

Submission to FSANZ

**on GM potato A1128 – Food derived from
reduced Acrylamide Potential & Browning Potato
Line E12**

also known as Simplot's 'Innate' GM potato

The GM-Free Australia Alliance is a coalition of citizen groups including MADGE, Gene Ethics, GM Cropwatch, Foodwatch WA, South Australia Genetic Information Network, Friends of the Earth Emerging Tech Project and GE Free New Zealand.

The GM-Free Australia Alliance requests that FSANZ and the Forum REJECT GM potato A1128 for the following reasons:

The approval of GM potato A1128 will mean FSANZ is failing in its legislated objectives of:

1) Protection of public health and safety

- There is **no need for this GM potato** as conventionally bred potatoes resistant to blight, browning and with low asparagine levels.
- There are **serious gaps in the data** Simplot provided on this GM potato. Inexplicably, FSANZ have allowed these breaches of requirements.
- **Studies show the potential for catastrophic damage to human health from this method of GM. Food processing and cooking do not remove the danger.** FSANZ is ignoring or dismissing these studies, leaving us all at risk.
- By recommending GM potato A1129 for approval **FSANZ is breaching our human right to safe and nutritious food.** It has not been proven to be either safe or nutritious.

2) Provision of adequate information to consumers

- It is likely that the majority of imported GM potatoes will be sold in food service outlets where there is no requirement for labelling. **Consumers will not know they are buying and eating GM potatoes.**

3) Prevention of misleading or deceptive conduct

- FSANZ is allowing the public to believe that reduction in acrylamide in the cooked GM potato will be beneficial. There is no evidence for this. **FSANZ is could advise people to reduce their exposure to acrylamide by the choice of potato variety and the way the potato is grown.**
- The public is misled that FSANZ does a safety assessment on GM crops relevant to human health outcomes. **FSANZ relies on shoddy unpublished, un-peer-reviewed work by the developers of GM crops for approval.** None of these investigate the effect of people eating GM crops over a lifetime. **FSANZ requires no animal feeding trials, despite this being the best way to find unexpected toxicity.**

GM potato A1128 has been genetically manipulated using a bacteria containing two gene cassettes¹. The aim is to reduce the expression of four potato genes.

The claimed benefits are:

- 1) **Reduced browning** if the potatoes are cut, bruised or damaged
- 2) **Reduced acrylamide** when cooked at high temperatures. This is due to lower levels of the amino acid asparagine in the raw potato which converts to acrylamide when fried.

Both of these claimed benefits are unsubstantiated:

1) Browning may alert cooks to old or damaged potatoes that shouldn't be eaten

Bruising and browning is a way of knowing that a potato is poor quality, may be too old and potentially unfit to eat. Careful handling and storage can reduce bruising. GM potatoes with a non-browning trait are not needed as bruise and blight resistant non-GM potatoes have been conventionally bred. One of these is the Sarpo Kifli. ²

2) Acrylamide can be reduced by: using different potato varieties; cleaning up agricultural practices; and reducing cooking temperatures

Acrylamide is not naturally in potatoes but is formed when the starches and amino acids are subject to high temperatures, especially in reactions with oils.

There is no proof that the "low acrylamide" potatoes are actually what they say they are.

However, the nutrient and vital amino acids may have been significantly altered by the genetic modification process. This alters the potato's nutritional profile, affecting its consideration as a staple food source. There is the possibility that the GM process will form dangerous levels of naturally occurring potato toxins. As these have had no safety testing, carried out on any animal or human, this food is potentially dangerous and should not be approved.

The levels of asparagine in different varieties of potato vary widely, with some having low levels. The GM A1128 potatoes were developed from Russet Burbank potatoes which have high levels of asparagine.³ A simple way to reduce acrylamide would be to use a different potato, for example the Teton Russet⁴ This non-GM potato was especially bred for low asparagine, high protein and vitamin C.

Claiming the GM Innate A1128 potato is low in aspergine or chips will be low in acrylamide, when they may be far higher than in other potato varieties, is misleading and deceptive.

Acrylamide in food may not only be present due to natural levels in the crop. The plant may be absorbing it from the environment due to conventional farming practices.

