

# INDEPENDENT REVIEW

## **REPORT OF THE INDEPENDENT REVIEWER TO THE GOVERNMENT OF VICTORIA**

**REVIEW OF MARKET IMPACTS OF  
GENETICALLY MODIFIED CANOLA AND  
INDUSTRY PREPAREDNESS**

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### **Acknowledgments**

This report has utilised the study prepared by the consultants ACIL Tasman and Farm Horizons that examined market issues, industry preparedness and capacity for segregation in Victoria for GM canola, and the legal advice prepared by the Victorian Government Solicitor's Office and other material supplied to me by the Interdepartmental Canola Review Committee. I wish also to acknowledge the valuable comments and guidance given to me by those stakeholders with whom I had consultations. A list of these stakeholders is given in Appendix Table 3. The Department of Primary Industries provided Secretariat services for those consultations and for visits to GM canola field sites and grain handling facilities.

## Brief for Independent Reviewer

### Preamble

The broad principles underpinning the Government's biotechnology policy are to:

- optimise the social, economic and environmental benefits available through biotechnology;
- protect and promote the health of the Victorian community;
- assure safety and sustainability of the environment;
- require that all actions are undertaken within an ethical framework; and
- ensure there is full consultation, communication, transparency, monitoring and accountability in the processes which underpin the development of biotechnology in Victoria.

In accordance with these principles, Victoria participates in national regulatory arrangements for gene technology and the utilisation of genetically modified organisms to address ethical matters and potential risks to public health and the environment. These arrangements include:

- the national Gene Technology Regulatory Scheme, to deal with potential risks to human health and the environment through the Commonwealth Gene Technology Act 2000 and mirror Victorian state legislation (Gene Technology Act 2001), and
- national food safety and food labelling regulation coordinated by the agency, Food Standards Australia New Zealand, through Food Standard 1.5.2.

Two types of genetically modified (GM) canola are currently proposed for commercialisation in Victoria. These are InVigor® canola developed by Bayer CropScience and Roundup Ready® canola developed by Monsanto (together referred to here as "GM canola").

Responding to concerns raised by some direct stakeholders, the Victorian Government announced a twelve-month moratorium on the commercial production of GM canola in Victoria on 8 May 2003. The moratorium was established to allow time for a thorough examination and review of the potential trade implications of the introduction of GM canola.

It is not the purpose of the review to examine those areas that are addressed under national regulatory arrangements, that is, the food safety, public health and environmental safety of GM canola. The purpose of the review is to examine the potential economic impact of the commercialisation of GM canola in Victoria on agricultural production and trade, an area that is not addressed under national regulatory arrangements.

Any consideration by the Victorian Government in relation to the commercial production of GM canola will need to have regard for both short-term and longer-term impacts of different courses of action. It will need to take account of domestic and world GM crop markets, likely market trends, the technical feasibility and cost of maintaining segregation in the supply-chain and the state of industry preparedness.

An understanding of these issues will be important in assessing and responding to any market and trade risks posed by the commercial release of GM canola.

### **Terms of Reference for Independent Reviewer**

The terms of reference for the review of the potential market impact of genetically modified canola in Victoria are to:

1. examine potential market risks and benefits posed to Victorian exporters through the introduction of GM canola on the canola industry, other grain industries that share the same supply-chain, the Victorian dairy industry in the context of its utilisation of canola-based stockfeed, and the Victorian honey industry in the context of its utilisation of canola as a pollen source for honey bees;
2. examine industry's preparedness and capacity to manage on-farm and off-farm handling systems which segregate canola in the supply-chain, including the potential economic impact of GM canola on the canola industry, other grain industries, the Victorian dairy industry, and the Victorian honey industry;
3. examine legal issues for suppliers and producers of GM canola and for supply chain participants which may influence a Cabinet decision in relation to the commercialisation of GM canola; and
4. provide, on the basis of 1, 2 and 3 above, an overall assessment of the potential risks and benefits to the Victorian economy of the commercial release of GM canola in 2004, including recommendations on how commercialisation could proceed in a manner to address those risks and capture the benefits if it were deemed prudent to do so.

