.

1. Permitted Activities

The plan would set no rules in respect of GMOs listed as Permitted Activities. These would be regulated only by ERMA at the national level.

The schedule would upon commencement of the plan change list all veterinary vaccines as Permitted Activities.

2. Prohibited Activities

The plan would list those GMOs that are Prohibited Activities. These could be approved by ERMA, but within the district they would not be legal to use in the outdoors.

The schedule would upon commencement of the plan change list all GMO releases as Prohibited Activities - all food-related GMO releases and all those that are not food related.

3. Discretionary Activities

The plan would list those GMOs that were Discretionary Activities.

The rule would, upon commencement of the plan change list all GMO field trials as Discretionary Activities.

Applications could only be made to the council after the relevant GMO activity had been approved by ERMA. This would comprise a performance standard within the rule. The council would then assess whether there were additional conditions that would make the activity satisfactory to undertake in the district, or whether to decline the application.

Performance standards would be proposed to ensure that an application could not be approved without imposing the following minimum conditions:

a) Conditions designed to allow compensation to be secured in the event that an activity causes harm. This is to include one or more of the following:

- The GMO approved for use may not contaminate another property.

- The site for use shall be fully described and the steps taken to stop escape of the GMO from the site shall be detailed.
- Transport of GMOs to and from the site shall be undertaken so as to not allow contamination of roadsides or other property.

b) Bond requirements to ensure funds are available to meet claims against the GMO operator.

- A performance bond (rather than a cash bond) is taken, such that a trusted financial institution pledges to make payment rather than the applicant's capital being tied up.
- The bond is specified to as far as possible cover all forms of potential damage, including economic damage resulting from contamination.

c) To the extent that monitoring is judged to be required:

- All costs associated with monitoring are fully recovered, if this is not already provided for.

It is possible the plan would also contain a description of a council's intention to periodically review classes of GMOs as field trial information became available that would allow adequate assessment of the potential benefits to a district or region to be made. At the point a class or set of GMOs demonstrated potential to provide net benefits, a change to the plan could then make these subject to its discretionary provisions.