Polyacrylamide is used in irrigation water to stick degraded soil together and in pesticides to

reduce spray drift. Polyacrylamide is a polymer made of acrylamide. It seems that acrylamide can be both a contaminant and a breakdown product from the use of polyacrylamide.⁵

The likelihood of acrylamide being present in vegetables due to the practices of commercial agriculture appears not to have been investigated. **It is disturbing that FSANZ has made no investigation into the overall presence of acrylamide in Australian food due to common farming practices, which would set a baseline for population exposure against which to measure the significance of introducing the A1128 potato.** It would surely be important for the protection of public health and safety to commission such studies.

If reduction in acrylamide is the intended outcome, growing potatoes low in aspergine, without using polyacrylamide, would seem to be the best way. **Not advising the Australian public of that they should adopt eating habits to protect their health from the overall impacts of acrylamide in the diet, is misleading and deceptive.** FSANZ is not fulfilling its brief to protect public health and safety, and to give the public adequate information.

Acrylamide's link to cancer is a theory

It is also unclear that increased acrylamide is linked to cancer. "Gary Kennedy, a food technology expert with Correct Food Systems, said processors, while catering to the western diet, are under pressure to remove acrylamide.

"There have been links to higher levels of cancer in western foods, to foods containing high levels of acrylamide.

"It hasn't been proven that higher levels of acrylamide cause cancer, but that's the theory."⁶

There are no studies showing GM potato A1128 would reduce risks to human health

The application contains no studies showing how these potatoes would protect human health. Any claims that these potatoes would do so are based on assumptions that they would be effective and that acrylamide causes cancer. Avoiding Russet Burbank potatoes and choosing low acrylamide ones instead would potentially reduce risks to human health more than GM potatoes, yet this is not being assessed or advocated.

The subtle promotion of claims that these GM potatoes improve human health is **misleading and deceptive. People are encouraged to believe these GM potatoes will be beneficial, despite the lack of evidence⁷ and uncertainty over whether acrylamide causes cancer.**

FSANZ ignores its own safety assessment criteria and allows gaps and guesses in place of science

FSANZ's Application Handbook states in 3.5.1 Foods Produced using Gene Technology section A.3 The nature of the genetic modification⁸ requires the applicant to submit:

- (c) A full molecular characterisation of the genetic modification in the new organism, including:
- (i) identification of all transferred genetic material and whether it has undergone any rearrangements
 - (ii) a determination of the number of insertion sites, and the number of copies at each insertion site
 - (iii) full DNA sequence of each insertion site, including junction regions with the host DNA
 - (iv) a map depicting the organisation of the inserted genetic material at each insertion site
 - (v) details of an analysis of the insert and junction regions for the occurrence of any open reading frames (ORFs).

In breach of these requirements FSANZ excuses the applicant's inability to meet their obligations. FSANZ excuses and ignores the evidence gaps and ignores any potential harm from the scrambled GM genome. FSANZ approval document lists the breaches of its own requirements (emphasis added):

- “Alignment of the E12 flanking sequence to the Michigan State University Spud Database indicates that the integration site is *likely to be on chromosome 12*. The alignment also revealed a ***small duplication of chromosomal DNA (approximately 3.2 kb in length) at the insertion site. The host (Russet Burbank) does not have this duplication, indicating the duplication occurred during transformation and integration of the T-DNA.*** Insertion at this site and the duplication of DNA on chromosome 12 did not disrupt any known potato genes.”⁹
- ‘Other than the junction sites, ***the Applicant was unable to provided sequence data for the TDNA inserted into E12, i.e. sequence across the insertion site. The Applicant has indicated the difficulty in obtaining this data was due to the insert consisting entirely of potato sequences, including inverted repeat sequences of endogenous DNA.***’¹⁰
- “***9/38 reported analytes differed from control in statistically significant ways.*** Four of these expected due to the GM.”¹¹ Meaning 5 were unexpected. The way the ‘controls’ were established is unusual. They took 8 different types of potato as controls. When comparing the analytes only one potato was compared, it wasn’t named but merely called ‘control’. It is easy to imagine the potato with the most advantageous comparable analytes was chosen. This is not science, it is fraud.
- “The junction and flanking regions of the inserted T-DNA from pSIM1278 have been sequenced and ***reveal a loss of 24 bp and 119 bp from the Left and Right Border regions, respectively.***” P14. ¹²
- It is assumed that Open Reading Frames (areas of code with no stop codon that are potentially capable of creating proteins) will not create allergenic or toxic proteins. Only known allergens of 30+ amino acids in ORF’s were looked for. This ignores the potential for new allergens and toxins being produced. ***27 ORF’s were found but it was decided they were not biologically significant matches to known allergens.*** ¹³