A committee of senior officials drawn from across government departments (Interdepartmental Canola Review Committee) is overseeing the review. This committee has the responsibility to commission expert reports and an independent assessment according to the terms of reference (above). The issues will be examined through direct investigation, examination of published data and consideration of information provided by interested parties.

The review will be completed in December 2003 so that the Government is in a sound position to reconsider the matter of a commercial release of GM canola in Victoria early in 2004. A final report shall be submitted to the Minister for Agriculture by 31 December 2003.

## **Executive Summary**

Two multinational technology companies, Bayer CropScience Pty Ltd (Bayer) and Monsanto Australia Ltd (Monsanto), have been granted licences for the commercial release in Australia of canola varieties that are genetically modified. There is a moratorium on commercial production in Victoria until May 2004. These companies have proposed a limited release in Victoria for the year 2004 covering 5000 hectares on up to 100 sites.

It is expected that there will be substantial on-farm benefits from release of GM canola. On the basis of field trials, Monsanto forecast that their varieties of GM canola can be expected to give an average seed yield increase to Victorian farmers of 5-10 per cent over conventional canola and 10-15 per cent over triazine-tolerant (TT) canola. The corresponding forecasts from Bayer are even larger, 15 and 30 per cent respectively. It is expected that these increases in average seed yields and other benefits to the growers will increase their farm incomes substantially.

On the other hand, the introduction of GM canola varieties poses a number of risks for growers of non-GM canola varieties and other broadacre crops and other products because of the adventitious (unintended) presence of GM canola in other crops or products as they move through the bulk grains handling system and other parts of the supply chain. It may also impact on the export sales of non-GM canola products and other crops and products. And the release of GM canola may pose risks for human health and safety and for the environment. Risks to human health and safety from the consumption of GM canola seed or products made from GM canola seed and risks to the environment have been determined by the Office of the Gene Technology Regulator and are not examined in this report.

From the point of view of economic analysis, the effects of GM canola supply on other crops and products are externalities or spillovers imposed by GM canola growers on other producers and by handlers of GM canola products on other grain producers and consumers/users. These groups are sometimes referred to as "stakeholders". If these risks to other stakeholders cannot be managed or are not managed adequately, the release of GM canola will impose substantial costs on other stakeholders.

Some stakeholders who represent groups that might be adversely affected by the release of GM canola for commercial production argued before me that the existence of these negative effects on other stakeholders alone implies that the release should not be permitted. This argument is inadequate, as it takes no account of potential benefits and ways of reducing risks. A denial of a commercial release would impose costs on those seeking to grow GM canola in just the same way, as the release would impose costs on other stakeholders. The approach of our society to these issues should be to allow all economic agents to exercise freedom to produce what crops

they wish while at the same time seeking to avoid the imposition of economic costs on other producers or consumers.

These risks are not, moreover, fixed. They can be reduced by strategies adopted by growers and grainhandlers, and by measures introduced by government. The approach of this study is to ask how these strategies and measures may reduce the risks and, if risk reduction strategies and measures are adopted, is it in the overall interests of Victoria to release GM canola for commercial production.

A decision by the State with respect to release and regulation has ramifications beyond those of the canola market and its stakeholders. It will set a precedent that will be examined closely in other States deciding whether to release GM canola for commercial production or not. It will also be considered by technology investors and producers in markets for other agricultural GM crops or products that might be considered for release in Australia in the next few years.

This Independent Review is a part of the review process the Government of Victoria set in place to determine whether GM canola should be released in the State of Victoria for commercial production.

### **Risks of co-mingling in the supply chain and industry preparedness**

The transport, storage and handling facilities for grain in Victoria have evolved to handle bulk quantities of multiple grains. The strategy proposed to counter the risks of cross-contamination to other grains from GM canola is segregation of the grain flows combined with quality assurance or identity preservation of the products in the chain. Quality assurance is the assurance that a product meets some specified standard of purity at some point in the supply chain. Identity preservation is the ability to maintain knowledge of the identity of the commodity or product through the supply chain. It requires the tracking of a product along the supply chain and the ability to trace or reverse track a product whose quality may be questioned.

