

GENE TECHNOLOGY POLICY REVIEW

POSITION PAPER

A Balanced Approach



Tasmania

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Executive Summary

The Tasmanian Government first released its Gene Technology Policy concerning the use of gene technology in Tasmanian primary industries in July 2001. This policy was based on the recommendations of the Parliamentary Joint Select Committee on Gene Technology, which included the establishment of a two year moratorium on the commercial release of genetically modified (GM) crops in Tasmania. This policy was to be reviewed prior to July 2003.

The Gene Technology Policy 2001 has been reviewed, including an assessment of current and upcoming issues relevant to Tasmanian primary industries. This review has demonstrated that there have been no significant developments requiring a change to Tasmania's cautious approach to the use of gene technology.

The aim of the Tasmanian Government is to maintain a cautious yet balanced approach to gene technology in the primary industry sector. Tasmania's Gene Technology Policy is unique in that it explicitly recognises that consumer unease regarding genetically modified organisms (GMOs) centres around GM foods, or GMOs that have the potential to contaminate the food chain. The Gene Technology Policy maximises opportunities for the marketing of 'clean, green and quality' food products whilst allowing valuable research, particularly in non-food crops, to continue under strict conditions.

As a result of the review, the Tasmanian Government has decided to extend the moratorium on the commercial release of GM animals, and GM crops as currently prescribed under the Tasmanian *Plant Quarantine Act 1997*, until June 2008. Provisions for research trials using GM non-food crops will continue to be strictly enforced. Research associated with GM food crops will not be allowed in the open environment and will only be permitted within appropriately accredited facilities. A moratorium on the commercial release of GM animals will also apply.

The Tasmanian Government will develop tailored, marketing-based State legislation for regulation of gene technology in primary industries. This legislation will be specifically designed to 'dovetail' into existing Commonwealth and State Gene Technology Acts that have been developed to manage any risks that genetically modified organisms (GMOs) may pose to the environment or human health and safety.

A number of projects and activities that were previously initiated by the Tasmanian Government will continue. These include:

- the Gene Technology Scientific and Technical Advisory Committee (STAC);
- ongoing market research on GMOs;
- support for scientific research into gene technology; and
- ongoing monitoring of former GM canola trial sites in Tasmania by the Department of Primary Industries, Water and Environment (DPIWE).

Responsiveness to the fluid market and the rapidly developing technological environment is an important aspect of Tasmania's gene technology policy and must be preserved. The Minister for Primary Industries, Water and Environment will

therefore have the ability to re-evaluate aspects of this Policy prior to expiry of the moratorium.

The specific recommendations arising from this review of the 2001 Gene Technology Policy, other current projects and analysis of emerging gene technology issues are as follows:

1. The moratorium on commercial release of agricultural genetically modified organisms (GMOs) will be continued for five years, to underpin Tasmania's reputation for 'clean, green and quality' products. The moratorium will be reviewed by 30 June 2008.
2. The Minister will have the ability to re-evaluate aspects of the policy prior to 30 June 2008.
3. Open air trials on genetically modified (GM) non-food crops will be permitted subject to existing requirements.
4. Open air trials of food GMOs will be prohibited.
5. Trials of GM food crops and GM animals will only be permitted within appropriately accredited research facilities.
6. Research that provides information on GMOs will continue to be encouraged, subject to the conditions outlined in 3 and 5 (above).
7. The Tasmanian Government will remain opposed to the use of GM livestock feed on marketing grounds.
8. All relevant legislative measures, both State and Commonwealth, will be pursued in order to enforce the moratorium.
9. Tasmania will remain part of the national regulatory regime and be a full participatory member of the Gene Technology Ministerial Council and its underpinning committees, to actively seek the accommodation of Tasmania's views.
10. The Interdepartmental Committee on Gene Technology will continue to ensure that the Tasmanian Government is kept informed on gene technology issues.
11. The Gene Technology Scientific and Technical Advisory Committee (STAC) will continue to undertake assessment of gene technology issues.
12. The Experts Group on Gene Technology will be incorporated into STAC.
13. DPIWE will seek a bilateral agreement with the Gene Technology Regulator to assist in the administration and enforcement of the national regulatory scheme in Tasmania.

14. DPIWE will continue to monitor the management of previous GM trial sites by the companies involved in those trials, and the actions of the Gene Technology Regulator in overseeing these companies' site management activities.
15. The broad range of work undertaken by the Gene Technology Unit within the Department of Primary Industries, Water and Environment (DPIWE) will continue. This includes:
 - functioning as a policy focused unit responsible for the coordination of activities related to gene technology within DPIWE;
 - analysing relevant developments under common law;
 - evaluating economic costs and benefits of GMOs;
 - monitoring relevant national and international identity preservation guidelines;
 - assessing the suitability of public and private sector testing services;
 - supporting relevant committees;
 - coordinating Tasmanian participation in the national regulatory scheme;
 - developing and reviewing relevant legislation as required; and
 - conducting balanced public education about gene technology issues.