Simplot, the applicant, is unable to present full information on how the genome has been genetically modified. **All the research papers submitted on this GM potato A1128 are Simplot's own unpublished, un-peer-reviewed papers.** FSANZ dismissed the gaps and alterations as 'not biologically significant' but there is no scientific definition of what this means and no experiments to establish any biological significance. Though **FSANZ is able to ask for further evidence and data, it has chosen not to do so, thus putting public health and safety at risk.**

There appears to be **no obligation on the part of either the applicant or FSANZ to establish whether the genetic alterations affect the safety of the potato.**

Feeding trials unexpectedly showed 10% of eaters' genome disrupted but FSANZ claims further tests are unneeded.

GM potato A1128 has been manipulated using RNA interference. This creates double stranded RNA (dsRNA), to destroy messenger RNA (mRNA), and to reduce the production of proteins by four potato genes.

This is a new technique which appears to create cascades of unexpected changes. Honeybees were fed tiny pieces of dsRNA. The Brazilian researchers (Nunes et al 2013) expected nothing to happen as the dsRNA used was from jellyfish, not bees. It only took a single meal of the dsRNA fed to the worker bee larvae, to significantly alter the expression of 1461 genes (10% of the genome) as the bees grew up.

'In general, **the affected genes are involved in important developmental and metabolic processes associated with RNA processing and transport, hormone metabolism, immunity, response to external stimulus and to stress.**'¹⁴

This shows that feeding trials are urgently needed on all GM crops as the theoretical view that there would be no effects from eating dsRNA was proved wrong. **FSANZ is putting public health and safety at risk by claiming there is no need for feeding trials:**

"The Applicant states that reducing acrylamide potential in potatoes is desirable because acrylamide presents a potential health risk for consumers (FDA 2016). The introduction of food from E12 into the food supply is therefore expected to have little nutritional impact and, as such, no additional studies, including animal feeding studies, are required."¹⁵

FSANZ accepts unproven health claims while ignoring evidence of proven risks. Its argument is illogical. They claim that reducing acrylamide in this one potato variety is desirable, due to acrylamide health risks. Then, without evidence, they claim the GM potato will have little nutritional impact in the diet, and therefore no feeding studies are required. These three unlinked claims are not evidence-based and are not logical, let alone scientific.

FSANZ rejects science and puts public health at risk

FSANZ has been alerted to the disruptive potential of GM RNAi (dsRNA). Heinemann's 2012 report on GM wheat specifically raised the potential for the initial dsRNA to generate secondary dsRNA within the plant¹⁶. This seems to have been what happened with the honeybees:

'Expression changes appear to be the result of both direct off-target effects and indirect downstream secondary effects; indeed, there were several instances of sequence similarity between putative siRNAs generated from the dsRNA-GFP construct and genes whose expression levels were altered.' (Nunes et al)

The initial dsRNA changes lead to further changes within the GM plant or the animal that has eaten it. These cascading effects are unpredictable, are cumulative and potentially catastrophic.

FSANZ's statement dismissed Heinemann's concerns regarding RNA and appeared unaware of Nunes et al's evidence from honeybees. FSANZ has claimed they 'will continue to monitor the scientific literature for any new developments which may be relevant to GM food safety assessment.'¹⁷

However, granting approvals on inconclusive and incomplete evidence, then merely monitoring the literature without being at all proactive, turns the approved food into an uncontrolled experiment. There appears to be no evidence that FSANZ is aware of the Nunes study or has revised its views accordingly. More characteristically, FSANZ would have argued that Nunes is irrelevant since humans aren't bees and therefore our children won't be affected.

Gene silencing (dsRNA, RNAi) can kill, produce inherited changes in offspring, create huge unintended effects and alter gene expression

RNAi can kill

RNAi altered organisms are being used as a pesticide to be sprayed on crops, or genetically engineered into a plant¹⁸. The effects these activities could have on insects and the food web of life is mostly unknown.¹⁹

Last year FSANZ recommended approval of a GM corn MON87411²⁰ that produces genetically modified double stranded RNA (dsRNA) within the plant. We said:

'If certain insects eat the corn this dsRNA interferes with a vital gene causing the insect to die. Our food standards body, FSANZ, has recommended MON87411 for approval. It decided there is no need to investigate the potential effects on humans of eating this corn as **"The data provided do not indicate this dsRNA possesses different characteristics, or is likely to pose a greater risk, than other RNAi mediators naturally present in corn."**

