

Department of Agriculture, Fisheries and Forestry

A National Market Access Framework for GM Canola and Future GM Crops

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Glossary

ABB	Australian Barley Board
ACPGF	Australian Centre for Plant Functional Genomics
AOF	Australian Oilseeds Federation
APVMA	Australian Pesticides and Veterinary Medicines Authority
AP	Adventitious Presence
AQIS	Australian Quarantine and Inspection Service
ASF	Australian Seeds Federation
ASTA	American Seed Traders Association
AWB	Australian Wheat Board
<i>Bt</i>	<i>Bacillus thuringiensis</i>
BRS	Bureau of Rural Science
CA	Cotton Australia
CCC	Canola Council of Canada
CFIA	Canadian Food Inspection Agency
CIGI	Canadian International Grains Institute
CCC	Canola Council of Canada
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAFF	Department of Agriculture, Fisheries and Forestry
DNA	Deoxyribonucleic acid
EIQ	Environmental Impact Quotient
EU	European Union
EZGTGC	Eastern Zone Gene Technology Grains Committee
FSANZ	Food Standards Australia New Zealand
GM	Genetically Modified
GMOs	Genetically Modified Organisms
GRDC	Grains Research and Development Corporation
GTGC	Gene Technology Grains Committee
GTMC	Gene Technology Ministerial Council
HACCP	Hazard Analysis and Critical Control Points
HEAR	High Erucic Acid Rapeseed
IPPM	Identity-Preserved Production and Marketing
ISAAA	International Service for the Acquisition of Agri-biotech Applications
ISO	International Standards Organisation
MAC	Market Access Committee
MPBCRC	Molecular Plant Breeding Co-operative Research Centre
NACMA	National Agricultural Commodity Marketing Association
NCGA	National Corn Growers Association
NGO	Non Government Organisation
NICNAS	National Industrial Chemicals Notification and Assessment Scheme
OGTR	Office of the Gene Technology Regulator
PIC	Plant Industries Committee
PIMC	Primary Industries Ministerial Council
PISC	Primary Industries Standing Committee
PTM	Pathway to Market
QA	Quality Assurance
RSOP	Round Table on Sustainable Oil Palm
SVGA	Single Vision Grains Australia
TGA	Therapeutic Goods Administration
USA	United States of America

Executive Summary

This is the report of a study commissioned by the Department of Agriculture, Fisheries and Forestry to identify the key barriers along the supply chain to the adoption of GM crops and how these might be addressed to enable the commercial production of GM canola and future GM crops.

This study aims to:

- establish current attitudes towards GM canola and future GM crops and assess how these differ amongst various grain supply chain stakeholders.
- identify those market access issues and barriers that require supply chain stakeholder response.
- propose and evaluate models by which these issues and barriers might be addressed to enable the commercial introduction of GM canola and future GM crops.

The shift in global and domestic consumer demand away from supply of commodity products to a greater range of differentiated products is based on expanding consumer demand for food, feed, fibre and energy uses, combined with improving incomes.

The grain supply chain continually adopts innovative technology across production and processing activities to meet this changing demand. This has been accompanied by investment in systems and infrastructure to maintain product integrity through the supply chain.

A major global innovation has been plant biotechnology and its application in developing genetically modified (GM) crops. Australia has followed this trend having grown GM cotton since 1996. However in 2003, despite gaining all the necessary regulatory approvals, commercial release of GM canola was prevented through the introduction of moratoria by respective state and territory governments (excluding Queensland and Northern Territory).

In essence, the moratoria were established to allow time for a thorough examination and review of the potential market access and trade implications of the introduction of GM canola. The key question to be resolved by stakeholders was whether the grain supply chain could maintain market access and customer choice following the introduction of GM canola and future GM crops.

Since the introduction of the moratoria, there has been a significant shift in industry stakeholder attitudes and policies towards the introduction of GM canola and future GM crops. Industry stakeholder policies have shown a significant shift in terms of:

- Support for the commercialisation of GM canola and future GM crops.
- The development of a national approach to an industry managed market access framework for GM canola and future GM crops.
- The establishment of domestic and international adventitious presence (AP) thresholds for trade purposes.
- The co-existence of GM and non-GM crops.

Notably, these policies are concerned with removing barriers to trade in GM canola in an

environment where these crops co-exist with equivalent conventional and specialty crops.

A number of independent legislative and industry reviews, together with the research from this study, have identified overwhelming support from stakeholders for the development and implementation of a 'national market access framework'(NMAF). This can act to resolve the issues and barriers regarding market access and market choice associated with the introduction of a GM crop.

Establishment of a national framework is consistent with the Australian grains industry's current *modus operandi* which seeks to maintain market access and customer choice when new variants of wheat, barley, oilseeds and other grains are introduced into the domestic or export market. This is often achieved through the establishment of supply chain processes to facilitate trade, underpinned by industry standards and, when required, government regulation.

Success in developing and implementing a framework will depend on reconciling the expectations, needs, issues and market access barriers identified by the stakeholders.

For GM canola and future GM crops, stakeholder issues and market access barriers identified in the market research have been consolidated into a set of market access criteria that would apply to OGTR approved products and includes:

- Identification of market requirements in relation to the new GM crop.
- Establishment of Australian adventitious presence (AP) thresholds.
- Regulatory approval for food and feed import in countries of interest to Australia.
- Establishment of AP standards within importing countries of interest to Australia.
- Ability of the seed and grain supply chain to provide traceability of the new GM crop.

These criteria form the basis of the model for a National Market Access Framework which is developed in this report using an evidence-based and consultative evaluation process.

Market research demonstrates that despite the expected differences between participants in the supply chain in their attitudes and acceptance of GM canola and future GM crops, there is a significant level of consistency between stakeholders in their governance and operational requirements of a market access framework. Stakeholders have indicated that such a framework will need to address four key parameters:

1. Government/industry relationships
2. Market perceptions and acceptance
3. Delivery of market choice
4. Supply chain alignment

While stakeholders have generally supported an industry managed framework, high level government endorsement is seen as critical to its success. Government support and recognition of a national market access framework would provide certainty and confidence to industry stakeholders that a clearly defined pathway to market exists for GM crops. It would also provide a consistent approach to managing market access issues across all

jurisdictions. The appropriate government mechanism for providing endorsement to such a framework is via the Primary Industries Ministerial Council (PIMC).

The consensus among stakeholders surveyed in this report is that the grain industry organisation best placed to manage a national market access framework is the National Agricultural Commodity Marketing Association (NACMA).

NACMA currently plays a crucial role in developing and managing processes that facilitate trade, thus making it the most appropriate body to manage the proposed framework. The proposed role for NACMA in providing governance and operational management of a national market access framework is simply another element that needs to be managed alongside standards, contracts, trade rules and dispute resolution processes that currently enable the facilitation of trade in the grain supply chain.

The success of a NMAF will be dependent on stakeholder agreement on the scope and terms of reference within which NACMA would provide governance and operational management.

It is proposed that NACMA and PIMC sponsor a stakeholder working group to oversee the development, ratification and endorsement of the scope and terms of reference by respective stakeholder participants.

It is proposed that the stakeholder working group discussions encompass the following Framework elements:

1. Purpose – why is it there?
2. Objectives – what will it deliver?
3. Principles – what are its operational characteristics?
4. Market Access – what are the market access criteria for GM canola and future GM crops that will need to be resolved by stakeholders prior to commercial release?
5. Process Guidelines – how will the decision making process operate?
6. Responsibility - Who will be responsible and accountable for the evaluation, decision making and endorsement process?

In summary, the report proposes that a national market access framework be established and managed by the grains industry, with Government endorsement, and that its focus should be providing a process by which market choice is delivered in an environment where products derived from GM crops co-exist with established and future grain based products.

The report recommends that the next step is for industry in consultation with government to engage in a collaborative process that is focused on the evaluation and evolution of a national market access framework model. The outcome being a process that will deliver confidence and market choice to consumers and stakeholders, while providing certainty to grains industry supply chain participants.

Disclaimer

The information provided in this report is presented as a record of information, provided or reported to SGA Solutions Pty. Ltd. in good faith. The contents reflect the Consultants' best judgment based on the information reviewed at the time of writing and therefore the Consultants can accept no responsibility if the information is used for other purposes.

In preparation of this report the Consultants have obtained data and information from a wide range of stakeholder personnel and organisations within the present public and private grains supply chain, and from stakeholder personnel in affiliated grains industry organisations.

This report has been funded by the Department of Agriculture Fisheries and Forestry provided under the National Biotechnology Strategy

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Project Scope

The Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) under the National Biotechnology Strategy commissioned SGA Solutions Pty. Ltd. to undertake the study ‘A Path to Market for Genetically Modified (GM) Canola – Lessons Learnt and the Way Forward’. The following provides context to the study:

“GM canola is not yet grown commercially in Australia, in part because of a range of issues such as the level of market acceptance of GM canola oil and the level of readiness of elements of the grains industry to manage the coexistence of GM and non-GM canola in the supply chain (‘paddock to plate’).

The project aims to:

- *identify the lessons that can be learnt from the past attempt at providing a path to market for GM canola in Australia;*
- *identify the current key barriers along the supply chain to the adoption of GM canola;*
- *identify the measures that require addressing, and how they might be addressed, to enable the commercial introduction of GM crops, particularly GM canola.”*

A number of interview participants noted that the phrase “pathway to market for GM canola and other GM crops” has become part of the vernacular when discussing the introduction of GM canola and future GM crops. However when interview participants were asked to define and discuss the elements of the pathway process, the majority of respondents could not articulate nor suggest a consistent definition for the term. This reflected the differences in interpretation of its meaning and by implication the outcome of such a process. The researchers noted that during these discussions a number of key words and themes were consistently being suggested by respondents, these included:

“market access, national approach, framework, trade facilitation, stakeholders, customers, market choice, co-existence, supply chain management, co-operation, communication, process, consultation, transparency, stakeholder engagement, government endorsement.”

As a result the report, which focused initially on the development of a Pathway to Market for GM Canola and GM Crops, has evolved into a report focusing on the development of a model for a National Market Access Framework(NMAF) for GM Crops. This term was more easily understood by stakeholders and representative of their views. It has been defined as:

... a **facilitation process** by which the Australian grains industry can assess, resolve and manage market access issues as they relate to achieving market choice following the introduction of GM canola and future GM crops.

Where market access issues are defined as: the technical issues that have potential to impact market choice and trade of products.

The aim of this report is to help improve understanding of trade issues and barriers relating to the introduction of GM canola and future GM crops, and to develop an appropriate framework model by which the grains industry can respond to changing market developments relating to the introduction and use of agricultural biotechnology within the Australian grains industry.

Project Methodology

This report consolidates and summarises the outcomes of an extensive quantitative and qualitative market research program. Participants were drawn from across the Australian grains industry supply chain, affiliated industries and a range of Australian, state and territory government agencies.

The market research focused on:

- Lessons learnt from the previous GM canola experience, including the Gene Technology Grains Committee (GTGC).
- Identification and perceptions of previous and current barriers/issues to the introduction of GM canola and future GM crops.
- The need for a national market access framework for GM Canola and future GM crops and identification of key elements of a framework.

i) Quantitative Research

The quantitative market research was undertaken by an independent market research company appointed by SGA Solutions with the approval of DAFF. The questions utilised in the quantitative market research were reviewed by DAFF and the methodology reviewed by the Australian Bureau of Statistics.

- The questionnaire was conducted online.
- The questionnaire was carried out by representatives from various stakeholder groups along the canola and grain supply chain identified by SGA Solutions.
- The questionnaire was piloted using six individuals from within the grains industry supply chain identified by SGA Solutions (Appendix One).

The objective of the quantitative market research was to explore perspectives of grains industry supply chain stakeholders who are either directly or indirectly involved in the GM canola debate. Implications for the development of a national market access framework were assessed. Specific aspects investigated included:

- The level of involvement and the nature of participation in the GM canola debate.
- An assessment of the potential impact of introducing GM canola and, in the future, GM crops into the Australian grains industry supply chain.
- Identifying information sources and the perceived value of the information source.
- Identifying whether organisations had GM canola or GM crop policies and if these had changed or not since the GM moratoria were introduced.
- Identifying previous and current barriers and market access issues associated with the introduction of GM canola and future GM crops.
- An assessment of the performance of the GTGC and its relevance to the development of a national framework.
- Identifying the perceived need for the development of the framework, and key elements for its success.

Grains industry supply chain participants were asked to nominate the sector within the grains and/or canola supply chain where their organisation operated. The data collected was managed and assessed based on this information (Table 1).

Table 1: Market research participant profile

Category	Quantitative Market Research		Qualitative Market Research	
	Number of Respondents (n = 60)	% Respondents	Number of Respondents (n = 48)	% Respondents
Input Services Technology Support Technology Developer Plant Breeding Seed Marketing	20	33	10	21
Grain Growers Technical National Policy State/Regional Policy	14	23	14	28
Post Farm Grain Handling & Marketing Crushing & Refining Food Processing & Marketing	12	20	10	21
Cross Sector Industry Organisations	8	13		
Livestock	6	10	6	13
Government Australian & State Government Agencies	N/A	N/A	8	17

Table notes;

Of the 125 industry organisations invited to participate in the quantitative market research 60 (48%) completed the questionnaire.

Of the 51 stakeholder organisations invited to participate in the qualitative market research 48 (94%) agreed to engage in a face to face interview (Appendix Two). Respondents were a mix of associations and individual companies. ***

Cross sector industry organisations included NGOs and organisations representing national and state affiliated bodies.

The livestock sector is diverse and represents a number of sub sectors e.g. Stockfeed, Dairy, Poultry, Beef, and Sheep. Respondents in this category tended to be sub sector associations rather than individual companies, hence collated responses may not necessarily reflect the responses from individual sub sectors.

1. Representatives from the respective federal and state government agencies and regulators were only included in the qualitative study.

ii) Qualitative Research

The information presented in the Phase One market research was collated and analysed by the project team with the key outcomes being utilised as the basis for development of a Discussion Guide (Appendix Three) for use in the qualitative phase of the market research.

The project team working in pairs undertook a total of 48 interviews with supply chain participants representing the grains industry supply chain, affiliated industries and state/federal government agencies.

The focus of the qualitative market research included capturing and evaluating:

- Supply chain stakeholder perceptions regarding the need for a national market access framework for GM canola and future GM crops.
- Supply chain stakeholder perceptions regarding issues and barriers that will need to be addressed to enable the progression of the national pathway to market framework for GM canola and future GM crops.
- The key parameters to be included in the framework.
- The level of confidence in the preferred framework model to effectively address the market access issues.
- Perceptions regarding the operation of this model and the model's capacity to deliver a beneficial outcome.

The project team undertook three pilot interviews with participants and modified the Discussion Guide based on feedback from the initial interviews.

iii) Stakeholder Workshops

To complement the data collected in the quantitative and qualitative market research, the project team reviewed examples of international market access and supply chain management frameworks for various crops (refer section 6).

Following collation and analysis of the market research, a number of models for a framework were developed. These models were presented and evaluated in a series of four workshops held with stakeholders from the Australian grains industry supply chain and from a cross section of federal, state and territory government agencies. The project team working in pairs facilitated the workshops with a cross section of supply chain participants representing the grains, affiliated industries and state/federal government agencies.

In summary the research approach undertaken allowed the team to consider:

- Recent developments in supply chain participant engagement.
- External developments in the pathway to market both domestically and globally.
- Changes in stakeholder policies on GM canola and other GM grain crops.
- Key lessons from the application of alternative international and Australian supply chain management models.

1.0 Introduction

1.1 Background

Australian agricultural plant biotechnology has attracted significant investment from both the private and public sectors during the early part of the new millennium. The investment has primarily been focused on the basic science of gene discovery and the development of platform capabilities in agricultural sectors ranging from grains, sugar, cotton, pastures and horticulture through to the livestock industries including sheep, beef cattle, pigs, poultry, dairy and aquaculture.

In Australia an increasing number of targeted technologies have progressed to initial proof of concept (Table 2), however, very few have progressed to commercialisation.

Table 2: 1st, 2nd and 3rd generation traits being developed in Australian GM crops

Traits	Crop	Stage in Pipeline
1st Generation Traits		
a) Environmental stress tolerance		
Acid soil tolerance	Barley	Proof of concept
Salt tolerance	Wheat	Proof of concept
Drought tolerance	Wheat	Proof of concept
Frost tolerance	Wheat	Proof of concept
b) Pest and disease control		
Virus resistance	Barley	Proof of concept
Resistance to cane grubs	Sugarcane	Proof of concept
Insect pest resistance – new <i>Bt</i> and <i>Bt/Ht</i>	Cotton	Field trial
Insect pest resistance – Protease inhibitors	Cotton	Field trial
Insect pest resistance – VIP	Cotton	Field trial
Virus resistance	White clover	Field trial
2nd Generation Traits		
Improved oil quality	Cotton	Technology discovery
Omega-3 production in plants	Oilseed	Technology discovery
Starch modification	Wheat	Proof of concept
Improved digestibility	Wheat, barley, pasture species	Proof of concept
Altered sugar metabolism	Pasture species	Proof of concept
Reduction in pollen allergens	Ryegrass	Proof of concept
Improved oil quality	Canola	Proof of concept
Improved sugar content	Sugarcane	Proof of concept / Field trial
3rd Generation GM Crop Traits		
Production of precursors of biodegradable plastics	Sugarcane	Technology discovery / Proof of concept
Bioreactors – producing pharma proteins	Tobacco	Proof of concept
Alkaloid production	Poppy	Proof of concept
Alternative sugars for food ingredient and industrial applications – sorbitol	Sugarcane	Proof of concept
Alternative sugars for food ingredient and industrial applications – isomaltose	Sugarcane	Proof of concept / Field trial

Source: Glover, Mewett, Tifan, Cunningham, Ritman and Morrice (2005)

Currently, there are four products that have completed their path through the technology development pipeline (i.e. commercially released), these are insect and herbicide tolerant cotton and blue carnations with extended shelf life.

In 2003, after completing an extensive risk assessment, the Office of the Gene Technology Regulator (OGTR) approved for commercial release two herbicide tolerant GM canola varieties, InVigor canola (Bayer Crop Science) and Roundup Ready canola (Monsanto Aust. Ltd.). These varieties were determined to be as safe for human health and the environment as existing conventional canola. The Australian Pesticides and Veterinary Medicines Authority (APVMA) approved the related herbicide usage and Food Standards Australia New Zealand (FSANZ) had already granted approval for the canola oil to be used for human consumption.

During the final phase of the regulatory process, the state and territory governments, with the exception of Queensland and the Northern Territory, shifted from supporting industry management of market access issues, to an interventionist approach based on concern about marketing issues. The outcome has been the establishment of a variety of legislated moratoria across the states and territories of Australia. (Table 3)

Table 3: Status of Australian state and territory government GM crop moratoria

Legislative Jurisdiction	Moratorium Legislation	Moratorium Provisions	Effective Until
New South Wales	Gene Technology (GM Crop Moratorium Act 2003)	Responsible minister may order: <ul style="list-style-type: none"> • Prohibition on cultivation of GM food plants, or classes of GM food plants • Exemptions from prohibition orders 	March 2008
Victoria	Control of Genetically Modified Crops Act 2004	Responsible minister may order: <ul style="list-style-type: none"> • Prohibition on cultivation of specified GM plants in specified areas of Victoria. • Permissible areas in which specified GM plants or classes of plants may be cultivated. • Conditions that attaché to cultivation prohibition or permission orders. • Exemptions from prohibition orders. 	February 2008
South Australia	Genetically Modified Crops Management Act 2004	The Act and associated regulations provide for: <ul style="list-style-type: none"> • The state to be declared a prohibited area for the cultivation of GM food crops • The Minister able to approve specific GM crops if coexistence can be implemented • The responsible minister to permit limited and contained experiments and trials for GM food crops. 	April 2008
Western Australia	Genetically Modified Crops Free Areas Act 2003	The Act and associated regulations provides for: <ul style="list-style-type: none"> • The state, or areas thereof, to be declared a prohibited area for the cultivation of GM crops. • The responsible minister to issue exemptions from the conditions of the Act. 	2009
Tasmania	Genetically Modified Organisms Control Act 2004	Under this Act: <ul style="list-style-type: none"> ▪ The minister may permit some dealings with GMOs. • Allows for the state to be declared GMO free. • Permits to be issued for persons to have dealings with specified GMO's. 	2009
Australian Capital Territory	Gene Technology (GM Crop Moratorium) Act 2004	Responsible minister may order: <ul style="list-style-type: none"> • Prohibition on cultivation of specific GM food plants. • Exemption from prohibition of specified contained research and field trials approved by the OGTR. 	2006+

The main reason for the imposition of the moratoria on the cultivation of GM canola was to allow the industry and government stakeholder's sufficient time to determine that the introduction of these crops would not jeopardise access to current markets for Australia's major grain and dairy exports. (Lloyd, 2003; Apted, McDonald, and Rodgers 2005)

The action of introducing moratoria is underpinned by various state and territory government legislation, which in turn, is enabled by the Recognition of Designated Areas

Principle that exists under the Gene Technology Act. (2000).

The specification that such a policy principle will refer to marketing purposes is important. Decisions made by the OGTR on whether to issue a license for a GMO to be grown in a particular area can only take into account health and environmental risks. In issuing the license, the Regulator does not take into account market issues.

The implementation of the moratoria has resulted in stakeholder uncertainty and has led to the withdrawal of investment for agricultural research and development in Australia by some companies (AusBiotech 2005).