Introduction

The Tasmanian Government's initial Gene Technology Policy was released in July 2001. The Government made a commitment at that time to continually evaluate and assess the Policy, and to review the Policy by 31 July 2003. The review has now been undertaken, and this paper is the result of that review.

It is important to note that the 2001 Gene Technology Policy relates only to gene technology in primary industries. Cloning, medical and food labelling issues are dealt with by the Tasmanian Government as independent and separate issues. The review of the 2001 Policy therefore did not consider gene technology issues outside of the primary industry sector.

The 2001 Policy is based on a cautious approach to gene technology in Tasmania's primary industries. It acknowledges that one of Tasmania's greatest assets is its 'clean, green and quality' image, and it seeks to protect that image. At the same time, the Tasmanian Government recognises the importance of research into new technologies that may potentially benefit the State, so provisions were made within the Policy for research trials of genetically modified (GM) crops to be carried out under strict conditions.

The cautious approach taken by the Tasmanian Government is reflected by the current moratorium on prescribed commercial GM crops. This moratorium is established using the *Plant Quarantine Act 1997*. Genetically modified organisms (GMOs) have been declared pests under the *Plant Quarantine Act 1997*, and the State of Tasmania declared a 'protected area' into which prescribed GMOs may not be introduced. Research trials of GM crops are prohibited unless a permit has been issued by the Secretary of the Department of Primary Industries, Water and Environment (DPIWE).

Tasmania's moratorium on prescribed commercial GM crops was established for marketing purposes. The Tasmanian Government believed that it was appropriate to keep GM crops from being produced in Tasmania in order to maximise the State's 'clean, green and quality' marketing advantages. Prohibiting the use of gene technology in Tasmania's primary industries, apart from strictly controlled research trials, was judged to be the most prudent approach.

The Commonwealth *Gene Technology Act 2000* controls the use of gene technology in Australia through a licensing system. The national Gene Technology Regulator (GTR) makes decisions under this Act in order to manage any risks that GMOs may pose to the environment or to human health and safety. The GTR is a statutory position that is responsible directly to Commonwealth Parliament.

This paper follows the same sequential approach as was adopted for the review of the 2001 Gene Technology Policy. First the policy itself was examined: which actions have been achieved, and which are ongoing. Then there was an assessment of current and emerging gene technology issues, including analyses of developments in science, consumer attitudes and legislation since the Government released its Gene Technology Policy in 2001. Finally, it was considered how these issues could be dealt

with by the Tasmanian Government, given the changeable national and international marketplace, and taking into account rapidly developing technologies.

Implementation of the 2001 Gene Technology Policy

The 2001 Gene Technology Policy was based on the report of the Parliamentary Joint Select Committee on Gene Technology. That report made a number of recommendations that the Policy endorsed. The 2001 Policy outlined how these recommendations would be implemented, and detailed the actions to be taken under the Policy.

A summary of the implementation of the commitments made by the Gene Technology Policy in 2001 follows.

- 1. Tasmania will participate in the national scheme for regulation of gene technology and will seek to ensure that the national GTR [Gene Technology Regulator] takes into account all relevant information on risks to Tasmania's environment and to the health and safety of Tasmanians when making GM licence decisions.**

Tasmania participates in the national regulatory system for the assessment of licences for genetically modified organisms (GMOs) on an ongoing basis. A committee has been established within the Department of Primary Industries, Water and Environment (DPIWE) to oversee this process. This Committee, the Gene Technology Scientific and Technical Advisory Committee (STAC), provides scientific and policy expertise and makes recommendations to the Gene Technology Regulator (GTR) in relation to each licence application for the release of GMOs in Tasmania.

STAC also concurrently provides advice to the Secretary of DPIWE as to whether a trial complies with Tasmanian Government policy and whether a permit should be issued to allow the trial to proceed. This process is separate from the national regulatory process, but it is recognised by the GTR, who notes on licence documentation concerning Tasmania that a State Government approval must also be obtained.

STAC is an effective means of providing comprehensive Tasmanian Government input into the national licensing system for GMOs. Current terms of reference for this committee allow for the co-opting of external expertise and therefore allow for flexibility in responding to future licence applications.