Transforming a plant from harmless to lethal for insects using GM dsRNA suggests that the GM plant does indeed possess different characteristics. Therefore it should be evaluated for its effects on human health.'²¹

What we eat can alter our children at a genetic level

Food contains naturally occurring double stranded RNA (dsRNA). It appears the dsRNA in what we eat can affect the expression of our genes²², and therefore our health. **Plant dsRNA has been found in breast milk²³ and therefore may affect the expression of babies' genes.**

Assuming, as FSANZ does, that genetically engineering dsRNA into plants will have no effects, as there are already naturally occurring dsRNA, makes no sense. **Cyanide and arsenic are both naturally occurring but we ought to be concerned about their levels in our food.** We know that RNA plays an important role in our health and wellbeing so any alteration to the RNA we eat should be fully investigated.

There is still much that is not understood about RNA. **Recent studies have shown that diet alters RNAs in sperm which may lead to an offspring's genes being expressed differently.**

'No-one knows whether those methylation changes are directly driven by sperm RNAs in early embryos, or (more likely) are secondary to altered development later on. At this point we know very little about how tRF-Gly-GCC acts mechanistically. But given that it seems to affect transcription, rather than the stability of MERVL-driven transcripts, it is easy to speculate that it interacts with other epigenetic modifications.'²⁴

RNAi can create huge unintended effects and alter our gene expression

Despite RNAi being used to kill, showing that it alters 10% of the expression of bees' genomes after one meal, can alter inheritance and creates cascades of unpredictable changes, FSANZ merely says:

'There is also no scientific basis for suggesting that, when present as a result of the genetic modification of a plant, they possess different properties or pose a greater risk than those already naturally abundant in foods from conventional plants, animals and microorganisms such as yeasts.'²⁵

So what does FSANZ mean by 'scientific basis'? Its regulatory science is science-based and does not apply the scientific method.

FSANZ has dismissed Heinemann's fully scientifically referenced report²⁶ showing the following worrying concerns:

- Strong evidence that RNA produced in GM plants will **transfer to humans through food**
- Strong evidence that RNA produced in GM plants will remain in a form that can be **transferred to humans even after food processing and cooking**
- Strong evidence that these RNAs **have the capacity to affect us**

It is especially worrying that the many types and methods of functioning of RNA are poorly understood and many have only recently been discovered. So, who is FSANZ protecting?

How is FSANZ's approach to science held to account? It's not.

There is no 'Science Ombudsman' who can investigate complaints of FSANZ dismissing or ignoring scientific evidence of harm or potential harm. FSANZ is judge and jury, deciding which evidence will be heard and given weight. The Forum of Ministers that finally approves GM foods does so on the basis of advice from FSANZ.

This results in a merry-go-round where the Forum say they approve GM foods on advice from FSANZ. FSANZ say they do not approve GM food, merely give advice to the Forum on its approval.

Since the Forum and its committee of officials appears to listen only to advice from FSANZ, it is deeply concerning that this advice appears to avoid engagement with the unfolding science of GMO and genetics, the WHO IARC monograph on glyphosate (Roundup) being a probable carcinogen and new Genetic Manipulation techniques badged as 'gene editing'.

FSANZ still has on its website the false claim that the Seralini study has been retracted²⁷. This two -year study fed rats GM corn and the pesticide designed to be sprayed on it, Roundup. Rats were shown to have statistically significant damage to liver, kidneys, and pituitary gland, increased death rates, as well as tumours.²⁸

Monsanto, the company that developed both the GM corn and Roundup, has recently been shown to have been instrumental in the paper's original retraction²⁹ on the false ground of 'inconclusivity'. Papers are usually only retracted due to error, fraud or plagiarism, not for being inconclusive. Seralini's paper was republished over two years ago, stands in the scientific literature and is cited by other researchers. **FSANZ is putting public health and safety at risk by ignoring peer reviewed published science showing threats health.**

FSANZ assessors do not put their names to the assessments so there is no way of knowing who has worked on which application or their qualifications to make such judgements. There is also no way of seeing if there are any conflicts of interest.

When MADGE met with FSANZ several years ago, to discuss the approval of Roundup Ready canola GT73, none of the people we met with had read the entire dossier. **None of the glaring errors in the submitted data had galvanized anyone at FSANZ to request new information or studies.**³⁰ FSANZ accepts unpublished, un-peer-reviewed corporate studies for safety assessments on our food while dismissing published peer reviewed studies showing harm.