In the short term, several independent research reports indicate that Australia's domestic and export markets would not be disadvantaged by the introduction of GM canola (Stone, Matysek, and Dolling 2002; Norton, 2003; Foster, 2003; Lloyd, 2003; Apted, McDonald and Rodgers, 2005; Foster, 2006; Foster, 2007).

Apted and Mazur (2007) concluded that if GM canola were commercialised in Australia, the direct impacts on organic canola production in Australia are also likely to be negligible.

In the mid to long term, Apted, McDonald and Rodgers (2005) suggest that the continued globalisation and adoption of GM crops will have a significant impact for Australia, both locally and overseas. In international markets, GM crops with productivity enhancing traits can be expected to exert downward pressure on the prices for those crops. Furthermore Lloyd (2003) suggested that Australia's export competitiveness for canola could be adversely affected if the commercialisation of GM canola did not proceed in Australia.

Given that Australian grain producers are price takers in these competitive world markets, preventing the commercialisation of GM crops in Australia potentially means that Australia producers receive a reduced benefit from their crops. This could lead to reduced market share and reduced profitability for Australian grain producers, compared with the outcome if Australian grain producers were permitted to grow GM crops commercially.

The debate on the commercialisation of GM food crops in Australia is yet to be concluded. Modelling of the impacts on Australian agriculture, however, suggests that if Australia fails to access and adopt plant biotechnology and GM crops it could miss some opportunities to expand and/or maintain market share over time, both in terms of primary crop markets and down-stream commodity markets (Stone, Matysek, and Dolling, 2002).

Additional modelling undertaken by Apted, McDonald and Rodgers (2005) predicted that a failure to commercialise GM crops, now and in the near future, could cost Australians between \$1.5 and \$5.8 billion in forgone gross national product by 2015.

Stakeholders in our consultation recognised that the moratoria would have a much broader impact on the introduction of new technology (AusBiotech 2004; Timbs, Adams, Rogers, 2006; Hudson, 2005).

Impacts identified by the research include:

- halting the path to market for GM food crops, which have been approved through the OGTR process;
- creating uncertainty as under the moratoria legislation there is lack of transparency in the process (including the criteria that would allow the approval of commercial releases);
- discouraging further investment in food crop genetically modified organisms

(GMOs);

- denying Australian farmers the choice to grow GM food crops; and,
- diminished confidence in the nation's ability to capture the benefits of biotechnology, as outlined in the National Biotechnology Strategy.

1.2 The Need for a National Market Access Framework for GM Canola and Future GM Crops

The success of Australian agriculture has been built on innovation. Innovation has come from both the development of Australia's own technology and from the rapid adoption of world best practices, including the freedom to evaluate and adopt new technology.

The possible introduction of GM crops into the Australian grains industry may have significant market implications for stakeholders and supply chains. GM crops offer the Australian grains industry a new set of production tools that will assist it to meet the increasing global demand for high quality grain based products and, at the same time:

- better manage natural resources;
- reduce impact on the environment; and,
- allow the grains industry to compete in the domestic and global markets using technology that is comparable to their competitors.

In reference to the role for plant biotechnology in Australian agriculture, Corish et al (2006) stated the following:

“Biotechnology is transforming agriculture and food production. Its benefits — agronomic, environmental, nutritional, human health and economic — can strengthen the Australian agriculture and food sector's competitive position in world markets. Other farmers around the world are rapidly adopting crop varieties that are genetically modified for traits such as insect resistance and herbicide tolerance. Many other traits are in the pipeline for a wide range of crops and livestock. If Australia falls behind in this rapidly developing area of innovation, it will lose ground to competitors whose investment in, and adoption of, biotechnology is racing ahead...As Australian agriculture and food businesses strive to remain competitive, GM and other biotechnologies offer ways to reduce costs, drive innovation and maintain sustainable industries.”

Conversely, Foster (2007) provided a summary of current Australian grains industry supply chain concerns relating to the introduction of GM canola and future GM crops:

“The concerns arise mainly from the perception that there is considerable consumer resistance to GM crops throughout the world and even to livestock products that are obtained from livestock fed on GM feedstuffs. The opponents of GM canola say that its commercialisation in Australia will lead to losses of markets for Australian canola and of price premiums for non-GM canola.

Marketers of wheat and barley in Australia have also claimed that unintended presence of GM canola in their shipments could jeopardise some of their markets. Experience throughout the world since the introduction of GM grains in 1996 has shown that it is difficult to avoid unintended presence of GM materials through cross pollination in fields and co-mingling in the grain handling and storage system.”

The Network of Concerned Farmers (2007) an Australia wide network of conventional and

organic farmers are also concerned about the economic, environmental and social impacts of GM canola and future GM crops.

“Our concerns about GM canola relate to: impact on the non-GM growers, costs and liability, contamination and loss of markets for all agricultural produce, herbicide resistance, environmental impacts, patents and corporate control of farming.”

The Australian grains industry and its stakeholders together with respective governments and the community need to make a choice about the future role and introduction of GM canola and other GM crops. This choice involves addressing important questions:

- Does Australia want to retain an investment in agricultural GM technologies?
- Does Australia want all tools available to it to maximise innovation?
- Can an environment be established where market choice is maintained for all stakeholders with the introduction of GM crops?
- Can the stakeholders establish a transparent, consultative and timely framework for the evaluation of market access issues prior to the commercial release of GM canola and future GM crops?

If the grains industry accepts the potential benefits offered by agricultural biotechnology, stakeholders will need to resolve the current barriers to the adoption of GM canola and future GM crops with government support.

A number of independent legislative and industry reviews have identified that a national strategy is required to resolve the current barriers to the introduction and adoption of GM canola and future GM crops. This strategy must address the marketing issues that are outside the scope of the current national regulatory framework.

Statements from authors of the respective reviews are provided for context, detailed recommendations from each of the reviews can be referenced in Appendix Four.

“Given the range of views on GM crops, it is unlikely that all farmers will want to use this technology and industry and governments need to agree on a framework or strategy for coexistence. With the moratoriums in most jurisdictions due for review in 2007 or 2008, it would be timely for governments and industry to work together over the intervening period to develop such a framework. Any coexistence framework depends on having sensible levels of tolerance.” Corish et al (2006)

“The Review accepts that there is a need to achieve a nationally consistent scheme for the regulation of GMOs, including a mechanism external to the OGTR that will ensure consistency between States on aspects of regulation driven by economic and marketing considerations.” Williamson et al (2006)

“The Review concluded that a nationally consistent transparent approach to market considerations should be adopted.” Timbs et al (2006)

“The Government will also work with industry and interested state governments to develop appropriate arrangements to allow GM and non-GM producers to co-exist.” Australian Government (2006)

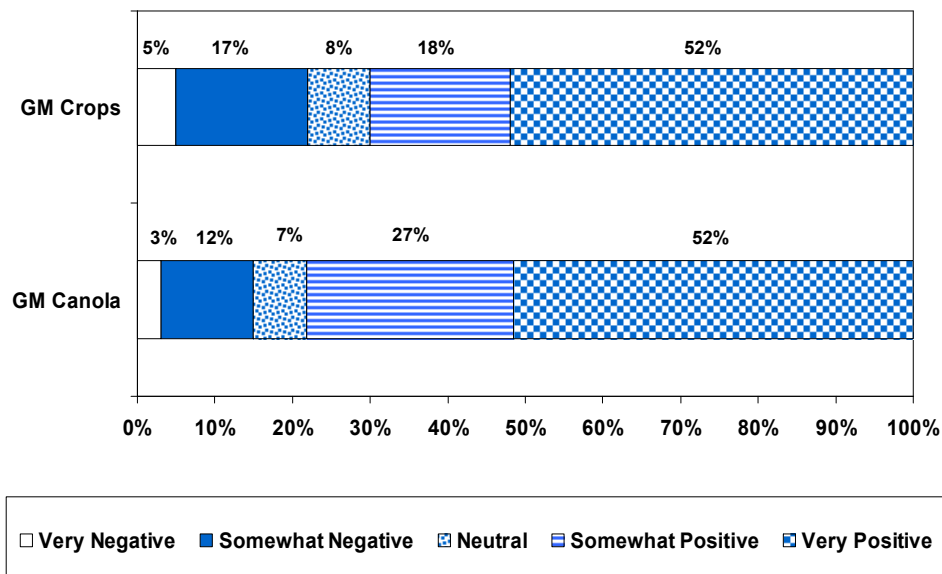
The challenge for grains industry stakeholders is to develop a national framework that allows the Australian grains industry to continue to facilitate trade and maintain market choice by responding to changes in demand for existing and new uses of grain products.

2.0 The Australian Grains Supply Chain: Its perspective on GM canola and Future GM crops

2.1 Australian Grains Industry Supply Chain Attitudes to the Introduction of GM Canola and Future GM Crops

The Australian grains industry has a very positive attitude towards the role of GM canola and future GM crops. The market research showed that the majority of the respondents considered the introduction of GM canola (79%) and GM crops (70%) would have a positive impact on the Australian grains industry (Figure 1). Less than 15% (GM canola) and 22% (GM crops) believed that their introduction would have a negative impact on the industry.

Figure 1: Impact on the Australian Grains Industry if GM Canola and Future GM Crops were introduced?

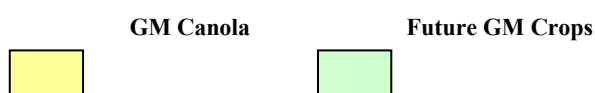


2.2 Impact of the GM Crop Moratoria on the Australian Grains Industry Supply Chain

Respondents were asked to identify the degree of impact that GM Canola and future GM Crops (Table 4) would have on the Australian grains industry. In addition, respondents were asked to nominate examples of these potential impacts and any concerns that currently exist.

Table 4: Impact by sector on the Australian grains industry following the introduction of GM Canola and future GM crops.

Industry Sector Organisations (n=respondents)	Very Negative (%)	Somewhat Negative (%)	Neither Negative or Positive (%)	Somewhat Positive (%)	Very Positive (%)
Input Service (n = 20)	5		25		70
		10		15	75
Grain Grower (n = 14)	14	14	7		64
	14	7	14	7	57
Post Farm (n = 12)	25		50		25
	8	25	25	25	17
Industry (n = 8)	13		24		63
		13		13	74
Livestock (n = 6)	50		17		33
		50		50	



Input service, grain grower and industry sector organisations are the most positive about the potential impact of GM Canola and future GM Crops on the industry. For the organisations within these sectors accessing potential farmer benefits was seen as a key positive impact as the benefits that would be derived included:

- Increased productivity – higher yields and lower input costs.
- Improved global competitiveness.
- Improved farming systems flexibility and choice.
- An ability to manage stresses, for example frost, drought, disease and pests.
- Improved sustainability and reductions in farm inputs.

In addition, environmental benefits were nominated as an important potential positive impact.

Conversely, organisations involved in the Post Farm Gate and Livestock sector of the grains industry indicated that they were less positive about the introduction and adoption of GM Canola and future GM Crops. Respondents from these sectors were concerned with a range of potential impacts and were seeking further evidence relating to:

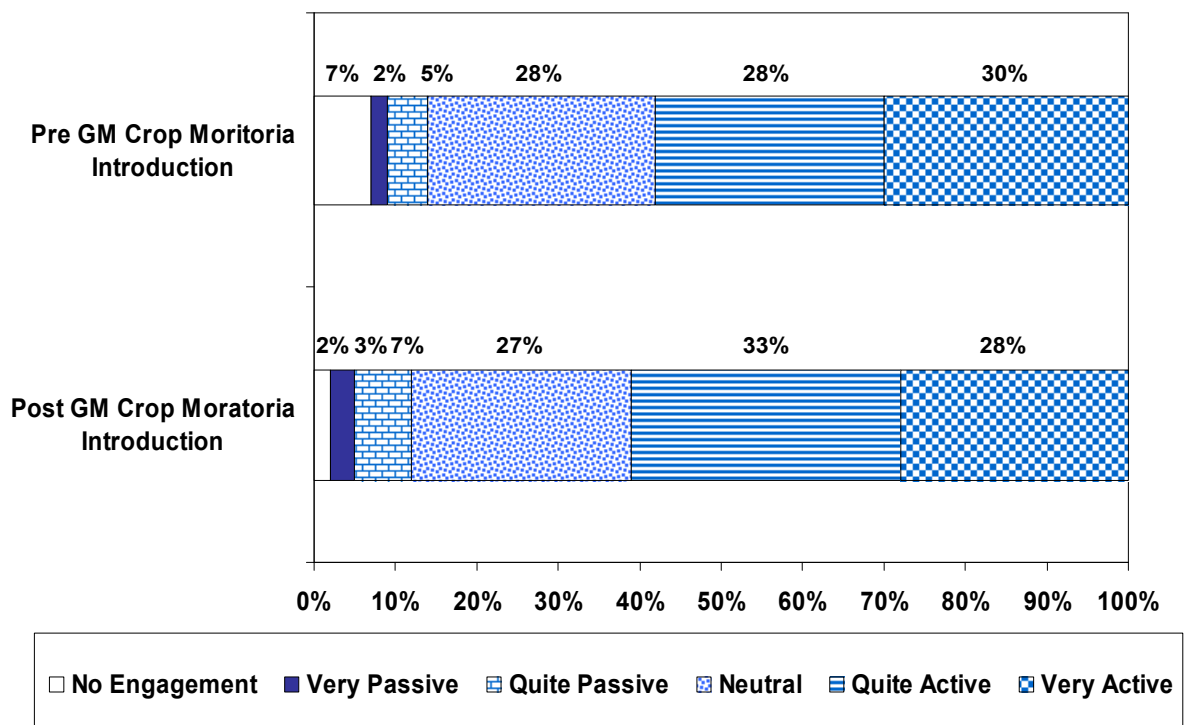
- Consumer attitudes and potential consumer resistance.
- Potential delivery of new grains/products with improved nutritional aspects.

- Loss of non-GM price premium.
- Establishment of standards for adventitious presence.
- The ability to provide traceability through the whole supply chain.

2.2.1 Engagement in the GM crop debate

The implementation of the moratoria on the introduction of GM canola and future GM crops has had little effect on the overall level of active participation and involvement of respondents in the GM canola/GM crops issue. The majority of respondents have played, and continue to play, an active role in the GM canola/GM crops issue prior to (61%), and post (58%), the implementation of the moratoria (Figure 2).

Figure 2: Grains Industry Participants Engagement and Involvement in the GM Canola Debate



When broken down by sector, more significant changes in the level of active participation and involvement are observed between pre and post the introduction of the GM Crop moratoria (Table 5.). For example, Industry Organisations have become the most active participants in the GM canola and GM grain crops debate post introduction of the moratoria, (75% prior and 88% post moratoria).

Further to this, grain growers demonstrate the greatest level of active participation post moratoria, compared to the Input Services category that showed the highest level of active participation prior to the moratoria. This reflects that the major impact has been related to investment in GM technology and that industry organisations and grower groups have reacted to this by becoming more actively involved in the debate.

Table 5: Level of Grains Industry Sector Participant Engagement in the GM Canola Debate Pre and Post Moratoria Introduction

Industry Sector Organisations (n=respondents)	No Engagement (%)	Very passive (%)	Quite Passive (%)	Neither Active nor Passive (%)	Quite Active (%)	Very Active (%)
Input Service (n = 20)	5		40	15		40
			10	30	40	20
Grain Grower (n = 14)	7		29	29		35
				29	21	50
Post Farm Gate (n = 12)		8	17	17	33	25
		8	17	33	17	25
Industry (n = 8)	12		13	50		25
				12	50	38
Livestock (n = 6)	17	17		33		33
	16	17		17	50	

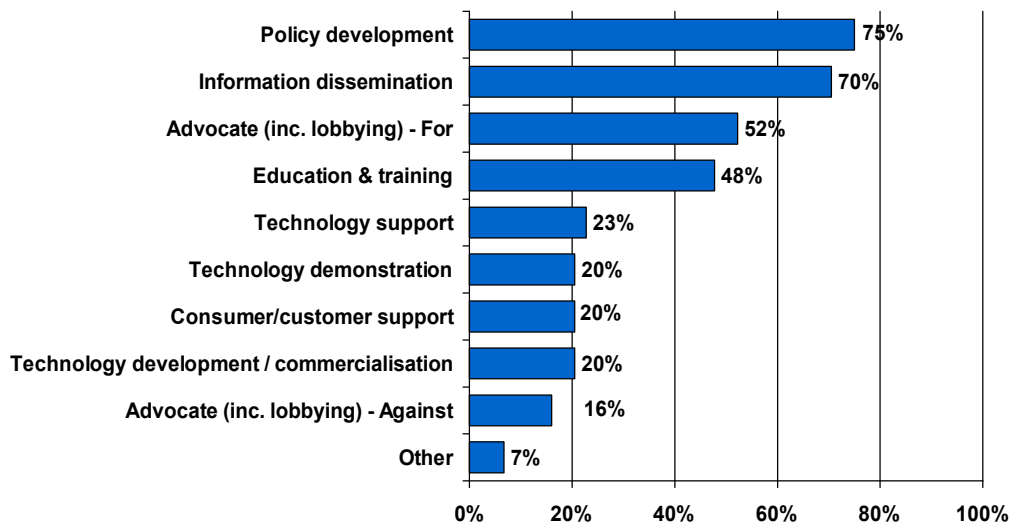
Pre Moratoria
 Moratoria

The major shift from passivity towards active involvement is observed from the Livestock industry sector with their level of quite active involvement increasing from 33% prior to the moratoria to 50% post moratoria.

The Post Farm Gate organisations were the only category to experience a shift towards a reduction in their level of active participation (58% prior and 42% post moratoria) and are the least active sector involved in GM canola and GM crop issues. This reflects the operational nature of the sector and thus, the level of engagement is likely to have reduced as the immediate likelihood of having to deal with GM product has diminished.

Respondents were asked to nominate the nature of their current engagement and involvement in the GM canola and/or GM Crop debate. (Figure 3)

Figure 3: The Nature of Grains Industry Participants Engagement and Involvement in the GM Canola Debate



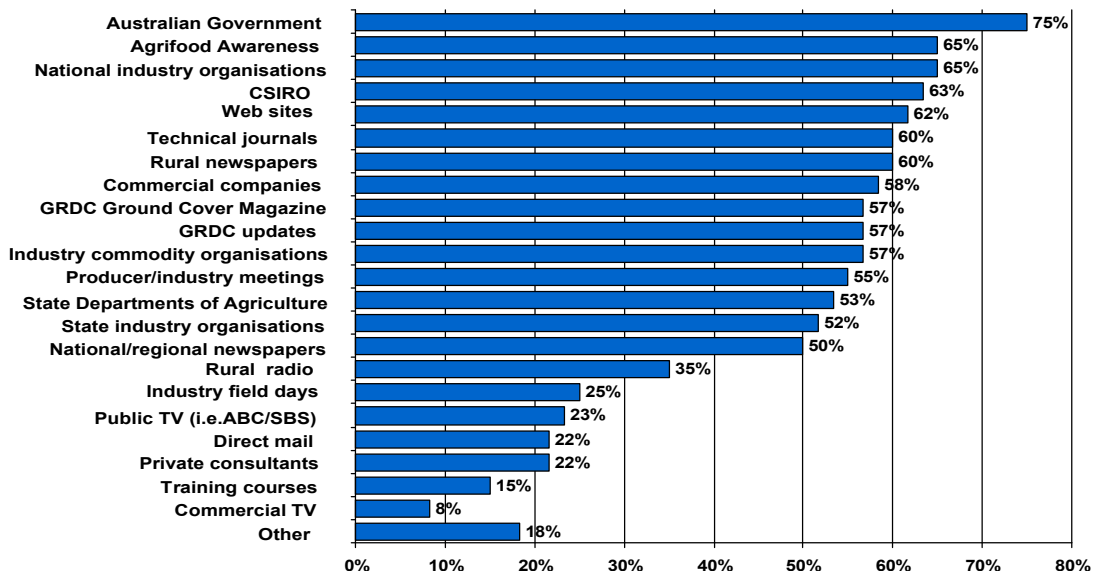
Base: All respondents who had an active participation and involvement in GM canola and/or GM grain issue (n=44)

Source: CEGEDIM STRATEGIC DATA © copyright 2006

In terms of the nature of respondents' participation, the majority are involved in the development of policy (75%). However, an almost equal number of respondents are involved in the dissemination of information (70%). This outcome supports additional research findings where 97% of respondents indicated that despite already having a significant level of knowledge on the topic they were interested in receiving additional information relating to GM canola and GM grain issues.

Supply chain organisations obtain information from a range of public and private sector sources with information being presented in a range of formats (Figure 4). Government sources rank highly as the most commonly used.

Figure 4: Respondent information sources relating to GM Canola and/or GM Crop issues?