- 2. Concurrent to the national regime, Tasmania will also utilise the provisions of the *Plant Quarantine Act 1997* to declare GM-free protected areas to protect the purity and quality of our food produce and thereby to ensure that our market image is protected.**

On 10 April 2002, GMOs were declared to be a pest under section 8 of the *Plant Quarantine Act 1997*. On the same day, Tasmania (other than reserved land under the *National Parks and Wildlife Act 1970*, which is otherwise protected) was declared a protected area into which prescribed GMOs may not be introduced. These

declarations replaced previous arrangements that were also implemented using the *Plant Quarantine Act 1997*.

The result of these declarations is the current moratorium on commercial release of prescribed genetically modified (GM) crops. Research trials of GM crops are allowable only if a permit is issued under the *Plant Quarantine Act 1997* by the Secretary of DPIWE.

It is important to note the distinction between the Commonwealth and State regulatory systems. The Commonwealth *Gene Technology Act 2000* does not cover the management of economic or marketing-based risks, and the GTR only has the power to assess risks to the environment and to human health and safety. The Tasmanian moratorium, however, is based on market grounds, and the assessment for the issuing of a permit under the *Plant Quarantine Act 1997* is dependant on whether or not the GM crop trial can meet the conditions imposed by Tasmanian Government policy to manage marketing risks.

3. The DPIWE proposes to work with the Tasmanian Institute for Agricultural Research (TIAR) at the University of Tasmania to develop protocols for managing gene flow and volunteer plants.

A major research project has been developed by the Gene Technology Unit, DPIWE, in cooperation with the Tasmanian Institute of Agricultural Research and the Office of the Gene Technology Regulator, to investigate gene flow and agricultural management issues associated with the introduction of GM canola into the State.

The results of this research will be important in determining future policy and management of GM crops at both the Tasmanian and national level.

4. The Tasmanian Government will become a party to the Gene Technology Agreement and, as it is with the Australia and New Zealand Foods Standards Council (ANZFSC), will also be an active participant in the Gene Technology Ministerial Council.

The Commonwealth, State and Territory intergovernmental Gene Technology Agreement came into effect in September 2001. Tasmania is a party to this Agreement.

The Gene Technology Ministerial Council (GTMC) was created under the Gene Technology Agreement. The Minister for Primary Industries, Water and Environment represents Tasmania on this Council.

- 5. At the Senior Officials level, the Government will seek to ensure that the Tasmanian Government's objectives for Tasmania are being met by the national scheme.**

The General Manager of the Food, Agriculture and Fisheries Division of DPIWE is a member of the Gene Technology Standing Committee, which supports the GTMC. Other DPIWE officials represent Tasmania on various national groups to seek accommodation of Tasmania's interests at the national level.

- 6. The JSC [Joint Select Committee] recommended that the *Gene Technology Act 2000 (Cth)* be amended to allow States to opt-out on scientifically assessed environmental grounds (JSC recommendation G). The *Gene Technology Act 2000 (Cth)* can only be amended by the agreement of the Ministerial Council. The Tasmanian Government supports this recommendation and will propose the amendment at the inaugural meeting of Ministerial Council which is expected to take place in late 2001.**

Tasmania attempted to have an opt-out included in the *Gene Technology Act 2000 (Cth)* when the Act was drafted, but was unsuccessful. However, it was agreed that the Act would include a power for the GTMC to issue a policy principle, "Recognising areas, if any, designated under State law for the purpose of preserving the identity of one or both of GM or non-GM crops for marketing purposes" (section 21(1)(aa) *Gene Technology Act 2000*).

At its inaugural meeting on 24 May 2002 the GTMC agreed to develop a Policy Principle for the recognition of GM/GM-free areas. Tasmania proposed this action, and took responsibility for chairing a Working Group to develop the Policy Principle. A draft Policy Principle has now been produced, and it is expected that it will be released for public consultation shortly.

The introduction of the Policy Principle will mean that any laws the States and Territories make in respect of preserving the identity of one or both of GM or non-GM crops for marketing purposes will be taken into account by the GTR when issuing a licence.

The creation of the Policy Principle does not in itself establish GM or GM-free areas or require States to establish such areas. Nor does it make a judgement about the merits of declaring areas GM or GM-free. The Policy Principle recognises and takes into account the States' and Territories' right to designate areas GM or non-GM for marketing purposes.

Once this Policy Principle has been issued by the GTMC, the GTR may not issue a GMO licence if to do so would be inconsistent with the Policy Principle. This means that if a licence application for planting a GM crop in Tasmania is received by the GTR, Tasmania's legislation regarding GMOs must be taken into account when making the decision regarding the licence.

The Policy Principle will achieve the outcomes sought by the recommendation to amend the Commonwealth *Gene Technology Act 2000*. The Tasmanian Government has therefore decided not to pursue this recommendation.