'The Auditor General Audit Report No 15 2010-11 (ANAO) into FSANZ analyzed ten of FSANZ's accepted applications. The report does not say how many were of GM crops. They found 'gaps in the supporting data identified in Table 3.3 were because either the information was not provided by the applicants; or FSANZ had not documented whether the requirements were met.''**an applicant may provide supporting documentation or**

scientific studies that could be incorrect or incomplete, whether this is intentional or not.³¹

It is simply unacceptable that our food is being altered by techniques that are entirely new, poorly understood, barely researched, except by those with a financial interest in them, and then approved in an unaccountable and unscientific way by FSANZ.

Monsanto praises FSANZ

FSANZ's approach has been praised by an employee of Monsanto at the recent Productivity Commission Inquiry into Regulation in Agriculture:

'First of all, FSANZ and OGTR are seen as pillars globally in how they regulate GMO, and countries such as China, amongst other, frequently come to them for guidance and advice on regulating GMOs.'³²

FSANZ has approved every GMO submission it has received, including those rejected by countries ranging from South Africa to Austria³³. Their website says 'It is mandatory to label GMOs' which gives any consumer the impression that they will know if they are eating GMO food if they read the packet. Loopholes in not requiring processed ingredients to require labelling means that most GM ingredients eaten in Australia are unlabeled. The general public are unlikely to agree that this behavior should be seen as being a 'pillar' of regulation. They are likely to regard it as withholding information and being misleading and deceptive.

Powerful interests undermine science, regulation and public safety

The current approach to regulation is inadequate where powerful interests have a lot to lose and much to gain in having their products approved. Stephen Druker's "Altered Genes, Twisted Truths" shows how science has been subverted. Interestingly on page 171 FSANZ's predecessor ANZFA, is shown to have sided with Monsanto in dismissing the worrying changes in amino acid composition and other alterations in three GM canola and corn applications. ANZFA (now FSANZ) ignored concerns raised by the Public Health Association of Australia.

Whistleblower ex-regulators have exposed the flaws in the regulatory systems in the US and Canada: 'Poison Spring: The secret history of pollution and the EPA' by E.G Vallianatos and 'Corrupt to the Core: Memoirs of a Health Canada Whistleblower' by Shiv Chopra. This is a global problem and is not limited to Australia and New Zealand.

The EU has the same malaise. Even publicly funded investigations into how best to do risk assessments of GM food appear designed to support corporate interests. **The EU's GRACE project '...publication on a feeding trial with rats makes no mention of relevant data indicating health impacts. This is one of the underlying signs that industrial nepotism appears to be prevalent within the GRACE project even though it is publicly funded.'** There

are also complaints of incorrect or inadequate declarations of interests of the experts involved in GRACE.³⁴

‘Now members of the GRACE and G-TwYST research teams have published a paper, “Proposed criteria for the evaluation of the scientific quality of rat and mouse feeding trials with whole food/feed derived from genetically modified plants”, in the journal Archives of Toxicology. They are inviting “stakeholders” to contribute to further developing these criteria by sending comments.’ The journal Archives of Toxicology has strong affiliations with experts at the GRACE project. It also has a history of working closely with industry. ‘Testbiotech is concerned that under these circumstances the preconditions for strict peer review, full transparency in declaration of interests and for further unbiased and open scientific discussions may not be met.’³⁵

‘In fact, the paper is not so much a discussion piece as a clear policy statement in favour of abolishing animal feeding trials with GMOs.’

The paper states:

“Only in case a trigger is available from the initial molecular, compositional, phenotypic and/or agronomic analyses and therefore the rationale of the study prior to testing is formulated in form of hypotheses regarding specific endpoints, feeding trials with whole food/feed may provide an added scientific value for the risk assessment of GM crops.”

In other words, the authors are implying that animal feeding trials with GMOs are not necessary except when pre-existing tests by the company (e.g. gross compositional tests analysing fat, carbohydrate, etc.) produce results that suggest that they would be needed.³⁶

Therefore public money is being used to claim that generic toxicity tests will not be required even though this is the best way to establish whether a food is toxic.