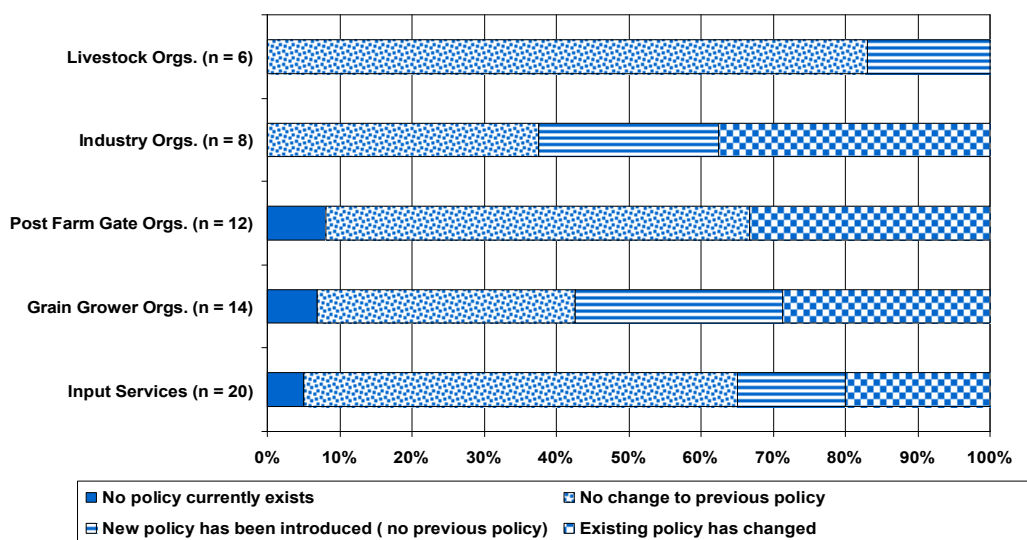
Base: All respondents (n=60)

Source: CEGEDIM STRATEGIC DATA © copyright 2006

2.2.2 Policies relating to GM crops

The positive shift in the level of participation since the imposition of the moratoria has included changes to policy. 42% of respondents stated that they made some change to their policy since the moratoria (Figure 5). All supply chain sectors, with the exception of the Post Farm Gate sector, have introduced new policy where no policy previously existed. Only a very small number (<9%) of respondents have no existing policy.

Figure 5: Australian grains industry organisations policy changes following the introduction of the GM crop moratoria



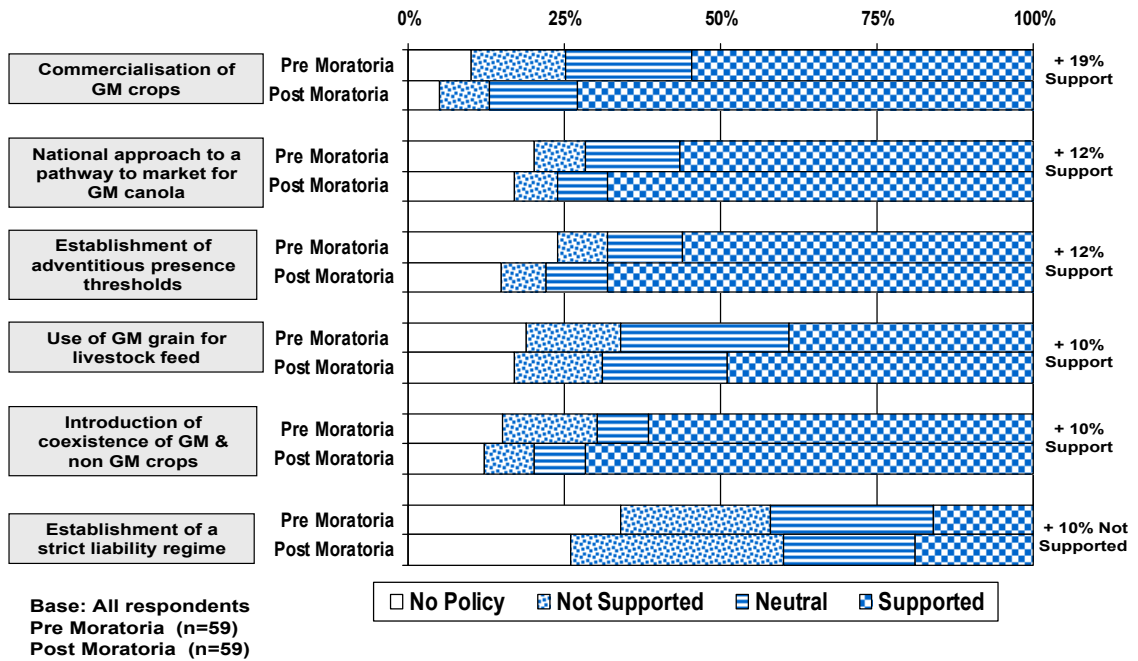
Source: CEGEDIM STRATEGIC DATA © copyright 2006

The three most significant policy issues that changed following the introduction of the GM Crop moratoria were in respect to the commercialisation of GM crops (+19%), a national approach to a Pathway to Market (PTM) for GM canola (+12%) and the establishment of AP thresholds (+12%). The market research demonstrated a change towards positive support. (Figure 6)

The only policy where the majority of respondents are currently not supportive is the establishment of a strict liability regime, with 34% of respondents' not supportive compared to 19% with supportive policies.

The policy issue where opinion is most diverse is the regulation of potential market risks where 19% of respondents currently have no policy, 24% are neutral, 25% do not support this policy and 32% support this policy. This may reflect the fact that there is general support for formal management of these issues, but not necessarily regulated management.

Figure 6: Specific Policies Prior to and Post the GM Crop Moratoria



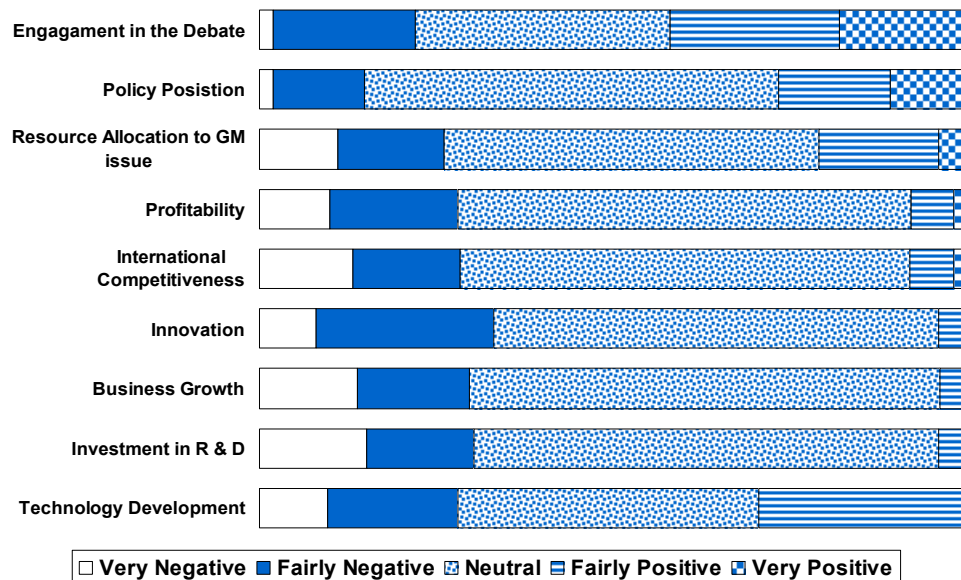
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2.2.3 Impact of the moratoria on stakeholders

Respondents were asked to consider and identify the impact of the introduction of the GM Crop moratoria on their respective organisations (Figure 7).

Almost half (42%) of respondents perceive that a major positive impact of the moratorium has been their engagement in the GM crop debate. This reflects the increased level of engagement and consequent increased commitment of resources. (21%) By contrast, those organisations (26%) that indicated a decline in resource allocation are primarily from the technology development and seed development sector.

Figure 7: Impacts of the GM Crop Moratoria on the Australian Grains Industry Organizations



Source: CEGEDIM STRATEGIC DATA © copyright 2006

Interestingly all sectors except Livestock industry organisations perceived that investment in technology research and development were negatively impacted, with the Industry Organisations perceiving the greatest impact.

The majority of the negative impacts of the GM Crop moratoria on stakeholders relate to the:

- ability to participate in the market.(i.e. competition, sustainability);
- *bottom line* (i.e. costs, profit, resource allocation); and
- loss of opportunities; (i.e. investment, innovation and business growth).

Overall, at least half of the respondents are undecided as to the impact of the moratoria on other aspects of their business.

The majority of stakeholders believe that the introduction of GM canola and GM crops will address a number of key issues that the grains industry currently faces. These include:

- competitiveness in a global grain market where Australia's competitors already have access to GM crops;
- improved viability for processors through access to more secure and cost competitive raw materials;
- improved productivity through a combination of reduced input costs and potentially higher yields; and
- reducing the environmental foot print of agriculture by lowering the number, toxicity and volume of pesticide sprays applied in grain growing.

The policy elements which demonstrated a positive shift were:

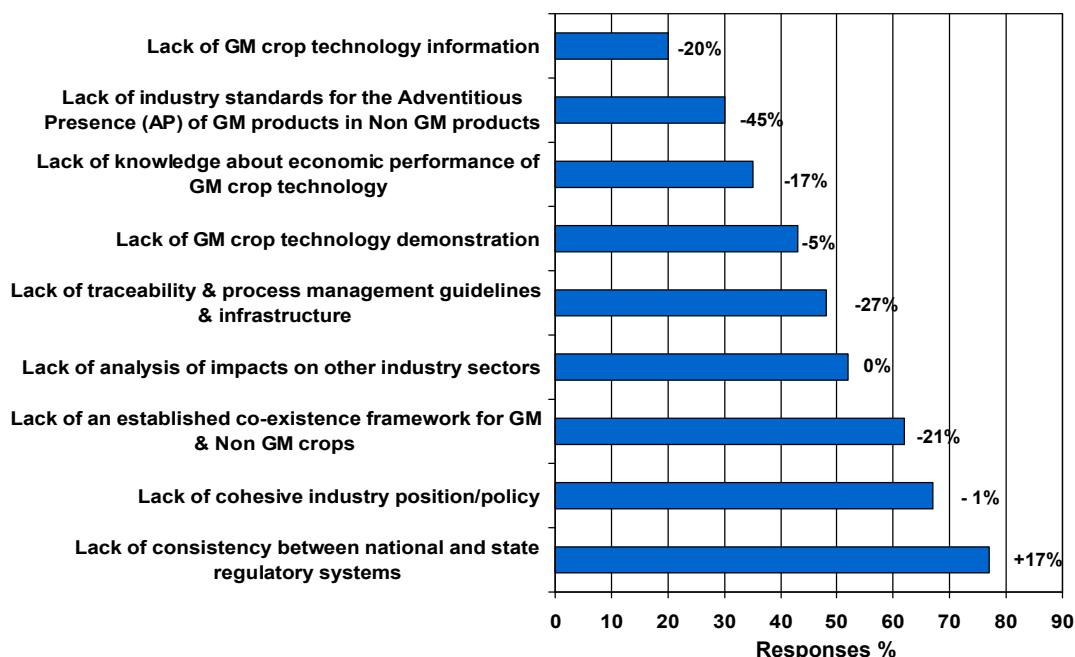
- commercialisation of GM crops;
- development of a national approach to a pathway to market for GM canola; and
- establishment of AP thresholds.
- support for the introduction of principles for the co-existence of GM, non GM and specialty crops

3.0 Key Barriers to the entry of GM Canola and Future GM Crops in the Australian Grains Industry

The construction of a national market access framework for GM canola and future GM crops will need to be undertaken within the context of participants' evolving attitudes towards the barriers that require resolution.

Supply chain participants were asked to identify the barriers to market access for GM canola and GM crops at the time of implementation of the moratoria. Further to this, they were asked whether there has been a change in the relative importance of the barriers between the time of the imposition of the moratoria and at the time the study was undertaken (Figures 8a & 8b). Identification of changes to these barriers enables a framework to be developed with an understanding of the relative importance of the respective barriers identified.

Figure 8 (a): Stakeholder Assessment of Current Barriers to the Entry of GM Canola & Future GM Crops and the relative change (+/- %) in importance since the introduction of the GM crop moratoria.



Base: All respondents (n=60)

Source: CEGEDIM STRATEGIC DATA © copyright 2006

76% of participants highlighted that the most significant current barrier is the lack of consistency between national and state/territory regulatory systems. The lack of regulatory consistency was the only barrier to entry of GM canola and future GM crops that the participants perceived had increased in importance post moratoria (+ 17%). Respondents commented that their change in position reflected the perceived inconsistency between the granting of approval by federal regulatory agencies (the OGTR and FSANZ) for the commercial release of GM canola versus the introduction of GM crop moratoria by state governments.

Figure 8 (b): Stakeholder Assessment of Current Barriers to the Entry of GM Canola & Future GM Crops and the relative change (+/- %) in importance since the introduction of the GM crop moratoria.



Base: All respondents (n=60)

Source: CEGEDIM STRATEGIC DATA © copyright 2006

Lack of consumer acceptance of biotechnology products from agriculture is a major barrier (68%). Respondents identified concerns about inconsistent attitudes among Australian domestic consumers. Perceived consumer attitudes surrounding food safety and agricultural biotechnology contrasted sharply with the apparently growing acceptance of medical biotechnology. Respondents believed that the issue of communicating and educating consumers was a key role of governments and should be supported by industry.

Of equal significance were the perceived lack of grains industry leadership (63%) and the corresponding lack of an established cohesive industry policy and position (67%) on GM canola and future GM crops. Stakeholders expressed concern that given the potential role and impact of biotechnology in the Australian grains industry the industry had failed to work collaboratively in developing an industry vision for the technology.

Respondents contrasted the grains industry to other industries such as dairy, meat and livestock, sugar and cotton where peak bodies had demonstrated leadership in facilitating debate about the *pros and cons* of biotechnology, the development of appropriate policies and the implementation of industry education programs. A number of respondents identified that the lack of a grains industry position and policies on GM technology was reflective of the fact that the sector does not have a peak industry body capable of representing the majority of grains industry supply chain stakeholders, when compared to industries such as sugar, dairy and meat and livestock.

Respondents confirmed that a number of barriers had declined in their level of significance since the introduction of the moratoria. Most notably barriers relating to the production and management of grain through the supply chain had declined in the level of significance (e.g. establishment of a co-existence framework, establishment of thresholds, testing and sampling regimes, traceability and process management guidelines).

Respondents commented that the decline in the significance of these barriers resulted from various grains industry and federal government initiatives promoting communication of information relating to these barriers. The outcome had been the development of a range of industry processes and standards underpinned by policies relating to the specific barriers identified. Examples provided by respondents include:

- Adventitious Presence (AP) Standards for GM canola in Non GM canola in commercial planting seed – 0.5 % (Australian Seed Federation)
- AP Standards for GM canola in Non GM canola in commercial grain – 0.9 % (Australian Oilseed Federation)
- Best Practice Guidelines for Management of AP in Canola (Australian Seed Federation, 2006)
- GM Canola Testing and Sampling Workshops (DAFF – June 06, ASF – Nov. 2006)

Consistent with the project background (section 1.0), the data presented in relation to current and past barriers identifies and confirms that for stakeholders to move forward there are a number of substantive actions that need to be undertaken.

The required response to the issues and barriers identified for GM crops is a combination of actions which need to be addressed by the grains industry and government, either individually or collaboratively. These actions cover establishment of policy, delivery of information and/or process implementation by industry and/or government (Table 6).

Table 6: Market access barriers to the entry of GM crops in the Australian grains industry

Market Access Barriers to the Entry of GM Crops in the Australian Grains Industry		Responsibility for Action to deliver resolution	
Barrier (Perceived or Real)	Resolution Required	Industry	Government
Lack of consistency between national and state regulatory systems	Policy		Yes
Consumer acceptance of biotechnology	Information	Yes	Yes
Lack of cohesive industry position/policy	Policy	Yes	
Lack of industry leadership	Policy / Process	Yes	
Lack of an established co-existence framework for GM & non-GM crops	Process	Yes	Yes
Lack of a consistent national policy approach to market risks	Policy	Yes	Yes
Lack of traceability & process management guidelines and infrastructure	Process / Information	Yes	
No mechanism for assessing or managing market risks	Process	Yes	
Lack of technology & protocols for testing & sampling of GM crops and products	Process	Yes	
Lack of industry standards for the AP of GM products in non-GM products i.e. GM grain in other grains e.g. canola in wheat.	Policy	Yes	
Lack of credible information about GM crops	Information	Yes	Yes

For the majority of the barriers allocated to government there already exists a national framework within which these can be addressed and resolved. The national framework which the federal, state and territory governments have agreed to implement and support through the Gene Technology Act (2000) includes collaboration between regulatory agencies such as the OGTR, FSANZ, AVPMA and AQIS. The national framework is overseen by the Gene Technology Ministerial Council (GTMC) and from time to time where matters relate to agriculture the Primary Industry Ministerial Council (PIMC) is consulted.

Currently within the grains industry a similar framework for management and resolution of these issues and barriers is absent as a peak grains industry body representing grains industry supply chain stakeholders does not exist. Rather, the grains industry relies on a number of individual grain sector based organisations (e.g. Grains Council of Australia, Australian Oilseeds Federation, Pulse Australia, NACMA and the Australian Seeds Federation) to focus on individual elements of the supply chain and collaborate in an *ad hoc* manner where and when appropriate on GM technology issues.

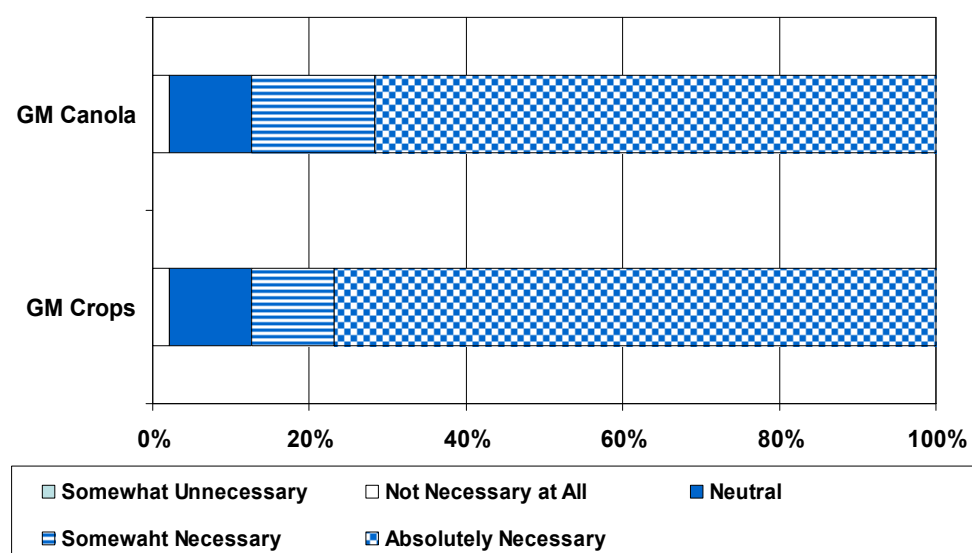
Similarly where shared responsibilities exist between industry and government, the only current mechanism that exists to deal with GM crop related issues and barriers is the AQIS grains industry consultative committee which has singular focus on phytosanitary matters surrounding the export and/or import of GM, non GM and specialty seed and grain. Beyond this specific focus an appropriate mechanism does not exist within the grains industry and government.

4.0 A Market Access Framework for GM Canola and Future GM Crops

4.1 Need for a national market access framework for GM canola and future GM crops

The majority of stakeholders agree that it is absolutely necessary for the grains industry to develop a national market access framework for future GM crops (73%) and GM canola (68%). (Figure 9)

Figure 9: Need For a National Market Access Framework for GM Canola and Future GM Crops in the Australian Grains Industry



Base: All respondents (n=60)

Source: CEGEDIM STRATEGIC DATA © copyright 2006

4.2 Key issues in the development of a unified industry strategy and approach to a framework's introduction

Stakeholders identified a diverse range of issues that will need to be resolved in order to develop a unified industry strategy and approach to the framework's introduction. These issues include:

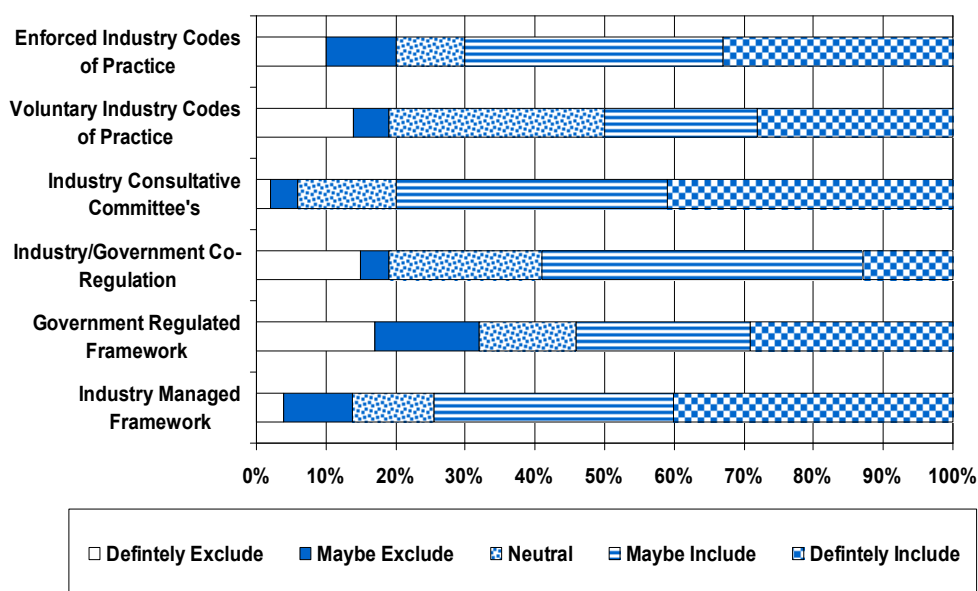
- The current uncertainty for stakeholders in terms of moving GM canola and GM crops forward.
- The need to monitor product integrity through the supply chain via the implementation of a verification system which incorporates product standards, quality assurance schemes and appropriate sampling and testing regimes.
- The need for industry established and government endorsed AP levels on a crop-by-crop and trait-by-trait basis.
- The ability to deliver confidence to growers and customers.