- 7. The Tasmanian Government recommends that producers refrain from the use of imported animal feed that contains transgenic material. To do this effective identity preservation systems need to be employed in order that claims of GM-free production methods can be substantiated. Accordingly, GM animals and GM livestock feed will not be permitted in Tasmania outside of research and physical containment facilities.**

The Minister for Primary Industries, Water and Environment wrote to stock feed companies in November 2002 reminding them of the 2001 Policy and seeking their ongoing vigilance to ensure that GM stockfeed is not fed to any animals in Tasmania. GM cotton meal is the only source of livestock feed from GMOs currently produced in Australia. Australia is not a significant importer of stockfeed and any imported feed derived from GMOs requires prior regulatory approval by the GTR and/or Food Standards Australia and New Zealand.

- 8. The Joint Select Committee recommended that the Tasmanian Government should maintain, during any continued moratorium on commercial GM food crops, strict conditions for isolated and enclosed food crops trials, to be assessed on a case by case basis to ensure prevention of gene flow into the environment (JSC recommendation N). The Tasmanian Government agrees with this recommendation.**

As previously mentioned, the DPIWE's Gene Technology Scientific and Technical Advisory Committee (STAC) is able to provide advice to the Secretary on any proposed trials.

No applications for permits to conduct research with GM food crops have been received since the introduction of the 2001 Policy. Any such trials could not be conducted in the open environment and would be required to demonstrate prevention of gene flow into the environment.

- 9. The Joint Select Committee recommended that the Tasmanian Government should maintain, during any continued moratorium on commercial GM non-food crops, strict conditions for any GM non-food crop trials, to be assessed on a case by case basis and to ensure adequate isolation, management and minimisation of any risk of gene flow into the environment (JSC recommendation O). The Tasmanian Government agrees with this recommendation.**

A process has been developed whereby the Secretary, DPIWE may refer a permit application to the Chair of STAC for advice as to whether the conditions for transgenic crop trials specified by State policy have been met. The Secretary can then take this advice into account when making a decision as to whether to issue a permit. This assessment can take place concurrently with consideration of a licence application by the GTR.

So far, one application for a GM non-food crop trial has been assessed under this process. That application was successful, as it was judged that there was adequate isolation, management and minimisation of any risk of gene flow into the environment, that seed would not be sold as food and that tests to detect the GMO were readily available.

It is considered that the current process for assessing permit applications is effective and that the conditions for the conduct of GM non-food trials as specified by the Joint Select Committee and the 2001 Gene Technology Policy have allowed the Tasmanian Government to address market-based risks posed by such trials.

10. The Tasmanian Government should monitor and evaluate developments under the common law in relation to possible costs for non-GM producers from any gene flow from GM producers and, if necessary, propose a legislative remedy.

The Gene Technology Unit (GTU) within DPIWE was established to monitor gene technology developments in primary industries and to coordinate policy and technical advice on these matters.

The GTU is maintaining a watching brief in relation to any developments in the common law on liability for economic loss caused by contamination from gene flow. To date, there have been no actions taken in Australia for such loss. The GTU is also continuing to monitor compensation issues concerning former GM canola trial sites. Compensation issues have arisen as a result of management restrictions imposed on sites in order to effectively control GM canola regrowth. These restrictions have been imposed due to a failure of previous management practices.

The GTU will continue to monitor and assess developments in this area.

11. The Tasmanian Government should continue to carefully monitor and evaluate economic costs and benefits from the use or non-use of gene technology in agriculture.

Although reliable or relevant economic data concerning the use of GM crops is scarce, the GTU monitors available economic studies regarding the costs and benefits of GM and GM-free production of specific crops.

The GTU will continue to monitor developments in this area, particularly as they pertain to the future use of GM pastures by the dairy, meat and wool industries. The GTU will also continue to analyse opportunities for the production of pharmaceuticals and valuable compounds using gene technology in agriculture, particularly where non-food crops are being used.

12. The Tasmanian Government should develop guidelines for adequate identity preservation processes in the event of future co-existence of GM and non-GM crops.

Work on developing guidelines for the co-existence of GM and non-GM crops is underway at the national level. In particular, the Plant Industries Committee (PIC), established under the Primary Industries Ministerial Council, has produced draft guidelines for industry stewardship programs and crop management plans for GM crops. The Gene Technology Grains Committee, an industry body recognised by the Plant Industries Committee, has produced *Canola Industry Stewardship Protocols for Coexistence of Production Systems and Supply Chains*. Agriculture, Fisheries and Forestry Australia has commissioned a study entitled *Segregating Gene Technology Products – Requirements, Costs and Benefits of Identity Preservation, Segregation and Certification*. A PIC taskforce is currently working on assessing industry preparedness for the introduction of GM canola.

