



GE Free New Zealand

In Food And Environment Inc.

PO Box 13402, Wellington, NZ

23 June 2017

Re: Submission on Food derived from Herbicide-tolerant Canola Line MS11:

Submission by GE Free New Zealand

Contact:

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Kia ora FSANZ

GE Free New Zealand submits that FSANZ should take Option 2 and reject the application.

GE Free NZ represents its many members across New Zealand. We are a non-governmental public information organization with access highly skilled expertise into the GM issue.

The systems and processes currently used to approve this (and previous similar applications) are not fit for purpose as they lack the rigor and comprehensive data needed to make a genuine and credible safety assessment.

In the absence of long term feeding studies and 'omic' analysis that have been identified as necessary and best practice by independent experts, to understand the changes and potential implications for food safety, FSANZ is erring by making a decision based on assumptions and inadequate data.

In the absence of full data it is not possible for FSANZ to support the claim made that:

As food from MS11 has been found to be as safe as food from conventional lines of canola, not preparing a draft variation offers little benefit to consumers, as approval of MS11 by other countries could limit the availability of imported canola products in the Australian and New Zealand market.¹

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<http://www.foodstandards.gov.au/code/applications/Documents/A1140%20GM%20canola%20MS11%20CFS.pdf>

It is necessary for FSANZ to require whole genome sequencing to identify off-target mutations and also essential to ascertain the effects of unintended changes on global patterns of gene function.

Also required is sequencing using other molecular profiling analyses or “omics”- transcriptomics — gene expression profiling,

- *proteomics — protein composition profiling,*
- *metabolomics —*
- *profiling of metabolites, and*
- *miR-omics – microRNA profiling.*
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It is also necessary for FSANZ to require long-term toxicity studies in established animal model systems. The compositional alterations in these and other food products produced with Genetic Engineering will not be fully revealed by the molecular profiling methods due to the current inherent limitations of these techniques.

In the absence of these data to inform FSANZ, there can be no legitimate approval of MS11.

Recent evidence that has not been provided by the applicant on the possible toxic effects that the significant differences highlighted in the data, this indicates that there is no evidence of equivalence.

FSANZ states in their conclusion –

No potential public health and safety concerns have been identified in the assessment of MS11. On the basis of the data provided in the present Application, and other available information, food derived from MS11 is considered to be as safe for human consumption as food derived from conventional canola varieties. (A1140)

This statement is reiterated in every GM application that is presented for comment. However there is no scientific evidence to back up this assertion. The references cited never discuss the end use effects — namely human consumption. The applicant has clearly shown that there are significant changes to the canola; however there appears to be no independent assessment that considers end product ingestion.

This is a deep flaw in the assessment process and in breach of the legislative rules that FSANZ is governed by. The assessment does not require tests of safety so there is a lack of information that compromises food chain safety. The worst part of this is as oils do not need to be labelled, there is no warning of the dangers that GM sourced canola may have for vulnerable public.

The total glucosinolates were significantly changed and could cause severe reactions if eaten. Further DairyNZ² has completed detailed investigation into the deaths of hundreds of cows after eating HT swedes in New Zealand. Many hundreds of cows died from liver failure from the high levels of glucosinolates in the HT swedes. The findings also concluded that the reproductive parts of the plant were significantly higher in glucosinolates than the bulb and

² Dalley D., and Petch S. (2015) Lessons from swedes Dairy NZ
<https://www.dairynz.co.nz/media/3676287/tech-series-march-2016-lessons-from-swedes.pdf>.

leaf. The seed (reproductive part) is mainly used for oil in human consumption and animal feed as rapeseed cake. Jahangir et al (2009) detailed the dangers of the two glucosinolates gluconapin and progoitrin and their metabolites that interfere with organ and thyroid function³.

The EFSA has warned about the dangers of glucosinolates in high levels in the seeds entering in the food chain, especially in animal feed and passing through to milk, meat and eggs⁴. There can be no rapeseed meal approved for any animal or human consumption until the long-term consumer effects are known.

Every analyte level found in seed of MS11 were significantly ($p < 0.05$) different from those found in seed of the control N90-740. This with the higher than normal glucosinolates could cause allergic reaction and lead to chronic ill health. It is imperative that feeding tests are carried out to see if there are any adverse effects from these end products.

There is strong evidence that the process of transgenic insertions disrupt the plant genome causing unintended effects. As the applicant has stated -

“The Barnase (bacterial cytotoxic ribonuclease) protein causes RNA degradation, cell disruption, and cell death and hence leads to ablation of the tapetal cells that surround the pollen sac thereby preventing normal pollen formation”. (A1140)

FSANZ must assess comprehensive generational histological data on study mammals to see if these changes can be inherited and transferred across the gut to organisms that ingest this canola.

This Canola line has not been properly assessed with serious deficiencies in data.

In light of this FSANZ must require full molecular profiling analyses:

- *transcriptomics* — *gene expression profiling*
- *proteomics* — *protein composition profiling*
- *metabolomics* — *profiling of metabolites*
- *miR-omics* – *microRNA profiling*

In Summary –

FSANZ should stop the clock and require further evidence of safety.

Until the molecular profiling and comprehensive intergenerational feeding testing has been provided for further assessment on the effects of A1140 canola line, the application must be declined.

Yours sincerely,

Jon Muller

Secretary GE Free NZ

³ Jahangir, M., Kim, H., Choi, Y., & Verpoorte, R. (2009). Health-Affecting Compounds in Brassicaceae. *Comprehensive Reviews In Food Science And Food Safety*, 8(2), 31-43. <http://dx.doi.org/10.1111/j.1541-4337.2008.00065.x>

⁴ Opinion of the Scientific Panel on Contaminants in the Food Chain on a request from the European Commission on glucosinolates as undesirable substances in animal feed, *The EFSA Journal* (2008) 590, 1-76