- The need for a clearly articulated contingency process, including standard operating procedures for managing market access and trade issues which may arise from time to time.
- The need for consistency in terminology and definitions.
- The need for access to readily available, authoritative, up-to-date information about the GM crop approvals and regulations applying within countries that currently import or may alternatively be potential new markets for Australian grain.

4.3 Key elements of a National Market Access Framework for GM Canola and Future GM Crops

Stakeholders were asked to identify and consider different governance models and key elements for inclusion or exclusion in the development of the framework in the Australian grains industry (Figure 10).

Figure 10: Preferred Infrastructure elements for inclusion in a National Framework for Future GM crops in the Australian Grains Industry



Source: CEGEDIM STRATEGIC DATA © copyright 2006

In supporting the establishment of an industry managed framework respondents identified a number of key operational features that require inclusion these include, but are not limited to the following:

- Affirmative decision making process.
- Transparency and clarity.
- Independence.
- Consultative process.
- Mechanism for review/update.
- Honesty/fairness.
- Responsive to supply chain participants.
- Consistency, continuity, uniformity.
- Accurate information.

A consultative mechanism to support the operation of the framework was viewed by all supply chain stakeholders to be an essential element for inclusion in the proposed model.

The livestock industry was less inclined to support an industry managed framework (50%) when compared to the majority of other sectors who predominantly supported an industry managed national framework. Conversely the livestock industry was more inclined to support the use of industry consultative committees than the balance of the respondents from the grains industry supply chain.

During the interview process the dairy sector participants commented that, due to demands from specific customers for increased information and analysis relating to product integrity it has been forced to pass these demands back down the supply chain. As a result, the dairy sector has introduced industry-based codes of practice and traceability schemes in order to maintain the confidence of their customers.

As grain forms an integral part of stockfeed for the dairy industry, the stockfeed industry would like to see greater scrutiny of the grain production and handling process, irrespective of the introduction of GM canola and future GM crops.

Across the grain industry it was recognised that through increasing customer demand and market competition, adoption of traceability schemes is increasingly becoming a requirement for all grain based products.

4.4 Governance and management options for a national market access framework for GM canola and future GM crops

Across the grains industry, the majority of stakeholders were in favour of an industry governed and managed framework. The framework should be transparent in its operations and would need to gain the support of the entire grains industry supply chain.

The livestock industry sectors were more in favour than the grains industry of incorporating governments in the management of a framework, either directly or via co-regulation with the industry.

Conversely, the grain industry sectors were against regulation of market issues. In general, the further down the supply chain towards input services, the greater the support for industry management and less government involvement in the framework.

Despite not favouring direct government involvement in the governance and management of the framework, supply chain participants in the qualitative research were unanimous in their call for government to support and endorse the framework.

With respect to the use of codes of practice for providing supply chain management governance, the grain industry supply chain respondents were more inclined to support the use of voluntary codes of practice rather than enforced codes of practice (Table 15).

Interview participants saw the framework as needing to operate in parallel with the already established national regulatory framework for GM crops.

Stakeholders identified that if a national framework is to be established, there are number of key governance and operational management elements that will need to be taken into account.

These include, but are not limited to:

1. The need for grains industry leadership and alignment of policies across the supply chain.
2. The need for alignment of domestic and global grain supply chains.
3. The need to understand the likely domestic and global consumer market trends.
4. The need for alignment and consistency between Federal State and Territory government policies and jurisdictions.
5. The need to focus on maintaining market choice within the supply chain.
6. The need to identify and mobilise where, and when required, the appropriate resource requirements within the supply chain for maintaining market choice.

5.0 The Gene Technology Grains Committee – Lessons Learnt

5.1 Background

In 2001, with the imminent release of GM canola like-minded industry groups recognised that a number of practical supply chain and market access issues needed to be considered in advance of the introduction GM canola. The industry groups recognised the need for an umbrella organisation to deal with the commercial introduction of GM canola and as an outcome established by the GTGC.

The GTGC was a forum that included representatives from across the grains industry, including seed producers, conventional and organic growers, bulk handlers, marketers, and food and feed processors, together with observer representatives from various state and Australian government agencies and NGOs. The organisations represented on the GTGC are listed in Appendix Five. However, many others contributed through submissions and discussions with the committee.

The GTGC's goal was to develop guidelines for delivering coexistence of GM and non-GM production systems and supply chains, where all operate in a responsible and sustainable manner.

The GTGC was issue-focussed and was not established under any formal charter or with any formal accountability. It evolved from a technical working group (with a GM canola-specific focus) to a broader industry policy body for industry management and government liaison.

The major output from the GTGC was the establishment of The Canola Industry Stewardship Principles for Coexistence of Production Systems and Supply Chains (CropLife Australia, 2006). These principles were drawn up in accordance with the principles and objectives set out in the GTGC produced Strategic Framework for Maintaining Coexistence (CropLife Australia, 2006), which provided a platform for the Australian grains industry to self-regulate the supply chain following the introduction of GM canola.

Whilst the GTGC's work on GM canola was by no means complete, it is useful to consider the lessons learnt from the GTGC experience in developing a national market access framework for the Australian grains industry.

The objective of this review of the GTGC is to assess the appropriateness of GTGC's structure, the effectiveness of its make-up and the quality and relevance of the outcomes that the GTGC delivered to the grains industry.

5.2 Stakeholders perspectives of the GTGC

The research found that 72% of stakeholders were aware of the GTGC. The level of awareness was highest among the input services, post-farm gate organisations and industry organisations, reflecting peak body representation within the GTGC. Of the participants who responded, 66% indicated that they had some form of participation in activities of the GTGC.

Research participants were asked, in an open ended question, to identify the relative strengths and weaknesses of the GTGC (Table 7).

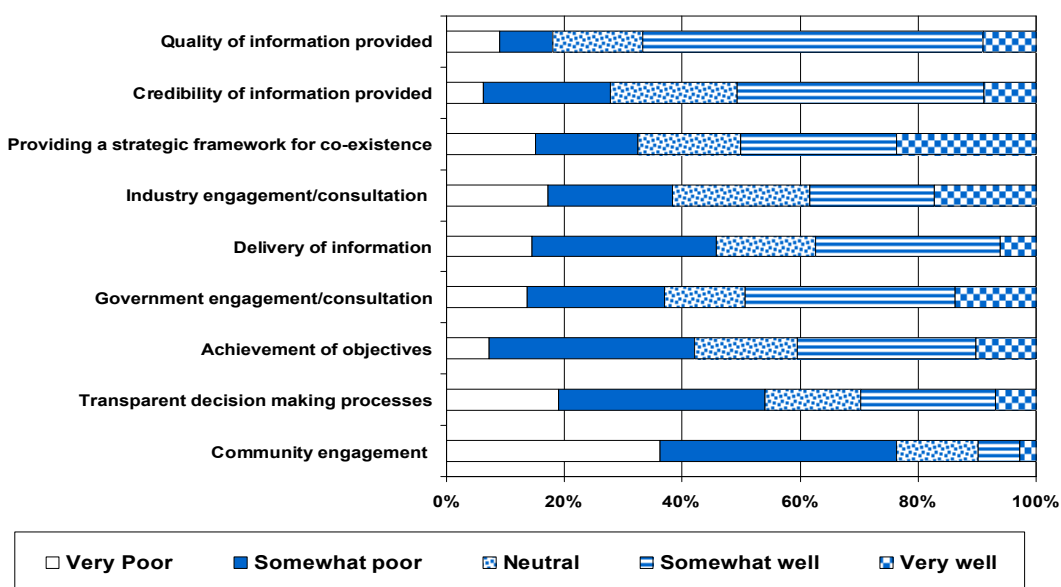
Table 7: Strengths and weaknesses of the GTGC

Strengths of the GTGC	Weaknesses of the GTGC
Attempt to include all supply chain participants/stakeholders	Lack of political /government support and recognition
Industry driven/ industry-based	Lacked balanced viewpoint
Addressed GM issues	Biased towards release of GMOs
Provision of framework/platform for GM discussion/debate	Lack of credibility/transparency
National focus/approach	Lack of communication and information
Developed/fostered coexistence principles	Lack of practicality of plan/framework
High quality technical information i) <i>The Canola Industry Stewardship Principles For Coexistence of Production Systems and Supply Chains.</i> ii) <i>Strategic Framework for Maintaining Coexistence</i>	Lack of industry wide support
	More scientific data/facts required
	Public fear campaigns/hysteria
	Lack of consultation
	Lack of funding and resources

The group’s most recognisable strength was an industry driven process that sought to include as many participants across the supply chain as possible, combined with the ability to address issues from a technical perspective. Conversely, the GTGC’s major weakness was perceived to be the lack of support and recognition of the GTGC’s role from government and its perceived bias towards the introduction of GM canola. This was combined with a lack of formal structure and basis for decision making.

Stakeholders were asked to provide an assessment of the performance of the GTGC based on a range of parameters (Figure 11). Participant assessment was based on a scale of 1 to 5, where 1 is very poor and 5 is very well.

Figure 11: Participant Assessment of GTGC Performance



Source: CEGEDIM STRATEGIC DATA © copyright 2006
Base: All respondents aware of the GTGC (n=42)

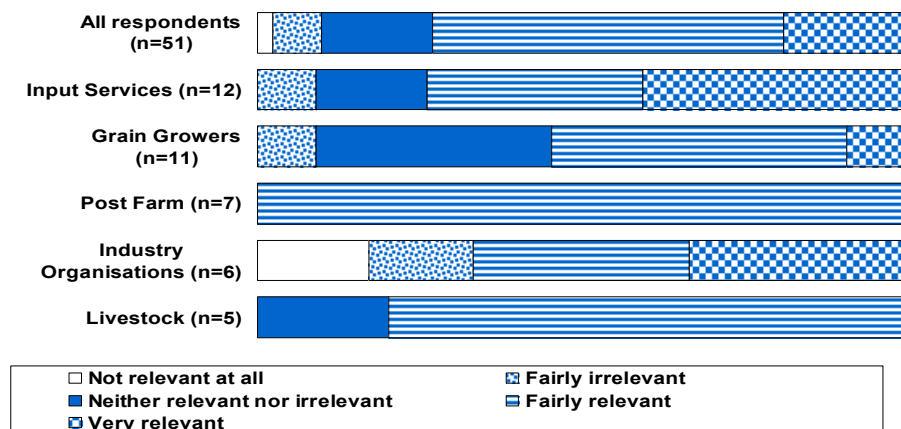
The GTGC rated well in relation to parameters such as the quality (50%) and credibility (40%) of information provided. However, when it came to parameters associated with the transparency of the GTGC decision making process (22%) and community engagement (7%), it rated poorly. Almost 20% of the participants did not have a view on the group's performance based on their lack of participation in the GTGC process.

When research participants were asked how the GTGC could have, in hindsight, been improved, the consensus was that improvements could have been achieved by:

1. Wider engagement/opinions/viewpoints.
2. More formal state government engagement/representation/involvement.
3. Greater transparency.
4. Greater/improved communication.
5. Earlier/improved public engagement.

The most significant comment from the research participants relates to the GTGC's perceived relevance as a model for a future national framework (Figure 12). Of the respondents, 74% indicated that the GTGC model would be either fairly relevant or very relevant to the framework. Within, and between sectors, respondents' recognition of the GTGC as a potential model for a national market access framework ranged from 56% for the grain grower groups to a high of 80% and 100% for the post farm gate and livestock sectors respectively.

Figure 12: Participant Assessment of the GTGC as a Model Option for a National Framework for GM Canola and Future GM Crops.



Source: CEGEDIM STRATEGIC DATA © copyright 2006

Despite being recognised by the Plant Industries Committee (PIC) for its role in providing a forum for the exchange of information between stakeholders and the production of the *Canola Industry Stewardship Protocols for Coexistence of Production Systems and Supply Chains*, the GTGC did not deliver sufficient confidence to industry and other parties to facilitate the commercial introduction of GM canola.

The lack of a formal structure for the GTGC and the informal nature of its operations significantly contributed to it failing to gain the necessary stakeholder endorsement to implement decisions. As such, the GTGC did not have any formal decision making power in a highly political environment. Hence, it was unable to resolve market access barriers for industry and government stakeholders.

Despite the failings of the GTGC, it is still viewed by a significant cross-section of stakeholders as providing a model on which a future market access framework could be developed for Australian grains industry stakeholders.

6.0 Examples of International Supply Chain Management Frameworks

In developing a model for a national market access framework, various international supply chain management systems were reviewed. These systems cover various aspects of the development of a market access framework for GM crops including structure options, supply chain management processes and approaches to influence customer confidence. Each of the examples demonstrates how market access, supply chain management and stakeholder management have been addressed within the context of each model.

6.1 Background

Globally, agricultural commodities are increasingly being differentiated in response to a variety of pressures – product safety, consumer preference, product traits, process traits, and government regulation. Consumers increasingly not only want to know what is in a product, but also how the product has been produced, processed and marketed. The requirements for access to markets are becoming more extensive as a result of these demands.

Management of the grain supply chain to meet end user specifications, for product quality and ensuring that the product is not compromised by the unintended presence of impurities, has to be built on a platform of maintaining product integrity.

Phillips and Smyth (2004) noted that frequently the terms such as identity preserved production and marketing, segregation and traceability are used interchangeably in the supply chain literature. The misinterpretation and misuse of these terms is creating confusion. Table 8 provides a comparison of the key features and elements of these processes.

6.2 International stakeholder approaches to the implementation of supply chain management systems

The introduction of GM crops globally has placed increased focus on the ability of the various supply chain participants to deliver market choice for customers and/or manage issues where customers are requiring assurance about how a product is produced.

Foster (2006) highlighted that, because of perceptions of consumer resistance to GM products, some non-GM producers and supply chain participants are concerned that unintended presence of GM material in their products could lead to loss of price premiums and market access.

Table 8: Comparing identity preservation, segregation and traceability supply chain management schemes. Source: Phillips and Smyth (2004)

1: Management System	a) Identity Preserved	b) Segregation	c) Traceability
Objective	Revenue Management	Product Safety	Liability Management
Status	Voluntary	Mandatory	Voluntary or Mandatory
Lead Stakeholder	Private company	Regulator	Commodity group, standards organisation or regulator
Information Flow	One or two way	One – way	Two – way
Supply Chain Focus	Down stream	Down stream	Upstream
Testing/Auditing	2 nd party/brand	1st party/regulator	3rd party/ standards organisation
<u>2: Production Stage Features</u>			
Production Arrangements	Formal production contracts	Regulation and contracts	Membership in quality standards
Production Controls	In-season agronomic rules vary with product	Formal buffer zones: post production land use controls	Process standards adopted and record keeping
<u>3: Processing Stage Features</u>			
Enforcement	Private	Public	Collective
Quality criteria based on	Product standards	Regs or HACCP	Processes (e.g. ISO)
Tolerance levels	Variable	Set in law	Performance based
Testing/auditing	2 nd party	1st party	3 rd party
<u>4: Retail Stage Features</u>			
Provides access to	Branded product market	Markets	Product categories
Information provided to	Consumer	Regulators	Regulator, retailer or processor
Penalties for failure in product management	Consumer fraud charges: lost brand value	Criminal prosecution: mandated product recalls	Consumer fraud charges: exclusion from product category
Price premium	Yes	None	None
Labelling	Private brands	None	Quality standards

In countries such as the USA, Canada, and the European Union (EU), the major focus for grains industries has been the management of the equivalent GM or non-discriminatory and organic supply chains. Conversely, in Australia the major focus has been on the management of the equivalent GM and non-GM supply chains through the adoption of co-existence principles by stakeholders in the supply chain.

Following the introduction and commercial release of GM crops across a range of countries, supply chains as well as governments have focused on the need to maintain market choice and product integrity for the GM, non-GM and organic sectors. In general, governments have allowed respective grain industry supply chains to manage and resolve issues related to the market, only intervening where industry has failed to resolve or act on specific issues. This is the case in major GM crop producing countries such as the USA, Canada, Brazil, and Argentina.

The ability of an industry supply chain to continue to deliver market choice following the introduction of a new product or a new GM crop is not a new concept. Currently there are number of international market access and supply chain management frameworks for various GM crops that are delivering market choice.

Similar systems operate in the Australian grains industry in relation to quality parameters

such as organic, pesticide residue free and specific end use characteristics for grain products. In general, these are industry developed and managed systems.

Industry managed systems currently operate within both small and large scale grain supply chains. There are a diverse range of drivers for these schemes from market access regulations to demand for socially and ecologically sustainable production methods and food safety requirements.

Critical to the success of the international supply chain management schemes is the engagement and endorsement of all stakeholder participants (both supply chain and government).

A platform for the success of each scheme has been the establishment of information databases to ensure effective up-to-date communication of trade (i.e. market access) information. This facilitates consistent and informed decision making along the supply chain.

The schemes are providing supply chain management of both GM and non-GM crops such as canola, corn, soybeans and palm oil in order to provide market choice and at the same time meet product quality standards required by the market or regulation.

6.3 Examples of International Supply Chain Management Frameworks

i) The Nexera® Canola Supply Chain (Matthews 2006)

Nexera® canola is a variant of canola that has specific functional properties and is marketed as a non GM product. Nexera® canola is grown in Canada alongside GM canola varieties and thus, segregation is important for both preservation of integrity of the product characteristics and for its non GM status. Consequently, the marketers of Nexera® canola have developed an IPPM solution.

This solution involves Nexera® canola being produced under identity-preserved conditions established by contract with selected growers. This provides supply to a guaranteed product specification with documented traceability. Grain oil quality is monitored on receipt and grain meeting specification is forwarded to nominated crushers.

The IPPM process is based on a strategic partnership led by Dow AgroSciences linking specific seed suppliers, grain growers, grain transporters, grain consolidators, processors and exporters. Grain growers choosing to participate in this market voluntarily enter into a contract to take advantage of price premiums available within this supply chain. Growers are required to purchase certified Nexera® seed of appropriate varietal purity and while required to adhere to good agricultural practice, there are no contractual protocols in regard to the parameters under which the crop is produced. The grain contracting company inspects the field once during early growth stages. Product is marketed through a closed loop marketing arrangement where all Nexera® canola is delivered to a nominated grain company. Grain quality is assessed on basis of a harvest sample. Grain is stored on-farm until delivery is required. This enables the supply chain to manage segregation and identity preservation by operating the accumulation infrastructure separately to commodity canola.

Key Features

- The IPPM is commercially driven and managed through contractual arrangements
- The marketing company undertakes appropriate verification activities throughout the process to meet customer requirements
- Supply chain management is based on mix of good manufacturing/agriculture practice, quality assurance processes and segregation/separation of supply chain activities

ii) High Erucic Acid Rapeseed (HEAR) – Canada (Smyth and Phillips 2002)

High erucic acid rapeseed is grown for the industrial market. Foods containing large amounts of erucic acid are considered unfit for human consumption and thus, it is important that HEAR is kept separate from canola destined for the food market.

Cultivation of HEAR varieties provides an example of governmental regulation. The Canadian Food Inspection Agency (CFIA) has mandated that all HEAR must be grown under contract registration and must comply with segregation requirements for food safety reasons.

Under the HEAR segregation system operated by CanAmera Foods, a large Canadian oilseed crusher, growers wishing to produce HEAR canola enter into a contract with CanAmera to do so under specified segregation requirements. Growers are required to map all fields under HEAR and to complete post-seeding surveys. They are also required to purchase certified seed annually, to employ a minimum of a five metre buffer zone to avoid field-to-field contamination and to submit to field inspection by CFIA officers to ensure compliance with requirements. All seed harvested must be delivered. Grain is kept on farm in separate storage from all other crops. The grain is transported directly from the farm to CanAmera's crushing facilities at CanAmera's expense. This avoids potential contamination to food chain grains within the country elevator system.

Key Features

- Human health and safety key driver
- Separate supply chain used to provide level of segregation required
- Product Stewardship governed by a series of Standard Operating Procedures
- Arrangements determined by compliance to regulation

iii) Spanish Coexistence Legislation (Binimelis, 2005; Mariné, 2005)

Spain has been cultivating Bt maize in selected regions since 1998 and this amounts to 12%-15% of production. This maize is directed into the stockfeed supply chain where it joins imported and unsegregated maize and soybean products. In mid-2005, the Spanish Ministry of Agriculture issued a decree to regulate the handling, planting, isolation, harvest, storage, inspection and record keeping in relation to GM crops, up to first-buyer stage.

This new legislation was driven by the 2003 European Commission guidelines for “Development of National Strategies and Best Practices to Ensure the Coexistence of Genetically Modified Crops with Conventional and Organic farming”. The proposed legislation is intended to add EC compliance to the current coexistence arrangements and is to be in place in time for the sowing of the 2006 maize crop.