The Tasmanian Government has not yet developed guidelines for identity preservation of GM/non-GM crops in Tasmania, as GM crops are currently not permitted outside strictly controlled trials. Through representatives on PIC working groups, however, Tasmania contributed to the development of the PIC reports mentioned above.

Whilst guidelines are continuing to be developed at a national level, the Tasmanian Government will remain abreast of identity preservation requirements in international and domestic markets, as it will be these specifications that will ultimately govern the acceptability of identity preservation systems used in Tasmania for particular products.

13. The Tasmanian Government should undertake public education initiatives to inform the community about genetic engineering matters.

Public education about gene technology has been ongoing since the 2001 Policy was introduced. GTU officers regularly conduct public forums and lectures around the State for interested organisations. Articles on GM issues have been published in *Tas Regions* magazine. The DPIWE website has been updated to include information about gene technology, including links to other informative websites and publications.

The GTU will be providing public education services at relevant events such as Agfest. Public education and the provision of gene technology-related information to the public will continue to be an important role of the GTU.

14. To better understand market demand for Tasmanian food products, the importance of the emerging Tasmanian "brand" and the effect of the GMO issue, the Tasmanian Government should undertake, with industry, a comprehensive market research program over a two-year period to ascertain:

- **the attributes of Tasmanian food products that influence the purchase of such products in key domestic and international markets;**
- **the value to the Tasmanian food industry of promoting such attributes as an umbrella "Brand Tasmania" in key domestic and international markets;**
- **to what extent GM or non-GM attributes contribute to "Brand Tasmania" in key domestic and international markets.**

The Tasmanian Government considers that research on the effects of GM or non-GM attributes on market image should form part of the broader study on 'Brand Tasmania'. It is therefore proposed to postpone the specific GM study until results of this market research, which will incorporate GM issues, are known in order to avoid unnecessary and expensive duplication.

Significant secondary market research has been undertaken. The GTU currently collates large amounts of international and domestic market and survey data concerning GMOs. Despite numerous predictions presented during the sitting of the Parliamentary Joint Select Committee in 2000-2001 that public acceptance of GM food products would grow both in Australia and internationally, there has been no conclusive evidence of this to date. Instead, surveys tend to show that there has been little change in consumer acceptance over the past two years and these results are supported by an increasing number of food products that are being marketed as not containing GM components. It is also interesting to note that organically produced foods continue to be one of the most rapidly growing sectors of the food market; a sector that is often considered to represent the antithesis of GM food.

Nevertheless, future consumer acceptance of GM food products and/or saturation of niche markets for non-GM products cannot be discounted. Continuation of market-driven agricultural gene technology policies that ensure future flexibility may be warranted, as previously indicated in the Report of the Joint Select Committee on Gene Technology.

Discussions with the overwhelming majority of Tasmanian food producers have indicated that they do not wish to have GM ingredients in their products. One exception has been GM pastures that promise increased production and/or animal health benefits. The potential of GM pastures is recognised and the Tasmanian Government will await the results of further national and international research. In any event, it is unlikely that such products will be commercially released on a wide scale within five years.

15. The DPIWE will continue to develop capacity for both compliance and fee for service provision of testing for the presence of GMOs in food and non-food crops.

The DPIWE now has the capability to conduct tests for all GMOs previously released in Tasmania and this service is offered commercially by the DPIWE's TASAG-ELISA laboratory at the New Town Research Laboratories.

It is likely there will be an increased need for more comprehensive qualitative and quantitative GMO testing by Tasmanian food exporters and seed producers in the future. It will therefore be necessary for Tasmanian producers to have access to cost-effective GMO testing resources and the Tasmanian Government will continue to monitor the suitability of public and private sector testing services for this purpose.

Current and emerging issues

In 2000 the Tasmanian Government initiated a comprehensive assessment of the issues surrounding the use of gene technology in Tasmanian primary industries. The culmination of this investigation was the 2001 report prepared by the Parliamentary Joint Select Committee on Gene Technology. This report took into account four reports prepared by the Minister's Expert's Group on Gene Technology, a total of 203 public submissions and evidence from 78 witnesses. The report made a number of recommendations to the Tasmanian Government, the majority of which were subsequently adopted as Government policy.

