

Submission Cover Sheet

Review of the Moratorium on GM Canola

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Name of Individual/Organisation: Birchip Cropping Group

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(03) 9658 4874 or (03) 9658 4871

GM Canola Review Panel Secretariat
Department of Primary Industries
Level 19, 1 Spring Street
GPO Box 4440
Melbourne, VIC, 3001

Review of moratoria on GM canola A submission by the Birchip Cropping Group

Terms of Reference addressed:

1. Assessment of the economic impact of the moratoria on canola production
2. Assessment of the economic impact of allowing
 - the moratorium to expire
 - extending the moratorium
3. Recommendations of complementary policies and practices required to address the consequences of the moratorium ending

1. Assessment of the economic impact of the moratoria on canola production

Canola production in Victoria has stagnated in recent years due to a combination of poor seasonal conditions and agronomic deficiencies of the existing varieties. This is in contrast to canola production in Canada, where the production of canola has doubled since the introduction of GM varieties.

In Australia, canola production is heavily dependent on the use of either the triazine or imidazolinone tolerant varieties allowing the in-crop control of broad leaf weeds with these chemicals. In the case of the triazine tolerant varieties, the in-crop use of selective herbicides for the control of grass weeds is often still required. It is estimated that the costs of herbicides in the production of either the triazine or the imidazolinone tolerant varieties are \$86 and \$78 per hectare respectively. Both of these chemicals have soil residual effects which may result in yield losses in subsequent crops. In comparison, the cost of herbicides in the production of GM (glyphosate tolerant) canola is estimated to be only \$30 per hectare.

The requirement to use the triazine tolerant varieties comes at a yield penalty, associated with the presence of the mutations conferring tolerance, estimated to be 13%.

It is widely accepted that compared to conventional inbred varieties, hybrid canola would have a yield advantage, due to heterosis, exceeding 10%.

The combination of the Monsanto Roundup-Ready and Bayer InVigour GM technologies would provide for yield improvements of at least 23%, by eliminating the 13% yield penalty associated with the triazine tolerance and incorporating the 10% yield advantage associated with the hybrid varieties, in addition to a reduction of approximately \$50 per hectare in herbicide costs.

In the absence of an economically attractive alternative to the cereal crops, there is currently a lack of diversity in Australian cropping rotations. This lack of diversity has resulted in the increased incidence of root diseases, with associated losses in grain yield in cereal crops. In addition, the lack of diversity has resulted in the heavy reliance of a restricted range of herbicides for weed control, increasing the potential for the development of herbicide resistance.

A compilation by Angus, Kirkegaard and Peoples (2001) of 26 experiments involving *Brassica* break crops from 1988 to 1998 indicated that, on average, wheat after brassicas yielded 20% more than wheat following wheat. A 2007 survey of oilseed growers and advisors, conducted for the Better Oilseeds Project on behalf

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on the GRDC and the Australian Oilseeds Federation, indicated that the most significant factor in farmers' decision to grow canola is to reduce the risk of cereal diseases, with the other significant factors including farm system weed control and the rotation of herbicide groups.

Clearly, the increased production of canola by improving the economics of canola production through the introduction of GM technology, will have significant additional benefits in the cropping systems and is recognized by the majority of growers.

Apart from the impact of the moratoria on farming systems, the BCG views that the moratoria has impacted adversely on plant breeding in Australia. In recent years, canola breeding has been privatized and the inability to commercialize GM canola varieties is restricting private sector investment in plant breeding activities which could improve the adaptation of this species to the Australian environment.

A number of recent reviews have suggested that the rate of improvement in grain yields on Australian farms is declining. Continual improvement in on-farm profitability is dependent on technology driven stimuli and the current moratoria is restricting access to the range of possibilities the technology offers.

2. Assessment of the economic impact of allowing

- the moratorium to expire
- extending the moratorium

Should the moratorium expire there will be rapid growth in the production of canola, particularly in the southern areas of Victoria where it is expected that the first releases of GM canola would be best adapted.

However, in the longer term with the development of shorter season hybrid varieties, canola production will expand into the Mallee environments where the in-crop application of glyphosate will provide an alternative strategy for grass weed management. Canola is already widely regarded by Mallee farmers as a break crop, but its production is currently restricted by the low level of profitability in the season in which it is grown. Currently only triazine resistant varieties are grown in the Mallee environment due to the widespread occurrence of wild radish in these areas. Growers would prefer alternative chemicals, without long term soil residual problems, for the in-crop control of both broadleaf and grass weeds. Growers would also prefer varieties without the yield penalty associated with the triazine trait. Glyphosate is a preferable herbicide for the control of grass weeds compared to simazine, and also provides some control of radish.

The benefits of GM canola, in providing alternative weed control strategies and potentially higher yields resulting from both the hybrid technology and the absence of the yield suppressing triazine tolerance trait, will result in the increased production of canola in the Mallee environment. Increased production of canola in these environments will also result in improved cereal yields due to the beneficial effect of canola in the cropping rotation. Hence the benefits of the commercial production of GM canola should not be considered in terms of canola production alone but rather in combination with the other benefits provided to the farming system.

A secondary benefit to expiration of the moratoria will be the stimulation of plant breeding activities for canola, and an encouragement of companies to invest in other GM-based technologies in canola and for other crop species.

The BCG views that the successful introduction of GM canola is essential for the further development of these technologies within Australia. Failure to allow the commercial production of GM canola will result in the serious erosion of Australia's R&D capacity in this area. In terms of Australia's agricultural terms of trade, this is the most serious consequence of the extending the GM moratoria.



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3. Recommendation of complementary policies and practices required to address the consequences of the moratorium ending.

The major risk associated with the release of GM canola is the potential development of weed resistance to glyphosate due to the increased use of this chemical. A key consideration in the management of GM canola should be a means of ensuring the application of glyphosate in a cropping rotation does not exceed a prescribed quota over a period of time. Strict adherence to stewardship programs is necessary to prevent the development of weed resistance. Grower organizations such as BCG have a strong role to play in the promotion of these stewardship programs and would encourage the development of policies which allows their participation in the adoption of the GM technologies.

It is the view of the BCG that the release of GM canola should not be dependent on co-segregation of GM and non GM canola. Costs of co-segregation would mitigate against the benefits and it is highly unlikely that cross contamination could be prevented.

If the moratorium expired a strategic and coordinated investment in independent trial and validation work should be implemented, with a strong emphasis on communication of best practice and skill development. This will support implementation of best practice and the best outcomes for growers who will be fully informed of production, management and quality assurance requirements.

Yours sincerely



Alexandra Gartmann
Chief Executive