A product that meets a zero or nil-detectible standard is said conventionally to be “GM-free”. A product that has GM content that is positive but less than a specified standard is said conventionally to be a “non-GM” product.

The industry is technically capable now of segregating crops to specified tolerance levels. Segregation to specified tolerance levels requires appropriate training, monitoring and compliance. It would also be necessary to put in place protocols and a method of tracing crops to test that the system lives up to its capability.

The industry is planning to introduce a system of growing GM canola and managing the risks in the supply chain. The Gene Technology Grains Committee (GTGC) has prepared a national Canola Stewardship Principles for Coexistence of GM canola and non-GM grains. The Principles include the development of a set of protocols to guide the management of these risks. Standards relating to the adventitious presence of GM canola in various other crops and products have been set by industry associations. Implementation of segregation and quality assurance is based on a series of supply

chain contracts. The three key points in the chain are the supply of seed by the seed company to the grower, the delivery of grain from the grower to the bulk handlers, and the delivery by the bulk handlers to the export terminal or customer. Contracts at each of these points would detail the obligations of the parties. The Principles are in effect a proposal for self-regulation of production in the industry if release is approved.

### **International market risks**

Australia is the third largest supplier of canola seed to world markets. It is not a major supplier of canola oil and it supplies negligible quantities of canola meal to world markets. Canada, which is the largest supplier of canola products to world markets, is a supplier of GM canola products. The EU, which is the second largest supplier, is a supplier of non-GM canola products, like Australia.

Victoria is a major supplier of canola grain and, to a lesser extent, of canola oil to world markets. In 2001/02, 67.1 per cent of Victorian-grown canola seed output was exported as seed. If the exports of oil and meal processed from Victorian-grown seed are included, Victorian exports of canola seed, oil and meal amounted to 77.2 per cent of the Victorian output of canola seed. Thus, the Victorian canola industry is an export-oriented industry.

In almost all countries food and products processed from GM canola varieties can be sold, subject in some countries to labelling requirements. Hence, the crucial question is - is there a premium for non-GM canola seed over GM canola seed in overseas canola markets? A premium will arise if significant numbers of overseas consumers of canola oil or of products containing canola oil are prepared to pay a higher price for the products containing GM-free or non-GM canola oil over the products containing GM canola oil. There is no clear evidence of a premium paid to non-GM canola products, either grain or oil, over canola products derived from GM canola in world markets.

Nor is there any evidence that the US and Canada, which are GM canola suppliers, have lost share in markets for wheat and other grains because of the release of GM canola in these countries. For dairy products and honey, the risk of exceeding tolerance standards is low and can be managed by strategies currently adopted by feed suppliers, dairy farmers and beekeepers. In those export markets requiring labelling of products containing GM material, the ability to meet these standards will depend on the ability of the supply chain to meet the tolerance levels. Price risk comes down to the development of a segregation, identity preservation and quality assurance system that is acceptable to customers.

### **Conclusions**

The uncertainties with respect to both the agronomic benefits and the risks to other producers mean that it would be unwise to give an immediate unconditional release of GM canola in the State of Victoria.

The release of GM canola in Victoria would be accompanied by losses being borne by farmers who do not produce GM canola or others in the supply chain. Legal remedies available under common law may be inadequate to compensate some losers and insurance may not be available for growers and others in the supply chain who may wish to insure against the risk of being held liable for adventitious presence of GM canola or market risks.

As a result of my investigations, I conclude that the industry is technically capable now of segregating crops to specified tolerance levels. However, government measures would need to be taken in order to determine and enforce industry standards. Self-regulation by the industry does not address adequately the issues in an industry with systemic problems affecting other stakeholders. If farm strategies and government measures relating to production and grainhandling are adopted, breaches of tolerance standards should be rare.

I also conclude that the release of GM canola would not significantly affect the price of canola grain to growers of canola in the State of Victoria, or the prices of exports of wheat and barley and other grains, provided a segregation system that is acceptable to overseas customers is developed.