In addition to the review of the Tasmanian Government's Gene Technology Policy which was released in 2001, issues that were previously assessed by the Joint Select Committee have been reconsidered and emerging issues taken into account. An analysis of consumer and market surveys and reviews of gene technology applications currently available to Tasmanian agricultural industries has demonstrated that there have been few substantial changes since the publication of the report of the Joint Select Committee in July 2001. Nevertheless, some changes in circumstances are inevitable, and future developments have been anticipated as far as possible. These developments and updates on some associated issues are briefly outlined below.

Biosecurity Arrangements

Under current Tasmanian regulatory arrangements a number of specific genetically modified plant groups are prohibited from entering the State. However, none of these are currently commercially available in Australia as viable material (eg. seeds). This situation will change in 2003 if the national Gene Technology Regulator (GTR) grants a licence for the commercial production of genetically modified (GM) canola in Australia. The growing of GM canola in Tasmania is currently prohibited under State legislation. Although certificates of non-GM status have been requested by Tasmanian quarantine officials for international shipments of canola seed, arrangements will be required to ensure that domestic trade also complies with State Government policies.

The Tasmanian Government will take appropriate steps to ensure that Tasmania is well positioned to become a world leader in the multiplication and supply of non-GM seed both domestically and internationally. Biosecurity issues including border protection will become increasingly important for Tasmania to maintain its current market-driven approach to gene technology.

Livestock Feed

Tasmanian livestock, dairy and aquaculture industries currently use non-GM stockfeed as a marketing advantage. There is demand for animal products that have been fed on non-GM stockfeed at the food distributor level, including in overseas markets such as the European Union and Japan (Marks and Spencer and Jusco respectively). For this reason, and because there is currently no advantage for producers warranting the specific use of GM grains, the use of stockfeed containing GM components will continue to be opposed by the Tasmanian Government.

Genetically Modified Plants

The science of genetically engineering plants continues to advance rapidly and all major crop types have now been subject to such research. It is important to recognise that a number of different categories of genetically engineered plants currently exist. These include plants with genetically engineered agronomic traits (e.g. herbicide tolerance, drought resistance), enhanced nutritional properties (e.g. increased vitamins, heat-stable cooking oils) and those developed to produce specific industrial and pharmaceutical compounds (e.g. plastics, vaccines).

The Tasmanian Government's policy on gene technology is unique in that it explicitly recognises that consumer unease regarding genetically modified plants centres around GM foods, or genetically modified organisms (GMOs) that have the potential to contaminate the food chain. This policy has therefore been very successful in addressing public and consumer anxiety concerning the use of GMOs in food supplies whilst allowing research into valuable crop-based pharmaceutical production to continue. It must also be recognised that the introduction of some GMOs may result in significant economic and/or environmental benefits for farmers and rural communities, whereas others will have no tangible benefits over existing methods or technologies. Whilst the net economic advantages for farmers of current genetically engineered agronomic crop traits is currently debatable, production of plants with enhanced nutritional properties or novel compounds have the potential for substantial value-adding and to create entirely new industries.

There are a number of GM crop types that may have benefits for Tasmanian farmers in the future. The Tasmanian poppy industry is one of the most advanced in the world. Some potential has been identified in using gene technology to increase alkaloid yields and to enable production of new alkaloids. International and domestic research is currently being undertaken into the genetic engineering of pasture species, including the nutritional enhancement of pastures, which may have significant economic and animal health benefits. A variety of crops are also now being grown for the production of valuable pharmaceutical and industrial products. Where these crops are non-food crops with no potential to contaminate food production, and they are suitable for our cool temperate climate, there may be scope for valuable new industries to become established. It must be borne in mind, however, that any widespread adoption of gene technology in Tasmanian primary industries will only occur following comprehensive human health, environmental and market-based risk assessment and in full consultation with the Tasmanian public.

Genetically Modified Animals

Although research involving GM aquatic organisms and farm animals is well advanced, organisms of this type are yet to be commercially released. Applications of genetic engineering in animals include inducing more rapid growth or weight gain, altering milk to reduce lactose or improve shelf life, and increasing disease resistance. Animals have also been genetically engineered for use as 'biofactories' to produce strong lightweight fibres, pharmaceutical proteins or to enable the growth of organs for transplantation to humans.

The use of genetically modified animals in primary industries is highly controversial. The Tasmanian Government is aware of the ethical concerns held by much of the

Tasmanian public and consumers generally in relation to these matters. The Government therefore intends to prohibit any commercial release of these animals for use in primary industries and food production in Tasmania. Research involving the use of GM animals will be limited to appropriately accredited research facilities. Animal cloning that does not also involve genetic engineering is an important social and scientific issue but is not within the scope of this Policy or review.