This will dictate that farmers intending to grow GM maize:

- Notify local agricultural authorities a month in advance of sowing of the location, crop variety, area to be sown, and time of flowering for inclusion in a public register. In addition the farmers must participate in education programs concerning GM crop cultivation.
- Notify local agricultural authorities a month in advance of sowing of the location, crop variety, area to be sown, and time of flowering for inclusion in a public register. In addition the farmers must participate in education programs concerning GM crop cultivation.
- Establish a 50 metre isolation zone from any non-GM maize. Where such a separation cannot be established, the GM crop is required to have a buffer of four rows of non-GM maize as a pollen trap, which is to be harvested and labelled as GM maize.
- Must follow “good agricultural practice” by adherence to defined procedures for planting, harvesting, drying, storage and delivery. This will include the dedication of specific harvesters to GM maize, with those harvesters not to be used for the harvesting of non-GM maize.
- For resistance management reasons, where insect resistant maize varieties are sown, 20% of the area is to be sown to non-GM varieties.
- Must keep all seed labels, together with any other evidence of complying with the decree, for a period of five years.
- A minimum of 5% of the area sown to GM crops is to be inspected annually for compliance.

During the period June to September local agricultural authorities will monitor compliance through an extensive program that will involve sampling and testing crops in the neighbourhood of registered sites. At this stage it appears that the costs of compliance will be borne by the national and regional governments.

Seed for sowing non-GM crops will be required to meet a minimum threshold for adventitious GM presence. To date, the EU has not set such a standard, and there is considerable speculation as to what this threshold might be in organic systems.

The production of maize in organic systems is not common in Spain, and amounts to less than 0.2% of maize production. Only two claims appear to have been reported relating to the AP of GM material.

If a non-GM variety is deemed to be a source of GM seed at trace levels it can be cancelled from the Spanish national register of varieties that are traded and cultivated.

Key Features

- Objective is to maintain market choice within supply chain
- Separate supply chain used to provide level of segregation required
- Arrangements determined by compliance to regulation
- Needs all of supply chain engagement and commitment

iv) Round Table on Sustainable Oil Palm (RSOP 2007)

The Roundtable on Sustainable Palm Oil (RSPO) is an example of a framework established to deliver market choice based on a process requirement. That is, the driver behind the RSPO was consumer concern over the sustainability of palm oil production and the wish to choose products that have been produced in an environmentally sustainable manner. The usefulness of this example to the consideration of a market access framework for GM crops relates to potential structure options for a diverse range of stakeholders.

It has many of the same elements as issues relating to GM crops and provides an example of how diverse stakeholder groups can come together to address these issues.

Like GM, sustainable agriculture is difficult to define and has different meanings for different groups, for example it can include:

- Environmental – land use, water table, pollution, biodiversity.
- Human rights – land tenure, wages, conditions, child welfare.
- Economics – wealth creation, standard of living, developing nations.

Also similarly to GM crops, the palm oil industry faced a major challenge from NGOs and consumers and the palm oil growth opportunity was a highly emotive issue. For some it is a global disaster, while for others, it is a miracle of economic development. In between these two extreme views is a vast range of differing opinion. Early discussions with stakeholders recognised the need to strive to do better even if the motivation for doing so varied. Thus, a first step for the RTSO was to define sustainability and develop a set sustainability criteria.

It was recognised that there needed to be a collaborative and multi-pronged approach to addressing these issues. In effect, the NGOs were effective in bringing attention to the issues, but needed to work with industry and government to deliver a solution.

Initially, the RSPO began as a business initiative by a number of the key players in the palm oil supply chain from producers to retailers and a major NGO organisation. The RSPO was officially formed in 2004, two years after the initial meeting of parties.

The RSPO is a Partnership Initiative with the following features:

- Multi-stakeholder approach.
- Voluntary, self-management.
- Transparent.
- Inclusive.
- Action oriented - tangible results.

- Committed to production and use of sustainable palm oil.

The objective of the RSPO was simple *“To promote the growth and use of sustainable palm oil through co-operation within the supply chain and open dialogue with its stakeholders.”*

The RSPO is, while inclusive, a highly structured group. Membership is organised into seven sector groups from which the Board is drawn with agreed numbers from each sector. The sectors include:

- Oil palm growers.
- Palm oil processors or traders.
- Consumer goods manufacturers.
- Retailers.
- Banks and investors.
- Environmental/nature conservation NGOs.
- Social/developmental NGOs.

Transparency is crucial and this is handled through communication tools, particularly the internet. All documents are available from the RSPO website. The activities of the RSPO have included:

- Development and agreement of sustainable criteria.
- Development and agreement of audit and certification process.
- Development and agreement of acceptable supply chain.
- Promotion of sustainable palm.

Key Features

- Development of definitions and objective criteria to enable parties to move discussion forward
- Inclusive approach to enable all stakeholders to have input
- Defined structure that enables objective decision making and outcomes to be reached and monitored for compliance

v) The Market Choices[®] Program – USA (ASTA 2006)

A key element that has been identified in the development of a market access framework is a process that can deliver confidence to consumers. Market Choices[®] is a US program specifically implemented to ensure that GM corn cultivars not approved for importation into the EU are segregated from other corn and are directed to domestic use only. The Market Choices logo provides customers with an easily recognisable means of determining that their requirements have been met. This supported by the processes behind the logo and industry management of the integrity of the logo.

Market choices is an industry driven program developed in response to trading difficulties arising from the risk of exporting corn containing unapproved GM events to the EU. It is a partnership between the American Seed Trade Association (ASTA), the National Corn Growers Association, the life sciences companies, public extension providers and grain

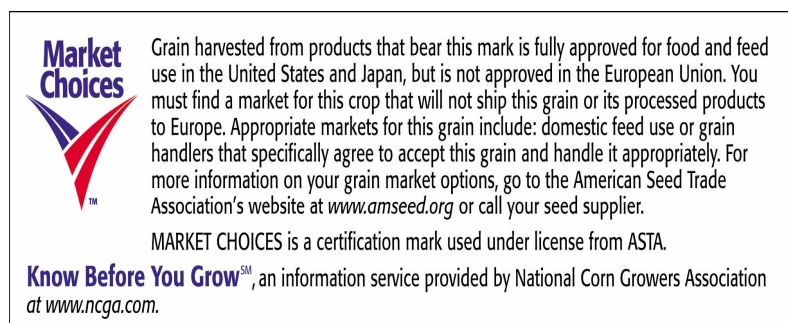
feed and grower organisations in Illinois, Iowa, Minnesota, Missouri, Nebraska, Ohio, South Dakota and Wisconsin.

A key element of the program is a registered certification mark, licensed to ASTA that is placed on seed bag tags and on seed catalogues to inform growers that the seed is to be kept out of sensitive export destinations (Figure 13).

An Agreement is signed by growers when seed with the Market Choices[®] tag is purchased that commits them to market that grain only through appropriate market channels, that is, to feed millers, to livestock feeders, or to cooperating grain handlers. Cooperating grain handlers provide the appropriate channels for Market Choices[®] grain. These grain handlers have agreed to accept and utilise such grain domestically, and to make sure it is segregated from other corn. Producers can find grain elevators that handle Market Choices[®] through the ASTA Grain Handlers Database. Market Choices[®] corn not delivered to these channels should only be used for domestic livestock feed or other domestic purposes.

An information support system for growers comprised of web sites and information programs undertaken by seed companies and organisations, grain companies and organisations, and state agriculture extension agencies that provides the location of all cooperating grain handlers, and lists the approval status, for USA, Japan and the EU markets of all commercialised GM corn events in the USA.

**Figure 13: American Seed Traders Association
Market Choices Planting Seed Bag Label**



Growers should refer to Monsanto's Technology Use Guide for information on crop stewardship regarding the potential movement of pollen to neighboring crops. ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. For more information call 1-800-768-6387. Know Before You Grow™ is a service mark of National Corn Growers Association.

Source: ASTA www.amseed.com

Key Features

- Use of a logo to provide consumers with easily recognised verification
- Industry managed approach
- Defined structure that enables objective decision making and outcomes to be reached
- Commercially driven and managed through contractual arrangements
- Companies along the supply chain undertake appropriate verification activities throughout the process to meet customer requirements

- Supply chain management is based on mix of good manufacturing/agriculture practice, quality assurance processes and segregation/separation of supply chain activities

vi) “Know Before You Grow” US National Corn Growers Association

The integrity of the US corn supply depends on the delivery of commodity corn that meets or exceeds the expectations of export partners. Through the ‘Know Before You Grow’ program (NGCA 2006), NCGA aims to educate corn growers on the importance of considering the export and marketing implications of each corn hybrid – before they plant.

NCGA supports the principle that US-grown GM hybrids yet to be approved in major export markets should not be placed into export channels. To this end, NCGA advises its members to ‘Know Before You Grow’ to minimise potential trade disruption with export customers.

NCGA urges growers to funnel hybrids not fully approved for EU export into one of three markets. Those markets are on farm livestock rations, domestic livestock feeding channels or elevators accepting grain not yet fully approved for EU export.

In cooperation with the nation’s leading seed companies, NCGA has compiled a database of the leading GM corn hybrids currently available. Categorised by biotechnology event, the database lists whether a corn hybrid is approved for US, Japanese and/or EU market consumption – and allows growers to compare commercial hybrids that share the same status (Appendix Six). The ‘Know Before You Grow’ database is a tool that is respected and used worldwide according to NGCA. The Government of South Africa, for instance, uses the information on a regular basis. The EU also utilises ‘Know Before You Grow’ as a reference tool.

Key Features

- Up to date and reliable information critical to ensure market requirements known
- Quick and easy reference provides confidence to customers
- Supports systems to deliver market choice

6.4 Success Factors for a Market Access framework

Underpinning each of the examples presented has been either an established whole of industry framework or the establishment of a new industry framework. The characteristics of these successful industry-managed frameworks include:

- Engagement of a broad base of stakeholders with common objective to meet market demands for products
- Endorsement and operational imprimatur from industry supply chain participants and governments
- Focus on tools that ensure market access to supply chain participants and deliver market choice to customers
- Use of logos and trademarks to provide easy recognition and confidence to customers and growers
- Market access processes operated in parallel with established regulatory frameworks for the protection of human health, safety and the environment
- Clearly defined structure and criteria that enables objective decision making and outcomes to be reached
- Commercially driven and managed through contractual arrangements
- Use of commercial verification and quality management processes to ensure processes meet customer requirements. Supply chain management is based on mix of good manufacturing/ agriculture practice, quality assurance processes and segregation/separation of supply chain activities
- Up to date and reliable information critical to ensure market requirements known and support systems to deliver market choice

7.0 Implications for a National Market Access Framework for GM Canola and Future GM Crops

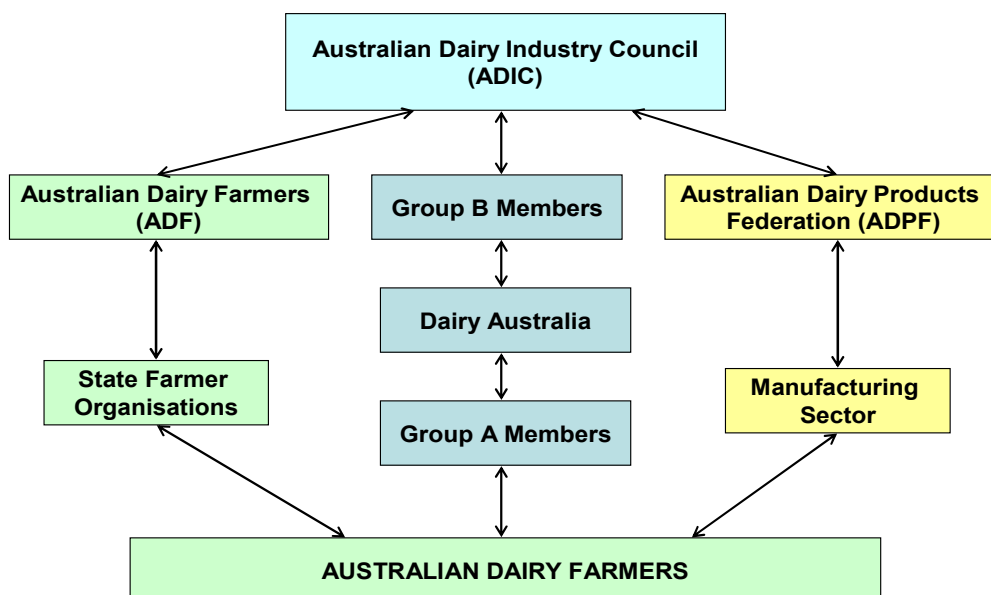
7.1 Introduction

Within Australian agricultural industries, supply chain participants and stakeholders are generally organised in a way that encourages and promotes the development of *whole of industry* policies and strategies. It is interesting to contrast the approach of the livestock industry and that of the grains industry to the development and management of policies.

Comments from livestock industry representatives, in particular respondents from the dairy industry, reflect consultative processes that promote “whole of industry” policy positions and strategies to manage a range of issues including the introduction and adoption of GM crops.

The Australian dairy industry comprises a number of organisations that represent different sectors of the industry supply chain. Collectively these organisations provide a framework for the industry to work together to advance their collective interests. Figure 14 illustrates the relationship between the major dairy industry organisations.

Figure 14: The Australian Dairy Industry Relationships between peak industry organisations



The adoption of a whole of industry infrastructure model culminating in the presence of a peak industry body with representation from stakeholders across the supply chain has a number of benefits for individual sectors and the industry as a whole. The main benefit of such a model is that all stakeholders are engaged in the development of policies that recognise individual industry sector needs/concerns and at the same time focus on outcomes that are for the collective good of the industry.

Within Australian agriculture similar models have been developed by a number of industries: examples include the Cotton Industry Council, Horticulture Australia, Meat and Livestock Australia and the Wool Council of Australia.

By contrast the Australian grains industry is yet to adopt such a model, hence it operates in a fragmented manner in the absence of a peak body representing supply chain stakeholders. Currently a number of discrete industry stakeholder groups represent various sectors e.g. Grains Council of Australia, Grain Growers Association, Australian Oilseeds Federation, Barley Australia, Pulse Australia, National Agricultural Commodities Marketing Association etc.

It is interesting to note that despite wheat being Australia's major grain crop (both in terms of volume and value) currently no peak industry organisation exists which brings supply chain stakeholders together within a common interest forum.

The fragmented nature of the grains industry reflects the perceived lack of leadership, consultation and inconsistency in policies relating to the introduction and adoption of agricultural biotechnology.

To broach this issue within the Australian grains industry Single Vision Grains Australia (SVGA) established a "Pathway to Market for GM Crops" initiative with the objective of developing a unified grains industry stakeholder position relating to the introduction of GM canola in 2008 and the introduction of future GM crops within the Australian grain supply chain.

7.2 Stakeholder Requirements of a National Market Access Framework for GM Canola and Future GM Crops

Analysis of the quantitative and qualitative research, together with the review of other models and discussion with a wide cross section of stakeholders¹, provides the basis for development of a market choice driven framework for the introduction of GM canola and future GM crops into the Australian grains industry. The framework can build on the previous GTGC approach to co-existence, which primarily focused on principles for the on farm production of GM, non-GM and specialty crops, but at the same time needs to reflect the development in stakeholder understanding and needs for delivering and maintaining market choice.

The proposed framework will be an integrated supply chain stakeholder approach that encompasses the following platform principles:

1. **Market Choice:** The ability of a customer within a supply chain to **access product**, which meets a pre-determined set of product specifications.
2. **Market Access:** The ability of a supply chain participant to **supply product** to a customer a product that meets a pre-determined set of product specifications.

¹ Key documents and research utilised in development of the Framework are:

- The outcomes of the quantitative and qualitative market research undertaken establishing lessons learnt and implications for the development of a national market access framework
- The outcome of three grains industry supply chain and one federal, state and territory government agency workshops held to review different national market access framework models
- Evaluation of the GTGC "Canola Industry Stewardship Principles For Coexistence of Production Systems and Supply Chains" and the GTGC "Strategic Framework for Maintaining Coexistence"
- An options paper prepared by Story (2003) for the Longer Term Role of the Gene technology Grains Committee. AOF and DAFF
- A business model prepared by Story (2003) for the establishment of a Canola Reference Group.
- Review of alternate international supply chain management models.
- Lessons Learnt from GM Canola and the GTGC experience

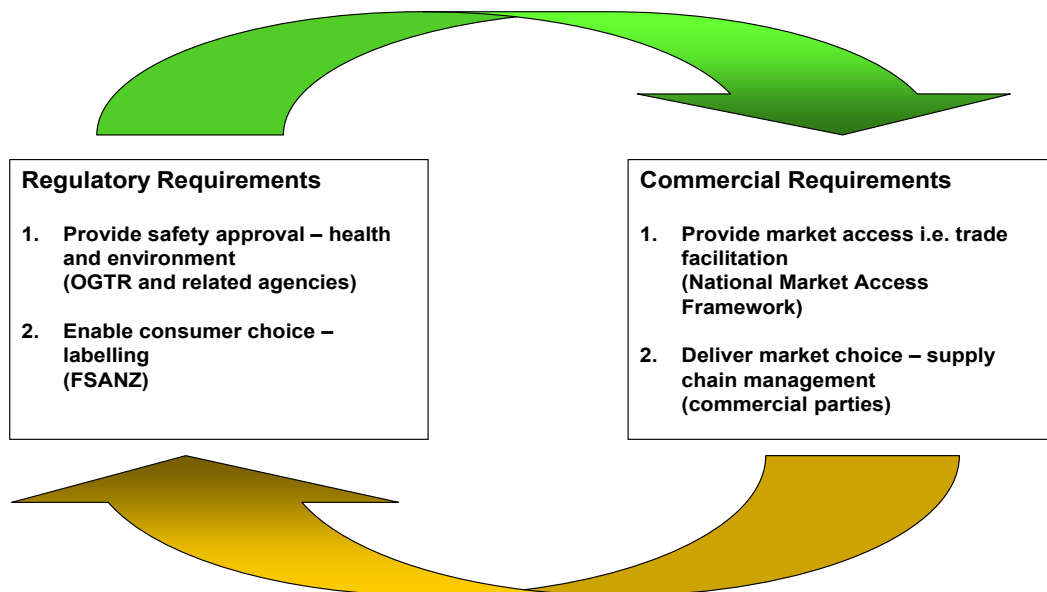
3. **Supply Chain Management:** The ability of a participant and/or participants within the supply chain to **produce, process, manufacture and deliver a product** to a pre-determined set of product specifications.

It was recognised by the stakeholders that the proposed model would operate in parallel to the current legislative framework for protection of human health and safety and the environment (Figure 15).

Stakeholders identified that the framework should include a process that:

- is based on market choice;
- is focused on ensuring that trade is maintained and/or enhanced;
- is industry driven and managed;
- has grains industry and government imprimatur and endorsement;
- enables consideration of impacts on all stakeholders;
- is able to operate in all market environments and be robust over time; and,
- has alignment with the national regulatory framework.

Figure 15: A National Approach to Managing the Introduction of GM Canola and Future GM crops in the Australian Grains Industry



Stakeholders have identified varying requirements for a framework. It is important to understand these various needs in order to ensure that the framework can satisfy competing demands. Table 9 shows the major requirements by stakeholder group. This is not to imply that this is an exhaustive list, or that these are exclusively the domain of one stakeholder group. However, it does highlight the core requirements that a framework would need to meet in order to obtain broad stakeholder support.

Table 9: Summary of stakeholder requirements for a national market access framework for GM canola and future GM crops in the Australian grains industry

Government	Industry	NGOs/Community
<ul style="list-style-type: none"> ▪ Rigorous system for examining market access issues ▪ Ability to give constituents confidence about the process ▪ Transparent decision making structure ▪ Accountability – reporting on the performance of The Framework. ▪ Contingency plan processes 	<ul style="list-style-type: none"> ▪ Ability to deal with specific technical issues ▪ Certainty i.e. process with defined and known goal posts ▪ Contingency plans ▪ Consistency across territory, state and federal jurisdictions. ▪ Low cost, flexible but robust system. ▪ Applicable across grain crops, traits and regions 	<ul style="list-style-type: none"> ▪ Market choice ▪ Confidence in the supply chain processes ▪ Knowledge (education) ▪ Consultative mechanism

These varying stakeholder requirements can be summarised into four key areas:

1. **Government/Industry Relationship** – The framework needs sufficient government buy-in to provide it with status and customer recognition and sufficient accountability to give Governments confidence in the process as an appropriate tool for managing market issues related to GM crops. However, it also needs to be able to operate in a commercial manner and be independent of regulation. It should be an objective process.
2. **Market Acceptance** - The framework will need to address the potential market responses to the introduction of GM canola and future GM crops, market risks and the requirements to ensure market choice is maintained. The framework must assist with understanding the market reactions and therefore, what standards are appropriate and what level of product integrity is required of supply chains.
3. **Delivering Market Choice** - The framework will need to ensure that the appropriate supply chain management processes, product quality schemes and traceability systems are in place to provide market choice. The process needs to have a consultative mechanism so that all stakeholders can ensure that any potential impacts for market choice can be identified and taken into account.
4. **Supply Chain Alignment** - The framework will need to have appropriate representation, engagement and acceptance across the Australian grains industry supply chain.

In parallel to the framework, but not part of it, there is a need for the communication and delivery of factual market access information, including domestic and international “market access” information relating to trade, regulatory requirements and customer product requirements.

The following section discusses various framework models. These models have been developed based on defining what stakeholders see as the purpose of a national market access framework:

The purpose of the market access framework is to provide a workable framework for the commercial introduction of GM crops in a manner that allows the continued facilitation of trade in all crops and maintains market access and consumer choice.