These supply chain and market risks can be assessed by controlled coexistence trials over a predetermined period. A trial period provides an opportunity to test the coexistence system and to develop mechanisms to control risks from growing and grainhandling.

These conclusions lead to the view that the State of Victoria should permit limited release of GM canola varieties in the State for a coexistence trial beginning in 2004, along the lines of that proposed by the technology companies. A coexistence trial provides an opportunity to assess the extent of the risks under actual farming conditions in the State of Victoria and to design appropriate measures to manage the risks if a decision is taken to allow release beyond a trial period.

Decisions to release GM canola or not taken by Victoria and by other States would influence each other. It is desirable that the growing States act in concert, or at least the three Eastern States of NSW, Victoria and South Australia do so. This would improve risk management in the industry arising from inter-State movement of canola seed and would allow a greater variety of coexistence trials.

There is an urgent need for more public discussion of the issues based on more information about the process and the issues. This should include a dialogue between stakeholders; for example, a dialogue between the technology companies on the one hand and the food processors and retailers who are restricting the sale of GM grains or products on the other might resolve some of the domestic marketing problems. A lack of information and of discussion among stakeholders exacerbates the polarisation of views in our society.

If at the end of the trial period, the assessment by the State of Victoria is that the risks are manageable, release for general commercial production should be permitted and the market should be allowed to determine its requirements for the product. A release would be subject to whatever regulations and controls are deemed necessary at that

time to manage the risks. Self-regulation is not adequate. The State of Victoria, or the cooperating States as a group if cooperation among growing States is possible, should determine industry standards. They should also examine the legal liability regime with a view to improving the ability of those external parties who are adversely affected to take action against the parties imposing costs on them, and the availability of insurance to producers.

At this later stage a decision to release should be a decision to release permanently. It is desirable that the Government gives certainty to growers and other producers in the supply chain and to other stakeholders.

### **Recommendations**

1. *The State of Victoria should permit a limited release of GM canola for a trial period beginning in 2004. It would be appropriate for the scope of the release to follow that proposed by the technology companies and the industry. The trial period should be for at least one year and preferably longer. The decision with respect to the length of the period should be made by the State after taking appropriate advice from the industry and from parties independent of the industry regarding the time needed for adequate trials and the development of industry standards. During the trial period tests of all trials should be monitored and reported publicly.*
2. *The decision by the State of Victoria for a limited release during the coexistence trial period should be taken in concert with the other Eastern States if agreement can be reached among the States. Coexistence trials in more than one State would allow a greater degree of certainty in relation to segregation, quality assurance and identity preservation due to its testing under controlled conditions.*
3. *The conduct of the coexistence trials in Victoria, or possibly among cooperating States, and the evaluation of the results should be overseen by a committee. Members of the Committee should have no commercial interests in the industry. All stakeholders should be consulted and should be kept fully informed of the conduct of the trial and the evaluation of the results.*
4. *At the end of the trial period, the State should assess the evidence relating to coexistence before taking a decision to release GM canola in the State of Victoria for general commercial production or not.*
5. *If, at the end of the trial period, the decision is to release GM canola, this release should be permanent and should not be subject to area limits. It should, however, be subject to government measures to reduce the risks associated with production on-farm. in the supply chain and in international marketing. In this event, it would be desirable if there are single national standards for all States that have approved commercial release of GM canola relating to*
  - *pesticide management and weed control,*
  - *isolation zones on-farm,*

- *notification of neighbouring farmers, beekeepers and equipment contractors,*
  - *the adventitious presence of GM canola in non-GM canola and other grains,*
  - *sampling and testing,*
  - *tracing,*
  - *definition and labelling of GM-free and non-GM products, and*
  - *any other matters that are regulated.*
6. *The State and Territorial Governments and the Australian Government should jointly resolve whether the legal liability remedies that are currently available under common law need to be modified or extended, but this should not hold up coexistence trials.*
7. *The technology companies and representatives of the canola industry should consult with insurance companies and the Insurance Council of Australia with a view to making insurance available, at fair prices, to producers at all points in the supply chain.*