Liability and Compensation

Internationally there has been an increase in the number of legal proceedings brought against farmers by agrobiotechnology companies for unauthorised use of patented GMOs. This trend has caused widespread concern in agricultural communities, particularly where there is a perception that the GMO has grown without the purchasing of the patented product. The Tasmanian Government is concerned about the implications of future commercial releases of potentially weedy GM crops such as canola. Such releases raise the question of farmers bearing responsibility for the costs involved in eliminating regrowth to avoid potential patent infringements or maintain compliance with State legislation.

The concerns of farmers are acknowledged in relation to the possible GM contamination of non-GM produce resulting in legal proceedings being initiated against them. Currently there is no Australian State or Territory with legislation to protect crop producers using either non-GM or GM plants or animals. Legal proceedings by affected parties must therefore be taken under common law. Legislation currently exists in a number of Australian States and Territories to cover similar incidences of contamination of neighbouring properties in the course of agricultural activities, for example spray drift from agricultural pesticides that have adverse affects on neighbours. Such legislation may provide a useful guide for the development of a regulatory framework to provide security for producers of both GM and non-GM plants and animals.

There are ongoing compensation issues arising from planting restrictions at former GM canola trial sites due to the failure of previous post-harvest management practices. The Tasmanian Government will adopt a consultative approach in assisting farmers to resolve these problems.

Future Directions

The Tasmanian Government's policy on the use of gene technology in Tasmanian primary industries has been successful in minimising the risks posed by gene technology to the marketing of food products whilst allowing research to continue into valuable non-food applications of genetic engineering. This Policy could be best summarised as a balanced approach, and the issues presented previously will continue to be managed in accordance with this general framework. Specifically, the Tasmanian Government will undertake the following measures to implement this approach to gene technology in Tasmanian primary industries.

An Extended Moratorium

The Tasmanian Government will extend the moratorium on the commercial release of genetically modified (GM) animals, and GM crops as currently prescribed under the Tasmanian *Plant Quarantine Act 1997*. The Tasmanian Government will review and update declarations under this Act to ensure the continued effectiveness of the moratorium. Research trials of GM non-food crops such as poppies will be subject to strict compliance guidelines. Trials of GM food crops and GM animals will only be permitted within appropriately accredited research facilities.

The current market-based conditions for the conduct of non-food GM crop research trials in Tasmania are:

- trials are to be assessed on a case-by-case basis;
- adequate isolation and management must be ensured;
- the risk of any gene flow into the environment must be minimised;
- seeds from any GM crop trial are not to be sold as a food product; and
- a test for the GMO must be readily available.

Any research trial must be licensed by the national Gene Technology Regulator (GTR) and any conditions imposed by the GTR to manage risks to the environment and human health and safety would also apply.

It is considered that these conditions will continue to be appropriate at least until specific legislation to manage market-based risks posed by GMOs is developed.

Specific Legislation

As previously discussed, the current market-based restrictions on the use of GM plants within Tasmania have been achieved using the Tasmanian *Plant Quarantine Act 1997*. However, there is a need for specifically tailored legislation to manage the market-based risks posed by the use of genetically modified organisms (GMOs) in Tasmania's primary industries. The Tasmanian Government therefore intends to introduce such legislation as soon as possible. This legislation will need to ensure consistency with the national regulatory arrangements to manage risks posed by gene technology to the environment and human health safety. It will also need to address market-based risks posed by GM animals, aquatic organisms and livestock feed. Tasmanian gene technology legislation will be used to regulate research trials of GMOs, particularly in the open environment, in order to continue to effectively manage any marketing risks that such trials may pose.

Continuing Activities

A number of activities initiated previously by the Tasmanian Government will continue under the extended moratorium. The Gene Technology Scientific and Technical Advisory Committee (STAC), which has been established by the Department of Primary Industries, Water and Environment (DPIWE), will continue to advise the Government on technical and policy matters related to the use of gene technology in Tasmanian primary industries. STAC is responsible for providing advice to the national GTR on gene technology licence applications that have the potential to involve the release of a GMO into the Tasmanian environment. STAC also provides advice to the Tasmanian Government on permit applications to conduct research trials in Tasmania, particularly on the compliance of proposed trials with conditions stipulated by Government policy.

The Interdepartmental Committee on Gene Technology, chaired by DPIWE, will continue to ensure that the Tasmanian Government is kept informed on gene technology issues.

The Tasmanian Government will continue to actively support studies into gene flow and environmental risk being conducted in cooperation with the Tasmanian Institute of Agricultural Research and the Office of the Gene Technology Regulator (OGTR). These studies are seeking to further inform risk assessors of the exact probabilities of gene flow from GM crops to closely related Tasmanian weedy relatives and provide information on the management of crop regrowth.