The research has identified that there is a set of technical based market access issues that need to be addressed and resolved prior to the commercial introduction of GM canola and future GM crops. The proposed decision making process within the framework will be founded on a robust, consultative and evidence-based assessment of the market access issues and their resolution.

The output of the process will be the demonstration of whether the market access criteria have been satisfied by stakeholders in a manner that is consistent with the purpose of the framework.

7.3 Development of a National Market Access Framework for GM Canola and Future GM Crops

There are two key elements that need to be considered in developing an appropriate framework model, these are.

1. Governance and operational structure of the model (includes the enabling structure, accountability and reporting mechanism)
2. Implementation of the framework (includes responsibility for the proposed framework's evidence-based consultative and evaluation process mechanism)

7.3.1 Governance and operational structure model options

In considering the options for the framework model based on governance and operational structure, there are three options considered namely:

- i. Government statutory regulation model
- ii. Industry/Government co-regulation model
- iii. Industry managed model

Each of the proposed framework models demonstrate a range of governance, operational structure and reporting/accountability characteristics that may or may not be appropriate for stakeholders. The characteristics of these framework model options are presented in Table 10.

Table 10: Governance, operational structure and reporting/accountability of framework model options

Option	Governing Body	Operating structure	Accountability and reporting mechanism
Government Statutory Regulation	Federal government agency e.g. DAFF. (necessary to have a national approach and would require support from state governments)	Statutory authority	Accountability to Federal Government through legislation establishing the authority. Annual report to Government
Industry/ Government Co -regulation	Federal/state government body e.g. PIMC (enable direct involvement by state governments)	Government/industry committee established and administered under PIMC or nominated representative i.e. PISC or GM Task Force	Accountability and reporting to state and federal governments through PISC/PIMC
Industry managed	Broad based industry representative group with appropriate role and skills e.g. NACMA (assumes that terms of reference are signed off by industry stakeholders e.g. via NACMA and state and federal governments e.g. via PIMC)	Committee established under NACMA	Established through terms of reference agreed to by NACMA and PMIC Annual report (or more frequently as agreed) to PMIC Industry reports through the NACMA process

7.3.3 Implementation of the framework

Within each of the governance and operational structure model options there are two further options for the composition of the committee/body that will be responsible for implementation of the framework’s evidence-based consultative and evaluation process. These are:

- i) Representative-based
- ii) Expertise-based

The responsibility for the composition and appointment to the framework and term of the appointment will be dependent on the governance and operational model selected by stakeholders.

As a guide the following would be recommended for consideration:

- i) Representative-based: Term - maximum of (1–3) years with representation from stakeholder groups and supply chain participants
- ii) Expertise-based: Term - minimum of 3 years with skills representing but limited to the marketing, grain quality, plant breeding, technology development, food processing, risk management, farming systems etc.

Either of these options could operate within the above governance models, although option ii) is likely to be more difficult in the Government/industry model. The pros and cons of these options are presented for evaluation in Table 11.

Table 11: Evaluation of the composition of a representative-based versus skilled-based framework

Option	Pros	Cons
i. Representative	<ul style="list-style-type: none"> ▪ Ensures that key stakeholders have direct input ▪ Provides broad base stakeholder representation ▪ Low cost infrastructure 	<ul style="list-style-type: none"> ▪ May be influenced by participant vested interests ▪ May not have skills and knowledge to address technical market access issues ▪ May be difficult to achieve decisions ▪ May result in reduced confidence of stakeholders not included ▪ Subject to changes in representation
ii. Expertise	<ul style="list-style-type: none"> ▪ Ensure that decisions are technically sound and fact/evidence-based ▪ Provide greater rigour and transparency ▪ Protects against influence of vested interests ▪ Consistent approach based on term of appointment ▪ Ability to appoint expertise as required 	<ul style="list-style-type: none"> ▪ May not represent all supply chain participant stakeholders ▪ May delay process through need for referencing information ▪ Higher cost

7.4 Selecting the Model for a National Market Access Framework for GM Canola and Future GM Crops

The evaluation of the proposed models for the framework recognised that:

- The model must maintain market choice for domestic and export customers of Australian grain.
- The model has to be relevant across the entire grains industry supply chain.
- The model will need grains industry and government endorsement and engagement.
- The model must ensure that stakeholders are consulted in the process of identifying and resolving market access issues.
- The model should be robust over time and marketing structures.

As part of the evaluation process, the respective models were presented for review and comment by stakeholders participating in a series of workshops undertaken as part of the project. Information gleaned from the workshops has been further supplemented with feedback obtained following presentations of the models to the Single Vision Grains Australia Pathway to Market Initiative and the PIC GM Task Force.

The outcome of the evaluation process of the proposed models (Table 12) is based on a combination of how each model addresses:

1. The key barriers identified by stakeholders.
2. The key requirements that stakeholders are seeking from the framework model.

Table 12: Evaluation of the proposed models against key barriers and stakeholder requirements

Feature	Statutory Regulation	Government and Industry Co-regulation	Industry Self Managed ²
1) Key Barriers³			
Lack of consistency between jurisdictions	Removes the barrier	Partially removes the barrier – some states could decide not to participate.	Removes the barrier – states/territories retain power to implement moratoria
Consumer acceptance of GM crops	Governance structure unlikely to address this specifically. Any model that gives consumers confidence that their market choice is maintained will assist in removing this barrier. The statutory model or industry commercial model may possibly deliver greater confidence due to the transparency and expertise – see evaluation of stakeholder requirements below.		
Industry alignment	Partial impact however unlikely to resolve	May impact – depends on the visibility of the committee and support from industry	Removes the barrier
Industry leadership	Partial impact dependent on composition and appointment. However unlikely to resolve	Partial impact dependent on composition and appointment. However unlikely to resolve	Removes the barrier
Lack of a national approach to market risks	Removes the barrier - states/territories retain power to implement moratoria	Partially removes the barrier – states/territories retain power to implement moratoria	Removes the barrier - states/territories retain power to implement moratoria
Lack of analysis of impact on other industry sectors	Process will determine level of analysis and consultation. Industry model may provide better linkages and communication channels		
2) Stakeholder Requirements			
Stakeholder Engagement	Limited to defined stakeholder representation.	Limited as structure is an internal process.	Greatest level of ownership and engagement by the grains supply chain stakeholders.
Stakeholder Consultation	Dependent on the process – could include a consultation process.	Less defined and restricted to representative groups.	Greatest level as the process includes consultative element
Process	Defined within legislation. Inflexible	Less defined as it may or may not include legislation Limited flexibility	Defined within terms of reference and scope. Flexible
Supply chain expertise	Problematic – depends on whether structured on a representative basis and/or elected experts.	Problematic – depends on whether structured on a representative basis and/ or elected experts.	High level through direct and active industry linkages.
Transparency	Within statutory reporting requirements	Dependent on government policy and statutory reporting requirements.	High as directly accountable to stakeholders
Formal structure	Yes – established by legislation	Semi – GTMC/ PIMC/ PISC process	Yes within current industry infrastructure
Cost	High	Medium	Low
Certainty to industry	Yes but with less flexibility	No as could still be subject to political interference	Yes
Timeliness for implementation and operation	Likely to be slow legislative process and operate within set timelines	Likely to be slow as requires negotiation and agreement between parties. May require coordinated legislation process	Likely to be most responsive as it provides easy access to stakeholders and would operate within defined timelines.

From the above analysis it is recommended that an expertise based industry managed model (with government endorsement as outlined above) will deliver the greatest benefit and be most likely to meet the needs of the diverse stakeholder groups.

The benefits of the proposed industry managed framework model include, but are not

² Assumes support by all federal and state governments and therefore removal of any state regulation

³ These are barriers nominated to still exist by more than 50% of respondents in the quantitative research

limited to:

- Ensures maximum engagement and participation of supply chain stakeholders.
- Ensures that market choice is maintained following the introduction of GM crops.
- Provides a rigorous process for examining market access issues prior to the commercial release of GM crops.
- Establishes a transparent evidence-based evaluation and decision making structure.
- Establishes a highly accessible process that proactively encourages stakeholder consultation.
- Establishes a process for engagement between industry and government stakeholders.
- Provides certainty in developing and introducing GM canola and future GM crops.
- Establishes a process for the establishment of the infrastructure required for contingency plans to deal with market access issues and non-compliances.
- Encourages regulatory consistency across state and federal jurisdictions.
- A low cost, flexible and robust system that can be established within current grains industry infrastructure.
- Applicability across grain crops, traits and regions.

8.0 Recommended National Market Access Framework for GM Canola and Future GM Crops

8.1 Introduction

The introduction of GM canola and future GM crops brings together a broad array of interests and issues from stakeholders both within and external to the grains industry.

A key principle is the need for impartiality and integrity in the governance and operational management of The Framework process.

Maintaining and delivering on this principle will give confidence to all stakeholders that they can be heard and that market access issues are being considered. This does not mean that all parties will be satisfied nor agree with the outcomes of the process. Importantly it will ensure that there is a process in place where their point of view and opportunity to present it has been recognised, but that the decision making process is objective and evidence-based.

As identified in the previous section, the most appropriate structure is an industry managed, government-endorsed model. Rather than establish a new grains industry entity stakeholders prefer that governance and operational management of a framework should be formalised within an appropriate organisation operating within the current grains industry infrastructure.

8.2 Governance - Who will be responsible for operating The Framework?

Based on the extensive consultation process forming the basis of this report, the consensus of grains industry stakeholders was that the best placed organisation to oversee an industry managed framework is the National Agricultural Commodity Marketing Association (NACMA). (Appendix Seven)

It is proposed that NACMA's governance and operational management of a national market access framework (hereafter referred to as 'The Framework') be positioned in the following context:

- NACMA's role is to address GM canola and future GM crop market access related issues only, not wider debates on gene technology
- NACMA is a grains industry supply chain organisation (from seed to consumer) that neither promotes nor endorses GM canola and future GM grain crops
- NACMA supports, when considering the introduction of GM canola and future GM crops, preservation of market choice
- NACMA has a practical operational focus on supply chain management processes

NACMA will need to demonstrate to stakeholders that the governance and operational management of The Framework can deliver the appropriate or required level of transparency, accountability, communication and timeliness on market access issues.

NACMA should act as a credible, impartial commentator on the practicality of GM canola and future GM crops and market access, distinguishing it from any political advocacy.

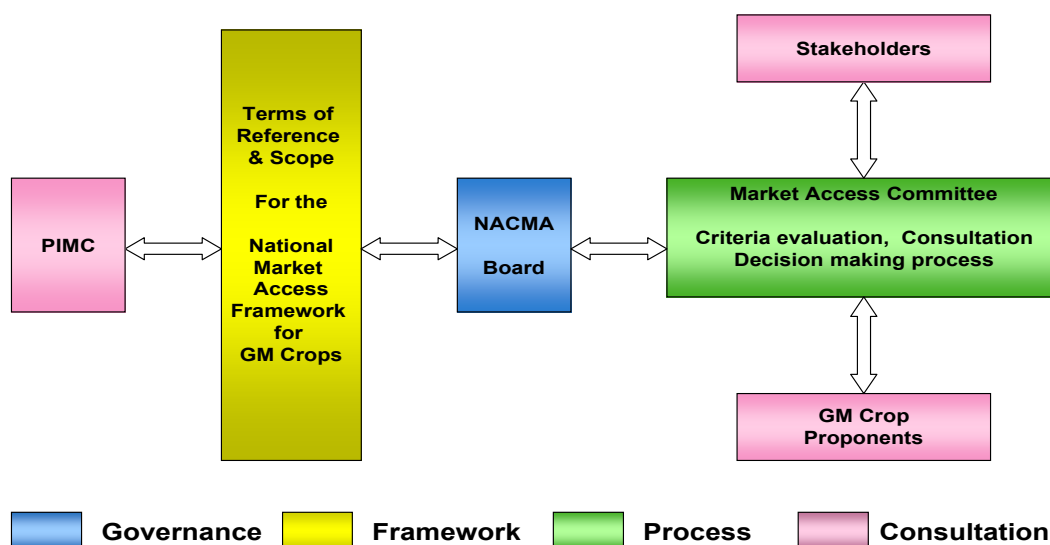
This fits well with NACMA’s current role in developing and managing processes that facilitate trade.

The role in managing market access issues related to GM canola and future GM crops is simply another element that needs to be managed alongside existing standards, contracts, trade rules and dispute resolution processes that facilitate trade.

8.2.1 Proposed NACMA Role, Functions and Outputs

In looking to develop and implement The Framework it will be important for NACMA to clearly map out its role, functions and outputs, and to identify and agree with industry stakeholders and governments (via PIMC) on the boundaries (i.e. scope and terms of reference) within which it provides governance and operational management. (Figure 16)

Figure 16: Proposed National Market Access Framework for GM Canola and Future GM Crops in the Australian Grains Industry



The focus of the NACMA governance role is to:

- Ensure The Framework process is a robust, consultative and evidence-based assessment of market access issues. The outcome of this process is a statement that the crop satisfies all the market access criteria.
- Encourage the development of practical guidelines, policies and standards for management of the supply chain for GM and non-GM crops as required by the market.
- Establish an information resource centre that maintains an up-to-date register of approvals and standards in trading partners around the world. An example of the information being sought by industry stakeholders is the information relating to GM corn varieties provided by the USA based National Corn Growers Association to its members.
- Act as a communication vehicle to industry, government and the community on practical matters relating to The Framework.
- Establish and coordinate a Contingency Management Process for addressing market access and non-compliance issues as they occur from time to time. (Appendix Eight)

To perform the governance role, it is proposed that NACMA functions would include:

1. Establishing an appropriate independent Market Access Committee (MAC).
2. Facilitating the operations of the proposed MAC including the provision of administrative, operational and financial support and communication with GM crop proponents and stakeholders.
3. Receiving reports from the proposed MAC on:
 - i. Outcomes of the evaluation and decision making process for GM canola and future GM crops.
 - ii. Performance of The Framework.
 - iii. Recommended changes to the Terms of Reference for NACMA board ratification.
 - iv. Supply chain market access issues as they arise.
 - v. Incidents of non-compliance to The Framework and the outcomes of any resolutions implemented.
4. Developing and implementing a communication strategy that explains the role of NACMA and The Framework to industry, respective federal, state and territory governments and community.
5. Encouraging stakeholder participation in the consultation process, and promoting the adoption of The Framework.
6. Reporting annually or, as agreed, to governments via PIMC the following:
 - i. Outcomes of the decision making and endorsement process for the proposed GM canola and future GM crops and traits.
 - ii. Performance of The Framework.
 - iii. Recommended changes to the Terms of Reference for PIMC ratification.
 - iv. Incidents of non-compliance to The Framework and the outcomes of any resolutions implemented.

8.3 Scope and Terms of Reference for The Framework

It is proposed the scope of The Framework be defined as:

“... a **trade facilitation process** by which the Australian grains industry can assess, resolve and manage **market access issues** related to achieving **market choice** following the introduction of GM canola and future GM crops.”

Where **market access issues** are defined as, “...the **technical issues** that have potential to **impact market choice and trade** of products from within the Australian grains industry supply chain.”

It is proposed that the terms of reference for The Framework encompass the following elements:

1. Purpose – why is it there?
2. Objectives – what will it deliver?
3. Principles – what are its operational characteristics?
4. Market Access – what are the market access criteria for GM canola and future GM crops that will need to be resolved by stakeholders prior to commercial release?
5. Process Guidelines – how will the decision making process operate?
6. Responsibility - Who will be responsible and accountable for the evaluation, decision making and endorsement process?

Based on stakeholder input from the research undertaken the following section provides guidance to NACMA as to the potential content of the proposed terms of reference for The Framework.

8.3.1 Purpose – Why is it there?

The purpose of The Framework is to provide a workable mechanism for the commercial introduction of GM crops in a manner that allows the continued facilitation of trade in all crops and maintains market access and consumer choice. It is a process that seeks to deliver confidence to customers and consumers, while providing certainty to the grains industry supply chain participants.

8.3.2 Objectives – What will it deliver?

The objectives of The Framework are to:

- Enable trade of GM, non-GM and specialty crops in an environment where they co-exist and where market choice is maintained for domestic and export customers.
- Enable the introduction of GM crops in an open and transparent manner.
- Provide an industry managed evidence-based consultative decision making process that enables the integration of GM crops into the Australian grains industry in a manner that maintains or enhances trade and maintains market choice for domestic and export customers.

8.3.3 Principles – What are its operational characteristics?

To reflect stakeholder requirements of the key operational characteristics identified in the market research, the proposed principles on which The Framework would operate have been adapted from the GTGC “*Canola Industry Stewardship Protocols for Coexistence of Production Systems and Supply Chains*”. (CropLife Australia 2007)

i) Transparency and Consultation

All sectors of the grains industry supply chain are provided with the opportunity to contribute to the development of industry initiatives for GM crops and are in return responsible for:

- a. communicating clearly their production system and supply chain requirements;
- b. contributing constructively to resolve market access issues, and
- c. collating and distributing information on industry market access initiatives.

ii) Freedom of Choice

Within any market, a number of supply chains may exist with their requirements being determined by a combination of consumer preference and regulatory standards. Maintaining this diversity in supply chains will provide participants with market access, as well as market choice for consumers for their preferred product.

iii) The Role of Market Access Standards

Core principles of The Framework must be transparency and the freedom to operate. This implies that the needs of each supply chain will be defined and transparent to participants in other parts of the supply chain. Industry market access standards are an efficient means of facilitating trade by communicating supply chain requirements to customers and to participants in the supply chain.

iv) Reasonable Supply Chain Management Measures

In order to preserve the competitiveness of different supply chains and at the same time provide market choice, supply chain management measures should:

- a. be based on customer and regulatory requirements;
- b. be flexible, practical and cost effective;
- c. be evidence-based and supported by risk assessment; and
- d. incorporate relevant industry, government, regulatory and research initiatives.

v) Responsibility to Act

It is the responsibility of participants within a supply chain to implement pre-determined industry standards and supply chain management measures that prevent their activities from unduly interfering in the operation of another supply chain participant. Either through action or omission, supply chain management measures implemented by one supply chain should impose neither demands nor costs onto other supply chains.

vi) Monitoring and Review

In response to changed market, agronomic, environmental or technological circumstances new supply chain management strategies must be developed, or existing strategies revised. As such, the industry will need to ensure that it monitors and periodically reviews compliance issues associated with The Framework. In addition, industry will need to develop contingency plans for management and reporting of non-compliance with The Framework.

vii) Case-by-Case Planning

Specific strategies for managing the introduction of different GM crops and/or traits will need to be developed on a case-by-case basis, recognising that there is a need for consistency, continuity and cohesion in the plans developed.

8.3.4 Market Access – what market access criteria are required to facilitate trade and maintain market choice?

The market access criteria to be addressed by The Framework have evolved through the process of consultation with stakeholders in the supply chain. The objective being to identify the technical market access issues (i.e. trade facilitation) that need to be addressed to satisfy stakeholder and customer needs and thus facilitate trade of grain derived from GM, non-GM and specialty crops.

The research and analysis has identified a set of market access criteria that could form the basis of an objective decision making process. This process would only apply to OGTR approved products. However, if these market access criteria are known to proponents in advance of completing the OGTR approval process, then it may be possible for some aspects to be developed while a GM crop and/or GM trait is undergoing OGTR assessment.

The trade related question and answer process is consistent with the current approach within the grains industry when a new malting barley variety, a new grade of wheat or a new edible oil (e.g. high oleic) is introduced into the market. Prior to commercial release, the product proponent and the market must ensure that the appropriate supply chain management systems and trade related standards and parameters are in place. The absence of an appropriate management system or standard will act as a barrier to trade.

The market access criteria (not listed in order of importance) are:

i. Identification of market implications in relation to the new GM crop and/or trait

When a new GM crop is to be adopted it is important for the supply chain participants to consider the impacts, if any, that the new GM crop will potentially have on the existing supply chain participants.

Considerations include an understanding of the markets that the product is going into, the various segments within that market, and whether the product can be managed as a commodity or whether there is a need for differentiated supply chain management. Further considerations include any potential impact on secondary grain supply chains and affiliated industries such as stock feed and livestock production.

ii. Have thresholds been established for the adventitious presence (AP) of the new GM event within the platform crop species and other inter crop species?

Establishment of AP thresholds are critical to delivery of market choice. Grain standards are currently set by NACMA for all grains other than oilseeds, (Australian Oilseeds Federation) and pulses (Pulse Australia). All standards are consolidated within NACMA and form part of the NACMA contracts. AP thresholds would be determined by the appropriate body, utilising these established mechanisms and consultative processes.

iii. Has the new GM crop and/or trait gained regulatory approval for food and feed import and consumption in Australia's markets and if so, which countries?

Approval of the GM crop and corresponding AP thresholds are essential if trade is going to be maintained without disruption. This should cover all key trading partners for the crop under consideration.

Introduction of GM crops should ensure approvals in major international markets possessing scientifically sound approval systems and respect the sovereign regulatory requirements demanded by exporting and importing governments.

- iv. **Have AP standards for the unintended presence of the new GM crop and/or trait been established within importing countries of interest to Australia, if so what levels have been established?**

See above point (ii)

- v. **Can the current planting seed and grain supply chain provide traceability of the new GM crop and/or trait?**

Within an increasingly discerning market where there is an expectation of the food and livestock feed supply chain to provide information relating to the origins of food (i.e. production system) and its ingredients, the need to implement traceability schemes from paddock to plate is becoming standard practice within different supply chains.