Human Right to safe and nutritious food

The declaration of human rights includes the right to safe and nutritious food.³⁷ **The International Criminal Court has recently announced a ‘new and welcome focus on the prosecution of individuals for human atrocities that are committed by destroying the environment in which we live and on which we depend.’**³⁸

The destruction of safe food by the approval of GM varieties that contaminate the genetics of our food supply may soon be part of the ICC’s focus. This is especially so as the mass poisoning of people by GM soy in South America and elsewhere will be investigated at the Monsanto Tribunal at The Hague in October 2016³⁹.

Will regulators be held to account for their approval of GM food despite yawning gaps in the science and evidence of harm?

Labelling

The GM potatoes would currently need to be labelled as GM if they were sold as pre-cut chips or other products in retail outlets. About 26% of potatoes that go to processing in Australia are imported, mostly from the US where these GM potatoes will be grown. 79% of processed potatoes go to food service outlets. This means that since there is no requirement for labelling. “Food prepared and sold from food premises and vending vehicles (e.g. restaurants, takeaway food outlets, caterers) is also exempt from GM food labelling requirements.”⁴⁰

It is likely that most GM potatoes will be imported for sale in food service outlets where they would escape labelling.

Conclusion

The approval of GM potato A1128 will mean FSANZ is failing in its legislated objectives of:

1) Protection of public health and safety

- There is **no need for this GM potato** as conventionally bred potatoes resistant to blight, browning and with low asparagine levels.
- There are **serious gaps in the data** Simplot provided on this GM potato. Inexplicably, FSANZ have allowed these breaches of requirements.
- **Studies show the potential for catastrophic damage to human health from this method of GM. Food processing and cooking do not remove the danger.** FSANZ is ignoring or dismissing these studies, leaving us all at risk.
- By recommending GM potato A1129 for approval **FSANZ is breaching our human right to safe and nutritious food.** It has not been proven to be either safe nor nutritious.

2) Provision of adequate information to consumers

- It is likely that the majority of imported GM potatoes will be sold in food service outlets where there is no requirement for labelling. **Consumers will not know they are buying and eating GM potatoes.**

3) Prevention of misleading or deceptive conduct

- FSANZ is allowing the public to believe that reduction in acrylamide in the cooked GM potato will be beneficial. There is no evidence for this. **FSANZ is could advise people to reduce their exposure to acrylamide by the choice of potato variety and the way the potato is grown.**
- The public is misled that FSANZ does a safety assessment on GM crops relevant to human health outcomes. **FSANZ relies on shoddy unpublished, un-peer-reviewed work by the developers of GM crops for approval.** None of these investigate the effect of people eating GM crops over a lifetime. **FSANZ requires no animal feeding trials, despite this being the best way to find unexpected toxicity.**

References:

¹ Food Standards Australia New Zealand 19 August 2016 [21–16] Supporting document 1 Safety Assessment Report – Application A1128 Food derived from reduced Acrylamide Potential & Browning Potato Line E12
<http://www.foodstandards.gov.au/code/applications/Documents/A1128%20GM%20potato%20E12%20SD1%20Safety%20Assess.pdf> p6-11

² Sarpo <http://sarpo.co.uk/portfolio/sarpo-kifli/>
GM Watch The superfluous GMO potato <http://gmwatch.org/news/latest-news/15988-the-superfluous-gmo-potato>

³ Acrylamide in potato crisps prepared from 20 UK-grown varieties: Effects of variety and tuber storage time *Food Chemistry* Volume 182, 1 September 2015, Pages 1–8 J. Stephen Elmore et al
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⁴ *American Journal of Potato Research* August 2014, Volume 91, Issue 4, pp 380–393 R. G. Novy
Teton Russet: An Early-Maturing, Dual-Purpose Potato Cultivar Having Higher Protein and Vitamin C Content, Low Asparagine, and Resistances to Common Scab and *Fusarium* Dry Rot
<http://link.springer.com/article/10.1007/s12230-013-9362-8>

⁵ Prof Joe Cummins, Department of Biology, University of Western Ontario, August 2002
Polyacrylamide is added to soil and pesticides, it may be a major problem?
<http://www.mindfully.org/Pesticide/2002/Polyacrylamide-Soil-Pesticides-Cummins8aug02.htm>

⁶ Food regulator reviewing GM potato for use within Australia

<http://www.abc.net.au/news/2016-08-22/gm-potatoes-for-healthier-french-fries/7772252>

⁷ ABC Rural, 22nd August 2016, Sandra Locke Food regulator reviewing GM potato for use within Australia <http://www.abc.net.au/news/2016-08-22/gm-potatoes-for-healthier-french-fries/7772252>