The Tasmanian Government will continue to monitor consumer purchasing trends in domestic and international markets and will use this information for ongoing policy analysis. The Tasmanian Government will also investigate market perceptions of GMOs to establish the relationship between such perceptions and Tasmania's current 'clean, green and quality' image.

The Tasmanian Government will maintain its active involvement in the provision of management advice concerning former GM canola trial sites in the State. Whilst the national GTR is responsible for any risks to the environment and human health and safety arising from regrowth at these sites, the Tasmanian Government will also be seeking to ensure that regrowth is adequately controlled to meet Tasmania's marketing aims. DPIWE will continue to work with the OGTR and relevant agrobiotechnology companies to provide guidance to growers to assist in the elimination of genetically modified canola from the trials conducted in 1998 and 1999. As part of this cooperative relationship the Tasmanian Government will also be seeking bilateral arrangements with the OGTR to provide services in Tasmania on their behalf.

Changing With the Times

The Tasmanian Government recognises that consumer acceptance of genetically modified (GM) foods is likely to change in the future, particularly as genetically modified organisms (GMOs) become increasingly consumer focused. It is also acknowledged that scientific progress is continuing to advance at an escalating rate. A certain amount of flexibility is therefore required to ensure that Tasmanian industries remain competitive should uptake of gene technology become economically imperative. Of course, such flexibility must be balanced against the need for stability in the regulatory environment in order to enable industries to maximise opportunities provided by current market resistance to GM food.

To achieve the objectives of balance and stability the Tasmanian Government has decided to declare a further five year moratorium on the commercial release of GM animals and GM crops in Tasmanian primary industries. Research trials of GM non-food crops will be allowed to continue subject to extremely strict conditions aimed at ensuring that the 'clean, green and quality' image of our food produce can be preserved.

Responsiveness to the fluid market and technological environment is guaranteed by providing the Minister for Primary Industries, Water and Environment with the ability to re-evaluate aspects of this gene technology policy within the five year period of the moratorium.

The Tasmanian Government will ensure that it remains abreast of gene technology developments in primary industries in order to enable informed policy decisions in relation to this complex issue. To achieve this end, the Gene Technology Unit within DPIWE will continue to coordinate gene technology policy as it relates to Tasmanian primary industries. The Tasmanian Government will also continue to be represented on relevant national bodies dealing with gene technology in primary industries.

Recommendations

1. The moratorium on commercial release of agricultural genetically modified organisms (GMOs) will be continued for five years, to underpin Tasmania's reputation for 'clean, green and quality' products. The moratorium will be reviewed by 30 June 2008.
2. The Minister will have the ability to re-evaluate aspects of the policy prior to 30 June 2008.
3. Open air trials on genetically modified (GM) non-food crops will be permitted subject to existing requirements.
4. Open air trials of food GMOs will be prohibited.
5. Trials of GM food crops and GM animals will only be permitted within appropriately accredited research facilities.
6. Research that provides information on GMOs will continue to be encouraged, subject to the conditions outlined in 3 and 5 (above).

7. The Tasmanian Government will remain opposed to the use of GM livestock feed on marketing grounds.
8. All relevant legislative measures, both State and Commonwealth, will be pursued in order to enforce the moratorium.
9. Tasmania will remain part of the national regulatory regime and be a full participatory member of the Gene Technology Ministerial Council and its underpinning committees, to actively seek the accommodation of Tasmania's views.
10. The Interdepartmental Committee on Gene Technology will continue to ensure that the Tasmanian Government is kept informed on gene technology issues.
11. The Gene Technology Scientific and Technical Advisory Committee (STAC) will continue to undertake assessment of gene technology issues.
12. The Experts Group on Gene Technology will be incorporated into STAC.
13. DPIWE will seek a bilateral agreement with the Gene Technology Regulator to assist in the administration and enforcement of the national regulatory scheme in Tasmania.
14. DPIWE will continue to monitor the management of previous GM trial sites by the companies involved in those trials, and the actions of the Gene Technology Regulator in overseeing these companies' site management activities.
15. The broad range of work undertaken by the Gene Technology Unit within the Department of Primary Industries, Water and Environment (DPIWE) will continue. This includes:
 - functioning as a policy focused unit responsible for the coordination of activities related to gene technology within DPIWE;
 - analysing relevant developments under common law;
 - evaluating economic costs and benefits of GMOs;
 - monitoring relevant national and international identity preservation guidelines;
 - assessing the suitability of public and private sector testing services;
 - supporting relevant committees;
 - coordinating Tasmanian participation in the national regulatory scheme;
 - developing and reviewing relevant legislation as required; and
 - conducting balanced public education about gene technology issues.