Similarly, supply chain participants may demand access to information which verifies the process by which GM seed and/or grain proceeds through the supply chain.

- vi. **Does capacity exist within current seed and grain handling systems for the establishment of segregation for new GM crops and/or GM traits?**

Consistent with the established capacity of the Australian grain industry supply chain to differentiate and market a range of grain derived products domestically and globally, supply chain participants want assurance from the grain handling and marketing sector that this capacity continues to exist, if and when customers seek product differentiation.

An important component of this will be the use of appropriate monitoring systems to verify the integrity of product along the supply chain. Currently a comprehensive range of proprietary and in house Quality Assurance processes, traceability systems and sampling and testing regimes exist in the Australian grains and planting seed industry. To ensure consistency and continuity in reporting outcomes (when and where required by customers) from these schemes, stakeholders need to ensure that information can be generated, accessed and reported in a timely and effective manner.

It should be noted that the proposed market access criteria have been very much influenced by the issues that pertain to GM canola as it is a high priority for many of the participants. Therefore, based on the need for a case-by-case approach, it can be expected that for future GM crops and/or traits the current market access criteria may need to be expanded and/or modified.

8.3.5 Process Guidelines – how will the decision-making process operate?

The aim of the guidelines is to provide stakeholders with a simple, transparent, consultative and timely process for the evaluation of market access issues associated with the commercial release of GM canola and future GM crops.

Using the pre-determined market access criteria, a GM crop proponent will have the opportunity to demonstrate that appropriate supply chain management measures are in place to enable commercial release and trade of the proposed GM canola and future GM crop in a manner that will maintain market choice.

The purpose of the process is to facilitate the evaluation of an evidence-based submission that provides details of supply chain management measures that address the pre-determined market access criteria in advance of the commercial release of the GM crop.

The proposed evidence-based evaluation and consultation process is outlined as follows:

Step One: GM crop proponent reviews market access criteria questions - if gaps in information exist, the GM crop proponents and/or industry stakeholders can identify and implement the action plan required to resolve the gaps prior to the commercial release of the GM crop/trait.

Step Two: The GM crop proponents collate and submit an evidence-based submission addressing market access criteria questions to NACMA.

Step Three: The NACMA MAC reviews the GM crop proponent submission identifying any gaps where additional information is required.

Step Four: The NACMA MAC facilitates a consultative process with stakeholders from relevant supply chain sectors.

Step Five: The NACMA MAC completes the evaluation and decision making process and notifies stakeholders that based on the market access criteria all trade related barriers have been addressed and that market choice will be maintained following the release of the GM crop. A critical component will be the implementation of a process for consultation with stakeholders. Stakeholders will be invited to review the MAC's draft assessment and to provide documented feedback that will contribute to the final evaluation and assessment of the submission.

8.3.6 Responsibility - Who will be responsible and accountable for the evaluation, decision making and endorsement process?

It is proposed that the evaluation and decision making process be very firmly vested with an independent expertise-based MAC to whom decision making power will be delegated by the NACMA board.

The role of the MAC will include, but not be limited to:

- a) Responsibility for the facilitation, evaluation, consultation and decision making process relating to the market access criteria
- b) Communication of the outcomes of the market access criteria evaluation process for the commercial release of a nominated GM crop and/or trait to NACMA
- c) Preparing and submitting recommendations to the NACMA Board for improvements to The Framework
- d) Under the auspices of NACMA, to facilitate a dispute resolution mechanism for industry participants
- e) Reporting periodically to NACMA (including liaison with government e.g. PIMC)

It is proposed that the MAC be comprised of an independent chairperson and committee members with specific knowledge, experience and expertise. Rather than a representative committee where members are delegates of nominating organisation, membership of MAC will be based on the relevant technical skills and knowledge.

The NACMA Board will appoint the chairperson of the MAC for terms not exceeding 3 years. The chairperson will be independent of all stakeholder groups and of NACMA.

The proposed composition of the MAC will draw on, but not be limited to, the following areas of knowledge, experience and expertise in the:

- agricultural biotechnology, technology research and development
- handling, transportation, storage and delivery of crops and associated products;
- marketing of crops and associated products;
- development and commercialisation of GM crops;
- marketing of livestock and associated products;
- the production, marketing, wholesaling or retailing of food or food products in domestic and export markets;
- breeding and provision of planting seed and propagating material within the primary production sector; and
- production of grain crops across differing production systems.

Appropriately qualified members of the MAC will be appointed by the NACMA board, on the recommendation of the chairperson of MAC, for periods not exceeding 3 years.

8.4 Interface of The Framework and Government Responsibilities for GM Crop Market Issues

Industry stakeholders have identified that apart from gaining grains industry alignment on the role of GM crops and stakeholder engagement in the development and implementation of The Framework, the most critical element to its success is gaining the endorsement and imprimatur of the respective federal, state and territory governments.

For the industry stakeholders to achieve the necessary engagement of the respective governments, representatives participating in the research suggested that the proposed industry managed Framework will need to demonstrate:

- Engagement with high levels of government.
- Market choice can be delivered.
- Supply chain stakeholder engagement.
- Markets exist for GM crops.
- Market access issues can be managed.
- Benefits to stakeholders and the community.

In addition to what is required from the proposed Framework it will be critical to ensure that where possible:

- Governments recognise and ratify The Framework on the basis of maintaining consistency with respective government legislation relating to markets.
- The industry has a process for monitoring and reporting to government on the performance of The Framework and when appropriate communicating stakeholder agreed changes to The Framework.

The Framework model recognises the need for harmonisation with the current national regulatory framework and the respective government legislative jurisdictions.

The Framework model provides for, and encourages, collaboration and consultation between industry and government stakeholders. The primary avenue for consultation in relation to policy matters and the terms of reference for The Framework is proposed to exist between the NACMA board and its counterpart in government nominated by PIMC.

The process of communication between the respective policy groups being facilitated by the chairperson of NACMA and the chairperson of PIMC.

Initially it is proposed that NACMA in consultation with PIMC establish a joint working group with responsibility for establishing and ratifying the Scope and Terms of Reference for The Framework.

Following the establishment of The Framework, at an operational level the communication process is expected to be managed by the chairman of the NACMA MAC.

Communication will encompass, but be limited to the following elements:

- notification of the outcomes of the MAC decision making process for the nominated GM canola and future GM crops and/or traits
- delivery of an annual report detailing:
 - outcomes of the decision making process for the proposed GM canola and future GM crops and/or traits
 - performance of The Framework
 - changes to the Terms of Reference
 - supply chain market access issues as they arise
 - consultation on the development of market access criteria on a case-by-case basis
 - consultation on changes to The Framework.

9.0 Conclusion

This report aims to improve understanding of the market issues relating to the introduction of GM crops and to develop the appropriate capability to respond to changing market developments. The report identifies a model for the industry and Government that facilitates the commercial introduction of GM canola and future GM crops through addressing concerns relating to market access.

The market research conducted for this study found that the Australian grains industry and its stakeholders currently have a very positive attitude towards agricultural biotechnology derived crops and the majority (80%) agree that the introduction of GM crops would have a positive impact on the Australian grains industry. This level of stakeholder support is consistent with a number of recent independent studies.

This report has been commissioned in response to the implementation of moratoria on GM food crops in 2003. The reasons for the introduction of the various moratoria are complex, but relate to stakeholder concern about the marketing implications for the Australian grains industry from adopting GM crops. Core to these concerns was the ability of the grains industry supply chain to maintain trade and provide market choice to domestic and export customers.

Since the imposition of the moratoria, grains industry stakeholders have increasingly become engaged in resolving the marketing concerns that led to the moratoria. The shift in stakeholder engagement is most notably reflected in the positive change in policies supporting the introduction of GM crops and the actions implemented to resolve market related concerns and barriers.

This research identified that a resolution of stakeholder concerns is underpinned by the need to provide confidence to stakeholders.

1. Growers want confidence that the market will support them if they adopt GM canola and future GM crops;
2. Customers want confidence in the integrity of the supply chain;
3. Governments, industry, customers and the community want confidence that market choice can be maintained.

The majority of stakeholders believe that in order to provide confidence and address the concerns and barriers identified, it is necessary to develop a National Market Access Framework for GM Crops.

The research confirmed that such a Framework needs to provide a robust, evidence-based, consultative process by which market choice could be delivered in an environment where products derived from GM crops co-exist with established non-GM crops, specialty crops and future grain based products. The process would deliver confidence to consumers and government and industry stakeholders, while providing certainty to the grains industry supply chain participants.

The research identified that The Framework must address and resolve the concerns and barriers surrounding trade facilitation and market access prior to the commercial introduction of GM crops. The purpose of these market access criteria is to act a “check list” to ensure that trade can continue unimpeded.

The market access criteria that would apply to OGTR approved GM crops have been defined as:

- Identification of market requirements in relation to the new GM crop and/or trait.
- Establishment of AP thresholds in Australia.
- Regulatory approval for food and feed import and consumption in countries that are key trading partners.
- Establishment of AP standards in importing countries of interest to Australia.
- Ability to provide through the chain traceability and verification of product integrity.

The market access criteria are consistent with the current approach of the grains industry to the introduction of new products such as a new malting barley variety, grades of wheat or edible oils. Prior to the commercial release of each new product, stakeholders must ensure that the appropriate supply chain management systems and trade standards are in place for trade to occur.

The research identified the essential elements that need to be recognised and encompassed within the proposed Framework as:

- Government/industry relationships.
- Market perceptions and acceptance.
- Delivering market choice.
- Supply chain alignment.

The research identified that for The Framework to be successful it must:

- Be a process that is industry driven and managed.
- Have grains industry and government stakeholder endorsement.
- Have a consultative mechanism that takes into account the impact on other industries and the need for stakeholder and consumer choice.
- Be able to operate in all market environments, be robust over time and have alignment with the national regulatory framework.
- Allow the Australian grains industry to maintain market choice by responding to changes in demand for existing and new uses of grain products.

Consistent with the stakeholder information collected and discussed, the report recommends an industry managed framework model. The appropriate body within the industry to provide the governance and operational management infrastructure required for such a framework to be successful is NACMA.

This proposal aligns with NACMA's current role in developing and managing processes that enable facilitation of trade, while not seeking to set policy on market structures. The proposed NACMA role in providing governance and operational management of The Framework is simply another element that needs to be managed alongside standards, contracts, trade rules and dispute resolution processes that enable the facilitation of trade.

The proposed framework will:

- Have a clearly defined process and outcome
- Be an evidence-based process
- Be able to ensure that market choice is delivered through appropriate supply chain management plans, product quality schemes, traceability systems and contingency plans
- Address technical market issues by understanding the potential market responses and recognising market risks and requirements
- Deliver confidence to stakeholders
- Provide access to readily available, authoritative, up-to-date information for industry

The report recommends that an appropriate next step would be for industry in consultation with government to engage in a collaborative process focused on the evaluation and evolution of the proposed framework to ensure its ability to deliver confidence and market choice to consumers and stakeholders, while providing certainty to the grains industry supply chain participants.

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Appendix 1: Quantitative Market Research Questionnaire

A National Pathway to Market Framework for GM Crops in the Australian Grains Industry

Introduction

The Australian Government Department of Agriculture, Fisheries and Forestry has commissioned SGA Solutions Pty. Ltd. to undertake a study *A Path to Market for Genetically Modified Canola – Lessons Learnt and the Way Forward*. The study is funded under the National Biotechnology Strategy to address concerns in rural and regional Australia about impacts of gene technology, improve government and industry understanding, and develop appropriate capabilities to respond to changing market developments. In addition, the study could lay the foundations for the development of a National Pathway to Market Framework for Genetically Modified Crops in the Australian Grains Industry.

The study will require consultation with a wide range of stakeholders in the food supply chain (from seed suppliers, through farmers and grain handlers, to marketers and food processors) the results of which will be incorporated into a report that will examine marketing and supply chain issues that influenced the imposition of the state and territory GM crop moratoria and the introduction of a future pathway to market model for GM canola and GM grains.

As such, the questionnaire does not deal with issues related to health and safety, protection of the environment or food safety as these are managed by the appropriate national regulators, the Office of the Gene Technology Regulator and Food Standards Australia and New Zealand. GM canola, Roundup Ready and InVigor canola, and the oils derived from them, received approval from the national regulators in 2003.

The first stage of the consultation process is to engage stakeholders from within the Australian grains industry supply chain and seek their participation in the completion of an interactive questionnaire designed to collect information in relation to a preliminary assessment of attitudes and perspectives relating to GM canola. This questionnaire forms part of the overall study and other opportunities for consultation with stakeholders will occur throughout the study.

The questionnaire has been developed by Cegedim Strategic Data (CSD) in conjunction with SGA Solutions Pty. Ltd. and the Department of Agriculture, Fisheries and Forestry (DAFF).

If you would like more information regarding the brief please click on the following link:
<http://www.daff.gov.au/>

On behalf of the study sponsors we would like to extend an invitation to you to participate and complete the questionnaire. We understand that national bodies may have state affiliates that wish to take part in the questionnaire. Should this be the case please contact CSD at the following e-mail addressand an appropriate link can be arranged.

All participant names and responses provided within the questionnaire will be treated as **STRICTLY CONFIDENTIAL** and will be combined and collated with other participant information in order to generate summary responses to the questionnaire.

Background

Genetically modified herbicide-tolerant canola was assessed as safe for humans and for the environment and approved for release on a commercial scale by the Gene Technology Regulator in 2003. GM canola is not yet grown commercially in Australia, in part because of a range of issues such as the level of market acceptance of GM canola oil and the level of readiness of elements of the grains industry to manage the co-existence of GM and non-GM canola in the supply chain ('paddock to plate'). State and Territory government moratoria on cultivation of GM crops are currently in place for these reasons.

The objectives of the study are to:

- ❖ identify the lessons that can be learnt from the past attempt at providing a path to market for GM canola in Australia;
- ❖ identify the current key barriers along the supply chain to the adoption of GM canola; and
- ❖ identify the measures that require addressing, and how they might be addressed, to enable the commercial introduction of GM crops, particularly GM canola.

For the purpose of this questionnaire the supply chain is defined as a group of organisations linked by a common business relationship who want to work together to improve business performance or competitiveness to achieve a specific objective.

Q1. What is your organisation's current role in the Australian canola and/or grain supply chain? (Please tick all that apply)

	Grain Supply Chain	Canola Supply Chain
Research and Development	1	1
Technology developer	2	2
Technology support	3	3
Grower	4	4
Plant Breeder	5	5
Planting Seed Industry	6	6
Production	7	7
Crushing	8	8
Refining/Final processing	9	9
Marketing – Export	10	10
Marketing – Domestic	11	11
Wholesaler	12	12
Distribution	13	13
Retailer	14	14
Food Processor	15	15
Storage & Handling	16	16
Transportation	17	17
Technical service provision	18	18
Consumer	19	19
NGO (Non-Government Organisations)	20	20
Government	21	21
Regulatory body	22	22
Other (please specify)	23	23
Other (please specify)	24	24
Other (please specify)	25	25
None of the above	25	26

Q2. On a scale of 1 to 5 where 1 is strongly disagree and 5 is strongly agree, please indicate whether you agree or disagree with the following?

	Disagree			Agree	
	1	2	3	4	5
The internet is a useful business and communication tool and I have confidence in utilising it	1	2	3	4	5
Investment in innovation is crucial to business and industry growth within the Australian grains industry supply chain	1	2	3	4	5
GM crops have a positive role in the Australian grains industry	1	2	3	4	5
GM crops have no role in the Australian grains industry	1	2	3	4	5

INVOLVEMENT

Q3. What has been your organisation's level of participation and involvement in the GM canola and/or GM grain issue?

	Prior to the imposition of the State & Territory GM crop moratoria	Post imposition of the State & Territory GM crop Moratoria
Very active	1	1
Quite active	2	2
Neither active or passive	3	3
Quite passive	4	4
Very passive	5	5
No engagement	6	6

Q4. Please indicate the nature of your organisation's involvement in the GM canola and/or GM grain issue?

Advocate (inc. lobbying) - For	1
Advocate (inc. lobbying) - Against	2
Policy development	3
Information dissemination	4
Technology development / commercialisation	5
Technology support	6
Consumer/customer support	7
Education & training	8
Technology demonstration	9
Other (please specify)	10

IMPACT

Q5a. What impact do you think the introduction of GM canola and GM grain will have on the Australian grains industry?

	GM Canola	GM Grain
Very positive	1	1
Somewhat positive	2	2
Neither positive nor negative	3	3
Somewhat negative	4	4
Very negative	5	5

Q5b. Why do you think it will impact the industry this way?

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INFORMATION SOURCES

Q6a. Where have you obtained information relating to GM canola and GM grain issues?

Q6b. Please rank your top 5 preferred sources of information relating to GM canola and GM grain issues?

GM canola and/or GM crops information source	6a. SOURCE USED (tick as many that apply)	6b. PREFERRED SOURCE (of those selected rank top 5)
Web sites	1	
Private consultants	3	
Commercial companies	4	
Training courses	5	
Direct mail	6	
Producer/industry meetings	7	
National/regional newspapers	8	
Public TV (i.e. ABC/SBS)	9	
Commercial TV	10	
National industry organisations	11	
State industry organisations	12	
Industry commodity organisations	13	
Industry field days	14	
Rural radio	15	
Rural newspapers	16	
Technical journals	17	
GRDC updates	18	
GRDC Ground Cover	19	
CSIRO	20	
Agrifood Awareness	21	
Australian Govt. Agencies	23	
State Dept. of Agriculture	24	

Q7a. How well informed do you believe you are on GM canola and GM grain issues both prior to and post the imposition of the GM crop Moratoria?

	Prior to the imposition of the State & Territory GM crop moratoria	Post imposition of the GM State & Territory crop moratoria
Very well informed	1	1
Well informed	2	2
Not well informed	3	3
Not well informed at all	4	4

Q7b. How interested are you in knowing more about GM canola and GM grain issues?

Very Interested	1
Somewhat interested	2
Neither interested nor disinterested	3
Somewhat disinterested	4
Not interested at all	5

POLICY ISSUES

Q8. Prior to the imposition of the State and Territory GM crop moratoria what was your organisation's policy on GM canola and/or GM grain in regards to the following parameters?

	Supported	Neutral	Not Supported	No Policy	DK
Commercialisation of GM crops	1	4	2	3	
Introduction of coexistence of GM & non GM crops	1	4	2	3	
Establishment of adventitious presence thresholds	1	4	2	3	
Establishment of a strict liability regime	1	4	2	3	
National approach to a pathway to market for GM canola	1	4	2	3	
Continued research on GM technology	1	4	2	3	
Use of GM ingredients in food	1	4	2	3	
Regulation of potential market risks	1	4	2	3	
Evaluation of potential market risks	1	4	2	3	
Public engagement and information	1	4	2	3	
Continuance of GM canola trials	1	4	2	3	
Use of GM grain for livestock feed	1	4	2	3	
Engagement in public engagement and information	1	4	2	3	
Other (Please specify)	1	4	2	3	

Q9. Has your organisation introduced or changed policy towards GM Canola and/or GM grain since the imposition of the State and Territory GM canola moratoria?

Yes – existing policy has changed	1	GO TO Q10
Yes – new policy has been introduced – no policy existed	2	GO TO Q10
No - there has been no change to previous policy	3	GO TO Q11a
No - there has been no change – no policy currently exists	4	GO TO Q11a

Q10. Please outline how your organisation’s current policy on GM canola and/or GM grain has changed since the imposition of the GM crop moratoria, in regards to the following parameters?

	Supported	Neutral	Not Supported	No change	DK
Commercialisation of GM crops	1	4	2	3	
Introduction of coexistence of GM & non GM crops	1	4	2	3	
Establishment of adventitious presence thresholds	1	4	2	3	
Establishment of a strict liability regime	1	4	2	3	
National approach to a pathway to market for GM canola	1	4	2	3	
Continued research on GM technology	1	4	2	3	
Use of GM ingredients in food	1	4	2	3	
Regulation of potential market risks	1	4	2	3	
Evaluation of potential market risks	1	4	2	3	
Public engagement and information	1	4	2	3	
Continuance of GM canola trials	1	4	2	3	
Use of GM grain for livestock feed	1	4	2	3	
Engagement in public engagement and information	1	4	2	3	
Other (Please specify)	1	4	2	3	

RESOURCES & BARRIERS

Q11a. Since the imposition of the GM crop moratoria has your organisation changed its resource allocation to the management and/or participation in the GM canola and GM grain issue?

Yes	1	GO TO Q11b
No	2	GO TO Q12

Q11b. How would you rate the change in allocation of resources?

Far more resources	1
More resources	2
Less resources	3
Far less resources	4

Q11c. Could you please provide examples of how you have either increased or decreased your resource allocation?