IFLSCIENCE GM Potatoes With Health Benefits Approved By USDA

<http://www.iflscience.com/plants-and-animals/gm-potatoes-may-benefit-health-approved-usda/>

⁸ FSANZ Application Handbook as at 1 March 2016

<http://www.foodstandards.gov.au/code/changes/Documents/Application%20Handbook%20as%20at%201%20March%202016.pdf>

⁹ Food Standards Australia New Zealand 19 August 2016 [21–16] Supporting document 1 Safety Assessment Report – Application A1128 Food derived from reduced Acrylamide Potential & Browning Potato Line E12

<http://www.foodstandards.gov.au/code/applications/Documents/A1128%20GM%20potato%20E12%20SD1%20Safety%20Assess.pdf> p13

¹⁰ Ibid

¹¹ Ibid p25

¹² Ibid p14

¹³ Ibid p16

¹⁴ *Insects* 2013, 4(1), 90-103; doi:[10.3390/insects4010090](https://doi.org/10.3390/insects4010090) Nunes, Francis, M. et al

Non-Target Effects of Green Fluorescent Protein (GFP)-Derived Double-Stranded RNA (dsRNA-GFP)

Used in Honey Bee RNA Interference (RNAi) Assays

Why Scientists are Worried about the GMO Potato and Apple

<http://responsibletechnology.org/Why%20Scientists%20are%20worried%20about%20the%20GMO%20potato%20and%20apple%204.8.15%20Final.pdf>

¹⁵ Food Standards Australia New Zealand 19 August 2016 [21–16] Supporting document 1 Safety Assessment Report – Application A1128 Food derived from reduced Acrylamide Potential & Browning Potato Line E12

<http://www.foodstandards.gov.au/code/applications/Documents/A1128%20GM%20potato%20E12%20SD1%20Safety%20Assess.pdf> p26

¹⁶ Heinemann 28 August 2012, Centre for Integrated Research in Biosafety. University of Canterbury, Evaluation of risks from creation of novel RNA molecules in genetically engineered wheat plants and recommendations for risk assessment. <http://safefoodfoundation.org/wp-content/uploads/2012/09/Heinemann-Expert-Scientific-Opinion.pdf>

¹⁷ Response to Heinemann et al on the regulation of GM crops and foods developed using gene silencing (May 2013)

<https://www.foodstandards.gov.au/consumer/gmfood/Documents/Heinemann%20Response%2010513.pdf>

¹⁸ Monsanto's Willing Executioners

Wednesday, 06 April 2016 00:00By JP Sottile, Truthout | News Analysis <http://www.truthout.org/news/item/35517-monsanto-s-willing-executioners>

¹⁹[Oxford Journals Science & Mathematics BioScience](http://bioscience.oxfordjournals.org/content/63/8/657.full) Volume 63, Issue 8 Pp. 657-665 RNAi-Based

Insecticidal Crops: Potential Effects on Non-target Species Jonathan G Lundgren and Jian J.Duan

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²⁰ FSANZ Application A1097 GM Corn Line MON 8741

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²¹ MADGE Press Release Why Risk GM insect-killing dsRNA appearing in breast milk? 19 Feb 2015

<http://www.madge.org.au/why-risk-gm-insect-killing-double-stranded-rna-dsrna-appearing-breast-milk>

²² Baier, S.R., Nguyen, C., Xie, F., Wood, J.R., and Zemleni, J. (2014). MicroRNAs are absorbed in biologically meaningful amounts from nutritionally relevant doses of cow milk and affect gene expression in peripheral blood mononuclear cells, HEK-293 kidney o dsRNA found in cows milk was found to survive digestion and can alter human gene expression. (Baier et al., 2014[i]). “We conclude that miRNA’s in milk are bioactive food compounds that regulate human genes.” [ii] Lukaski, A., and Zielenkiewicz, P. (2014). In silico id

²³ Lukaski, A., and Zielenkiewicz, P. (2014). In silico identification of plant miRNAs in mammalian breast milk exosomes – a small step forward? PLoS ONE 9, e99963.

²⁴ tRNA Fragments Beat DNA Methylation in the Game of Paternal Intergenerational Epigenetic Inheritance, Epigenie Jan 9, 2016

<http://epigenie.com/trna-fragments-beat-dna-methylation-in-the-game-of-paternal-intergenerational-epigenetic-inheritance/>

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