1) Increased resources (Please Specify) (if code 1 or 2 at Q11b)

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2) Decreased resources (Please Specify) (if code 3 or 4 at Q11b)

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Q12. In relation to the barriers to the entry of GM canola and/or GM grain into the Australian grains industry could you indicate what barriers you believe have previously existed and currently exist? (Tick all that apply)

	Existed in the past	Currently exist
Lack of an established co-existence framework for GM and non GM crops	1	1
Lack of traceability & process management guidelines and infrastructure	2	2
Lack of consistency between national and state regulatory systems	3	3
Lack of harmonization between international and national regulatory systems	4	4
Lack of a cost / benefit analysis of GM crops	5	5
Lack of industry standards for the adventitious presence of GM products in non GM products	6	6
Consumer acceptance of biotechnology products from agriculture	7	7
Lack of a strict liability regime	8	8
Lack of GM crop technology information	9	9
Lack of GM crop technology demonstration	10	10
Lack of industry leadership	11	11
Lack of technology & protocols for testing and sampling of GM crops and products	12	12
Lack of analysis of impacts on other industry sectors	13	13
Lack of cohesive industry position/policy	14	14
Lack of knowledge about agronomic performance of GM crop technology	15	15
Lack of a national policy approach to market risks	16	16
No mechanism for assessing or managing market risks	17	17
Lack of credible information about GM crops	18	18
Other (please specify)	19	19

Q13. What has been the impact of the GM crop moratoria on your organisation?

	Very Negative	Fairly Negative	Neutral	Fairly Positive	Very Positive	DK
Investment in R & D	1	2	3	4	5	
Business growth	1	2	3	4	5	
Organisation membership	1	2	3	4	5	
Innovation	1	2	3	4	5	
Technology development	1	2	3	4	5	
Sustainability	1	2	3	4	5	
Profitability	1	2	3	4	5	
Competitiveness	1	2	3	4	5	
Policy position	1	2	3	4	5	
Engagement in the debate	1	2	3	4	5	
Liability concerns	1	2	3	4	5	
Cost of doing business	1	2	3	4	5	
Business size - personnel or staff numbers	1	2	3	4	5	
Community reaction	1	2	3	4	5	
Customer reaction	1	2	3	4	5	
Operating systems	1	2	3	4	5	
Other (Please Specify)	1	2	3	4	5	

Q14. What are the major market access, supply chain or technical issues that you believe need to be considered when introducing a new GM grain product into the Australian grain industry?

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Q15. Are there any other major issues that you believe need to be considered when introducing a new GM grain product into the Australian grain industry?

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ASSESSMENT OF THE ROLE OF THE GENE TECHNOLOGY GRAINS COMMITTEE (GTGC)

The GTGC was a broadly based supply chain committee that met of its own volition during 2001-2002 to develop supply chain management arrangements for the pending provision of commercial licenses for GM canola in Australia.

Q16. Are you aware of the GTGC?

Yes	1	Go to q17
No	2	Go to q22

Q17. What was your level of participation in relation to the GTGC?

Active participation	1
Some participation	2
A little participation	3
No participation at all	4

Q18. What do you think were the strengths of the GTGC?

Q19. What do you think were the weaknesses of the GTGC?

Q20a. On a 1 to 5 scale, where 1 is very poorly and 5 is very well, please rate the GTGC performance in relation to the following?

	Very poorly			Very Well		DK
Achievement of objectives	1	2	3	4	5	
Delivery of information	1	2	3	4	5	
Credibility of information provided	1	2	3	4	5	
Quality of information provided	1	2	3	4	5	
Industry engagement/consultation	1	2	3	4	5	
Government engagement/consultation	1	2	3	4	5	
Community engagement	1	2	3	4	5	
Transparent decision making processes	1	2	3	4	5	
Providing a strategic framework for co-existence	1	2	3	4	5	

Q20b. How well do you think the GTGC represented the industry and government circles in terms of the GM canola issue?

	Very poorly			Very Well		DK
Represented Industry	1	2	3	4	5	
Represented Government	1	2	3	4	5	

Q21. In retrospect how do you think the role and performance of the GTGC could have been improved?

FUTURE OF GM CANOLA and GM GRAIN

Q22. What is your current position on the need to establish a National Framework for GM Crops/GM canola in the Australian Grains Industry?

	GM Canola	GM Grains
Absolutely necessary	1	1
Somewhat necessary	2	2
Neither necessary nor unnecessary	3	3
Somewhat unnecessary	4	4
Not necessary at all	5	5

Q23. In regards to the future of the grain industry, what are the current issues that need to be managed in relation to the introduction of a National Framework for GM Crops in the Australian Grains Industry?

Q24. Thinking about future marketing and supply chain issues that may impact the Australian Grains Industry which of the following would your organisation prefer to include/exclude? (Please select from scale 1=5 where 1=definitely exclude through to 5=definitely include)

National Framework Models	1 (definitely exclude)	2 (maybe exclude)	3 (neutral)	4 (maybe include)	5 (definitely include)	DK
Government regulation	1	2	3	4	5	
Voluntary industry codes of practice	1	2	3	4	5	
Enforced industry codes of practice	1	2	3	4	5	
Industry consultative committees	1	2	3	4	5	
Co-regulation	1	2	3	4	5	
Industry managed	1	2	3	4	5	
Other (Please specify)	1	2	3	4	5	
None						

Q25. What would your organisation see as the most important or essential features of the framework model preferences indicated in Q24.

1.

2.

3.

Q26. Based on the comments that you have provided in the questions assessing the GTGC (Q17-21), how would you rate the role the GTGC might play in the operation of a model for a National Framework for GM crops in the Australian grains industry?

Very relevant	1
Fairly relevant	2
Neither relevant nor irrelevant	3
Fairly irrelevant	4
Not relevant at all	5
Don't Know	6

Q27. From your experience are there any organisation models that you are familiar with in either the public or private sector within or external to Australia that you would recommend should be included in a review of alternate approaches to developing a National Framework for GM Crops in the Australian Grains Industry?

Q28. Do you have any other comments in relation to the issues relating to GM crops or GM canola?

Appendix 2: Stakeholders Participating in the Qualitative Market Research

Qualitative Research Participants (N = 48)	
ABB Grain Pty. Ltd.	Dept. of Agriculture and Forestry Western Australia
Agrifood Awareness Australia Ltd	George Weston Foods Pty. Ltd.
Allied Mills Pty. Ltd.	Goodman Fielder Pty. Ltd.
Australian Oilseeds Federation	Grain Growers Association Limited
Australian Centre for Plant Functional Genomics	Graincorp Pty. Ltd.
Australian Consumers Association	Grains Council of Australia
Australian Country Canola Pty Ltd	Meat and Livestock Australia
Australia Dairy Farmers Federation	Minister of Agriculture - Western Australia
Australian Dairy Products Federation	National Agricultural Commodity Marketing Association
Australian Food and Grocery Council	Network of Concerned Farmers
Australian Seeds Federation	NSW Dept. of Primary Industries
Australian Wheat Board Ltd.	Office of the Gene Technology Regulator
AusBiotech Ltd.	Oilseeds Western Australia
Bayer Cropscience	Organic Federation of Australia
Biological Farmers Australia	Pacific Seeds Aust. Ltd.
Biotechnology Australia	Pastoralists and Graziers Association (WA)
Bureau of Rural Science	Peerless Foods
Cargill Australia	Pioneer Hibred Australia
Co-operative Bulk Handlers	Primary Industry Research South Australia
CropLife Australia	Pulse Australia
CSIRO - Biotechnology Policy	Queensland Dept. of Primary Industry and Forestry
CSIRO – Food Futures Flagship	Queensland Dept. of State Development
CSIRO Plant Industry	Ridley Corporation
CSIRO-Stored Grain Research Laboratory	Riverland Oilseeds Processors
Dairy Australia	Stockfeed Manufacturers Council of Australia
Dow AgroSciences Australia Ltd	Victorian Dept. of Primary Industry
Dept. of Agriculture, Fisheries and Forestry	Victorian Farmers Federation - Grains Group

Appendix 3: Qualitative Market Research Discussion Guide

A. Background

- How has the environment around GM crops changed over the past two years? Have opportunities increased/decreased?
- How has interaction with customers and/or suppliers changed, if any?
- Have market conditions changed?
- The survey indicated that industry generally feels well informed about the GM issue, although would seek more information. Do you agree with this or are there areas where information could be improved/is necessary?

B. Defining the Pathway/Framework

- What is a PTM or Coexistence Framework i.e. what do you define as a PTM? How would your customers/suppliers define PTM?
- What should the scope of the PTM be e.g. ability to operate across crops/traits/markets
- What role would it play?
- What do you want it to achieve?
- What would be key operational features (i.e. transparency, trust, credibility etc) and how would you achieve this?
- Issues that should form part of the Framework/PTM? Are there any differences in issues between the establishment phase and operational phase?

Issues that can be used as prompters:

- Traceability
- Market segmentation / coexistence
- Harmonisation with export markets
- Information – evidence of benefits
- Consumer acceptance/communication
- Market risk/ costs and benefits
- Community objectives/expectations
- Cost minimization
- Communication – of what and to who
- Consistency – across governments/legislation, language and process
- Whole of industry approach and ‘fairness’ to supply chain participants

C. Process

- How would it operate?
 - Composition and how it is formed
 - Structure - formalisation
 - Transparency – how to achieve this
 - Engagement – who/how
 - Resources
 - Independence – governance / administration
 - Communication
 - Process – clear definition of outputs and authority for delivery
 - Dispute resolution
 - Integration into existing regulatory processes e.g. OGTR
- What status should it have i.e. what level of authority and how this would be achieved?
- How will it reach a conclusion/resolution?
- How would it be funded?

D. People

- Who should be involved (e.g. industry and government recognition and commitment)?
- Who is responsible for establishment? Who is responsible for operation?
- Communication/engagement – who, what, etc

E. Path forward

- Models/Approaches
- What structures/systems exist now? Where are the gaps? What existing structures/systems could be adapted?
- What would success look like?
- How will success be measured?
- What should be avoided?

F. Conclusions

- What involvement would you like?
- What will be important to gaining your support?
- Any other comments?

Appendix 4: Various recommendations for the establishment of a collaborative and consistent national stakeholder approach to the resolution of the market issues for GM crops

i) Creating Our Future: Agriculture and Food Policy for the Next Generation, (Corish et al 2006)

Recommendation 4:

- c) State governments should lift their moratoriums on the commercial use of GM crops immediately, and work with the Australian Government, industry and researchers to achieve nationally consistent traceability and tolerance protocols, and to clarify legal liability issues surrounding the use of GM organisms in agriculture and food products.

ii) Australian Government Response to the Agriculture and Food Policy Reference Group Report (AFFA 2006)

Recommendation 4 (c) (Refer above section) Agree. (Commonwealth Response)

- The Government will continue to work with and encourage industry and state governments to address the issues in relation to marketing that led to the moratoriums on genetically modified (GM) products being imposed.
- The Government notes that the independent review of the Gene Technology Act 2000 also recommended that state governments should address the issues and re-evaluate the need for the moratoriums.
- The Government will also work with industry and interested state governments to develop appropriate arrangements to allow GM and non-GM producers to co-exist.

iii) Statutory Review of the Gene Technology Act 2001 (Williamson, Sisley and Sallman 2006)

Recommendation 14:

The Review recommends, having regard to the overall importance of Australia's international trading position, that attempts should be made by relevant Government departments to achieve as much consistency as practicable across the States and Territories in the regulation of the economic and marketing aspects of gene technology involving crops."

iv) Statutory Review of the Gene Technology Act 2000 and The Gene Technology Agreement 2006 ,(Timbs, Adams and Rodgers 2006)

Recommendation 9.1:

The Review recommends that the Commonwealth and States through the GTMC reconfirm their commitment to a nationally consistent scheme for gene technology including a nationally consistent transparent approach to market considerations as soon as practicable.

Recommendation 9.2:

The Review recommends that the Commonwealth and States work together to develop a national framework for co-existence for non-GM and GM crops to address market considerations.

Appendix 5: Membership of the Gene Technology Grains Committee (GTGC)

1) Members of the Eastern Zone Gene Technology Grains Committee

Organisation (Members)

Avcare Ltd
AgForce Queensland
Australian Bulk Handlers Association
Australian Fodder Industry Association
Australian Oilseeds Federation
AVCARE
Australian Wheat Board Ltd
Canola Association of Australia
Cotton Australia
CSIRO Plant Industry
Grains Council of Australia
Grains Research and Development Corporation
National Agricultural Commodities Marketing Association Limited
New South Wales Farmers' Association
Organic Federation of Australia
Seeds Industry Association of Australia
South Australian Farmers' Federation
Australasia/Food and Grocery Manufacturers' Council
Victorian Farmers' Federation

Observers

Department of Agriculture Western Australia
Department of Natural Resources and Environment,
Victoria
Department of Primary Industries Queensland
Dept of Agriculture Fisheries and Forestry Australia
(Commonwealth)
New South Wales Agriculture
Primary Industries and Resources South Australia
Tasmania Department of Primary Industries, Water &
Energy

2) Members of the WA Gene Technology Grains Committee

Organisation (members)

Avcare Ltd
Western Australian Farmers Federation, Grains Section
Canola Association of Western Australia
Co-operative Bulk Handling
Grain Pool of Western Australia
Pastoralist and Graziers' Association
Riverland Oilseed Processors
Western Australian Farmers Federation
Western Australian Municipal Association

Observers

Australian Quarantine and Inspection Services
CSIRO Centre for Environment and Life Sciences
Department of Agriculture Western Australia
University of Melbourne

Appendix 6: “Know Before You Grow”

US National Corn Growers Association 2007 Planting Season GM Corn Database*
(www.ngca.com)

All of the corn hybrids listed below have full food and feed approval in the U.S.

PRODUCT REGISTRANT TRADE NAME	CHARACTERISTIC	EVENT	JAPAN APPROVED	EU FOOD APPROVAL	EU PROCESSED FEED APPROVAL
Syngenta Agrisure CB YieldGard Liberty Link	Cry1Ab Corn borer protection Glufosinate herbicide tolerance	Bt11	Yes	Yes	Yes
DowAgrosciences Pioneer Hi-Bred Herculex I	Cry1F Western Bean Cutworm, Corn Borer, Black Cutworm and Fall Armyworm resistance Glufosinate herbicide tolerance	TC1507	Yes	Yes	Yes
MonsantoYieldGard	Cry1Ab Corn borer protection	MON 810	Yes	Yes	Yes
MonsantoYieldGard Roundup Ready 2	Cry1Ab Corn borer protection Glyphosate Herbicide Tolerance	MON 810+Nk603	Yes	No	Yes
YieldGard Corn Rootworm Protection Roundup Ready 2	Corn Rootworm Protection Glyphosate Herbicide Tolerance	MON 863+Nk603	Yes	No	Yes
YieldGard Corn Rootworm Protection	Corn Rootworm Protection	MON 863	Yes	Yes	Yes
Monsanto Roundup Ready 2	Glyphosate Herbicide Tolerance	Nk603	Yes	Yes	Yes
Bayer CropScience LibertyLink®	Glufosinate herbicide tolerance	T25	Yes	Yes	Yes
MonsantoYieldGard Plus	Cry1Ab Corn borer protection Corn Rootworm Protection	MON 810+MON 863	Yes	No	Yes
MonsantoYieldGard Plus with Roundup Ready 2	Cry1Ab Corn borer protection Corn Rootworm Protection Glyphosate Herbicide Tolerance	MON 810+MON 863+NK603	Yes	No	No
Herculex I Roundup Ready 2	Cry1F Western Bean Cutworm, Corn Borer, Black Cutworm and Fall Armyworm resistance Glyphosate Herbicide Tolerance Glufosinate herbicide tolerance	TC1507+NK603	Yes	No	No

PRODUCT REGISTRANT TRADE NAME	CHARACTERISTIC	EVENT	JAPAN APPROVED	EU FOOD APPROVAL	EU PROCESSED FEED APPROVAL
Syngenta Agrisure GT	Glyphosate Herbicide Tolerance	SYTGA21 **	Yes	Yes	Yes
Syngenta Agrisure GT/CB YieldGard Liberty Link	Cry1Ab Corn borer protection Glyphosate Herbicide Tolerance	SYTGA21 + Bt11	No	No	No
Monsanto YieldGard Roundup Ready	Cry1Ab corn borer resistance Glyphosate Herbicide Tolerance	MON 810+SYTGA21	Yes	No	Yes
Dow AgroSciences Pioneer Hi-Bred Herculex RW	Cry34/35Ab1 Western Corn Rootworm Northern Corn Rootworm Mexican Corn Glufosinate herbicide tolerance	DAS-59122-7	Yes	No	No
Dow AgroSciences Pioneer Hi-Bred Herculex Xtra	Cry1F Western Bean Cutworm, Corn Borer, Black Cutworm and Fall Armyworm resistance Northern Corn Rootworm Western Corn Rootworm Mexican Corn Rootworm Resistance Glufosinate Herbicide Tolerance	TC1507 + DAS 59122-7	Yes	No	No
Dow AgroSciences Pioneer Hi-Bred Herculex Rootworm Monsanto Roundup Ready 2	Cry34/35Ab1 Western Corn Rootworm Northern Corn Rootworm Mexican Corn Glyphosate Herbicide Tolerance	DAS-59122-7 + NK603	Yes	No	No
Dow AgroSciences Pioneer Hi-Bred Herculex Xtra Monsanto Roundup Ready 2	Cry1F Western Bean Cutworm, Corn Borer, Black Cutworm and Fall Armyworm resistance Glufosinate herbicide tolerance Cry34/35Ab1 Western Corn Rootworm Northern Corn Rootworm Mexican Corn Glyphosate Herbicide Tolerance	TC1507 + DAS 59122-7 + NK603	Yes	No	No
YieldGard VT™ Rootworm/RR2	Corn Rootworm Protection Glyphosate Herbicide Tolerance	MON 88017 + NK603	Yes	No	No
YieldGard VT™ Triple	Cry1Ab Corn borer protection Corn Rootworm Protection Glyphosate Herbicide Tolerance	MON 810 + MON 88017 + NK603	Yes	No	No

* This list is representative of available products but may not include all corn biotechnology hybrids currently available.

** This event does not have whole grain import approval in the EU.

PLEASE NOTE: The Know Before You Grow database is generated by distributing surveys to seed companies throughout the country. Its accuracy relies on accurate reporting from the companies that return these surveys. While NCGA strives to make the information as comprehensive and factual as possible, it is absolutely necessary that growers work with seed distributors and grain buyers to verify that the seed they purchase is appropriate for the market that they wish to serve.

Appendix 7: National Agricultural Commodity Marketing (NACMA)

Appendix 8: Contingency Management

Proposed NACMA Contingency Management Process & Standard Operating Procedure for managing Non Compliance issues.

1.0 PURPOSE

This procedure details the process of communicating and reporting non-compliance to the National Market Access Framework for GM Canola and future GM crops, together with the development and implementation of an action plan to minimize the impact of the non-compliance.

2.0 SCOPE

This procedure is applicable to:

- Notification to the NACMA CEO and the chairperson of the Market Access Committee of any non-compliance to the National Market Access Framework, where the non-compliance is of a magnitude where its continuance may impede the ability of supply chain participants to facilitate trade of canola.
- Establishment of an Incident Task Force to manage and resolve the Non Compliance.
- The collection of all information relating to the non-compliance.
- Development of action plan to minimise the impact of the non-compliance.
- Implementation of the action plan.
- Preparation of a non-compliance report for the NACMA Market Access Committee.
- Communication of non-compliance and remediation procedure to NACMA Market Access Committee
- A process which provides recommendations on future changes or additions to the National Market Access Framework.

3.0 DEFINITIONS

- 3.1. **NACMA:** National Agricultural Commodities Marketing Association
- 3.2. **NACMA CEO:** The person from NACMA who has responsibility for ensuring compliance to NACMA guidelines and trade regulations.
- 3.3. **NACMA Market Access Committee Chair:** The person responsible for the NACMA Market Access Committee.
- 3.4. **NACMA Market Access Committee (MAC):** Has responsibility for oversight of the National Market Access Framework for GM canola and future GM crops evaluation and endorsement process.
- 3.5. **Incident Task Force (ITF):** ITF includes appropriately skilled representatives from within the supply chain and has responsibility for the assessment of the non-compliance and development of an appropriate action plan to resolve the breach.

4. RESPONSIBILITIES

4.1 NACMA CEO:

- Notifies the MAC of any non-compliance
- Together with the Chairperson of the MAC establishes an appropriate ITF, implements and co-ordinates an appropriate Action Plan to address the non-compliance.
- Together with the MAC Chair and the ITF implements the Action Plan.
- Notification to the supply chain proponents (NACMA and PIMC) of the non-compliance.
- Provides regular reports to the NACMA MAC and the ITF on the implementation of the Action Plan.
- In collaboration with the Chair of the MAC prepares a Non-Compliance Completion Report.
- Submits to the proponents (NACMA and PIMC) the completion report and implements any changes to current and future elements of the National Market Access Framework.

4.2 NACMA Market Access Chairperson:

- Participates in the ITF.
- Ensures implementation of action plans.

4.3 Incident Task Force (ITF):

- Reviews information provided on non-compliance.
- Formulates detailed action plans.
- Monitors progress of implementation of the action plan.
- Reviews and signs off on the non-compliance completion report.
- Provides recommendations for future changes or additions to National Market Access Framework for GM canola and future GM crops.

5. PROCEDURE

5.1 Refer Process Flow Diagram below.

6. REFERENCES

- NACMA National Market Access Framework Terms of Reference
- SVGA Technical Working Document – Process Management of Grain within the Australian Supply Chain.
- Individual supply chain participant or industry Codes of practice, QA programs, traceability and process verification documents.

7. REASON FOR REVIEW

Annual update of the National Market Access Framework for GM canola and Future GM crops.

Process Flow Diagram for NACMA Contingency Management Process & Standard Operating Procedure for managing Market Access and Non Compliance issues

