



MADGE

Mothers are Demystifying Genetic Engineering

Second Submission to the Productivity Commission Inquiry into Regulation in Agriculture August 2016

- 1) Agricultural products are what shoppers call food, they want to know what's in it and they don't want GM**
 - Agricultural produce ends up on plates, as meals.
 - Chronic illnesses are linked to the Western diet

- 2) GM ingredients, pesticides, irradiation, nanoparticles etc have recently entered food and no one has tested their collective effect on health**
 - Many products and processes that have never existed before are allowed in our food.
 - Claims of safety are belief not science.
 - There are no standard protocols for GM food testing
 - FSANZ uncritically accepts unpublished corporate studies and rejects peer-reviewed science showing harm.
 - Seralini's study stands in the scientific literature.
 - Why can Monsanto use 10 rats in studies but Seralini can't?
 - Claims Seralini selectively reported data is meaningless when no standard protocols exist.
 - If the type of rat Seralini used is wrong, most toxicological studies will have to be ignored.
 - Unnamed scientists using secret corporate studies do not show Roundup (glyphosate) is safe.
 - Roundup is linked to birth defects and cancer.

- 3) In the absence of studies, no group, however prestigious, can claim safety**

- Unreferenced statements by the WHO does not mean proof of safety.
- The US FDA does not safety test GM food.
- FSANZ allowed Monsanto to submit a different protein as they couldn't characterize the one in GM RR canola.
- Corn expressing six GM insect killing genes and sprayed with two weedkillers escaped any pre-market assessment by FSANZ.
- Ten years of EU research referenced only 5 published animal studies, none on a commercial GM crop.
- GM corporate research looking at the breast weight of chicken does not show it is safe to eat.
- There are no epidemiological studies to see if increase in ill-health linked to GM food.
- National Academy of Sciences report could be entitled 'there's a lot we don't know, which isn't surprising, as no one is looking'.
- Nobel Laureates unqualified in agriculture do not show that GM is safe.
- Many peer-reviewed studies show harm or potential harm from GM crops and their associated pesticides.
- Links between GM companies, scientists, universities, PR companies and front groups exposed.

4) Signs of harm.

- GM linked to death and injury.
- Biotech proponents covered tracks.
- Threats from new foods and substances differ from traditional foodborne illness.
- Rural children in US have increased brain cancer and leukaemia.
- Endocrine disruption costs the EU 150 billion euros a year.
- Illnesses linked to food rising but no labelling or monitoring system to track problems or diagnostic testing.

5) Corporate profit from poison is a familiar pattern: lead, asbestos, PCBs, DDT, tobacco....

- What is the cost to Australia of GM foods, pesticides, nanoparticles, irradiation etc?
- Fossil fuel powers both industrial agriculture and climate denial.
- Money and power trump science and democracy.

6) Market rejection – people object to being guinea pigs.

Conclusion

The Inquiry into Regulation in Agriculture will either ensure widespread distrust and possible rejection by much of the world of Australian produce.

Or

The Productivity Commission can support Regulation in Agriculture that will build the basis for shopper trust, healthy people and strong market demand for Australian food.

1) Agricultural products are what shoppers call food.

Agricultural produce ends up on plates, as meals.

All shoppers want their food to be safe and nutritious. Regulations ensuring people know what they are eating, and how to avoid what doesn't agree with them, is a basic underpinning of a successful and transparent food system. It also provides market signals.

A food supply that doesn't support optimum health for the public, especially children, automatically reduces the productivity of the whole society, and makes it miserable too. While the cost of this falls initially on the individual and family, the wider society is impacted when many, especially children, are chronically ill and require care.

Chronic illnesses are linked to the Western diet

Chronic illnesses linked to food are growing in developed, and developing countries where the Western diet is being adoptedⁱ. Food allergies and intolerance, auto-immune disease, GI problems, behaviour problems including ADHD and neurological illnesses such as autism as well as infertility are rising in Australiaⁱⁱ and elsewhere.

It is likely that the revolutionary, cumulative and ever increasing changes to our food and farming systems over the past 60 years are having a noticeably damaging effect on public health.

2) GM ingredients, pesticides, irradiation, nanoparticles etc have entered our food and no one has tested their collective effect on health

Many products and processes that have never existed before are allowed in our food.

FSANZ has allowed GM, pesticides, irradiation, endocrine disruptors such as BPA and plastic packaging that leaches into food, synbio, irradiation, additives, processing aids and chemicals used in ripening and storage into our food.

These food processes and products have never existed before. **They are entirely new to our digestive, immune system, bodies and the wider environment.** It is unclear who is responsible should one, a combination or all of them, cause problems. Monsanto's contract puts the responsibility on the GM growing farmers, should GM be shown to cause health problems. Is this either realistic or fair?

It is also unclear how any harm will be cleared up since GM crops are living organisms that grow, outcross, decay and are recycled by the soil life in the environment. An iterative,

uncontrolled experiment has been created. It has led to canola weeds resistant to multiple herbicides in the US midwestⁱⁱⁱ. Bacteria with GM DNA resistant to antibiotics have been found in every Chinese river tested^{iv}. No comparable testing has been done in any other country. What will be the outcome of this reckless behaviour? Risk expert Nassim Taleb suggests it could be a 'black swan' event and a total collapse^v.

Claims of safety are belief not science.

Any regulatory body or scientist who claims they are safe is using belief not evidence. **There are no requirements anywhere in the world for long-term, multi-generational, developmental or fertility studies to be done on even one of these new technologies.** How they interact is also unknown and unstudied.

The key concept of 'substantial equivalence' in the assessment of GM foods worldwide is laid out in CODEX guidelines.^{vi} An Expert Panel Report on the Regulation of Food Biotechnology, prepared for the Royal Society of Canada in 2001 said 'The panel finds the use of 'substantial equivalence' as a decision threshold to exempt GM agricultural products from rigorous scientific assessment to be **scientifically unjustifiable and inconsistent with the precautionary regulation of the technology.**'^{vii}

They recommend GM crops should undergo rigorous scientific assessment, which has been designed by experts in open consultation. They **recommend that the analysis of studies should be done by 'arms-length' experts who 'report their decisions and rationale in a public forum'**.^{viii} This has never been done.

There are no standard protocols for GM food testing.

There are no standard protocols for testing GM foods in spite of repeated requests for this by scientists and civil society. The tests that are done are usually based on chemical testing guidelines.

'The European Food Safety Authority (EFSA) has listed some OECD protocols that it deems "relevant" to GM food safety testing, but EFSA does not require or even recommend any particular protocol. The OECD protocols that EFSA lists vary widely in design.

In practice, industry has often adapted OECD protocol 408, a subchronic 90-day rodent feeding trial designed for testing chemicals, for its safety tests on GM foods.

However, industry has not kept to the protocol laid down in OECD 408, but only used it as a starting point. The number of animals used and analyzed, the endpoints (effects) tested for, the control groups included, the diets used, and which data is reported, have not been in accord with OECD 408 and vary widely between experiments.'^{ix}

FSANZ requires no animal testing whatsoever.

There is no coherent method of analysing any GM crop or food for human health effects anywhere in the world. It is hard to be less than astonished by this.

FSANZ uncritically accepts unpublished corporate studies and rejects peer-reviewed science showing harm.

There is now a huge array of tests that could be done that are not, meaning we know very little about the current GM foods we are eating.^x FSANZ accepts rudimentary studies from GM companies as the basis for their recommendations for approval of these foods.^{xi} FSANZ does none of its own testing and expects the GM industry to advise them of any problems with their products^{xii}.

They have rejected peer-reviewed studies showing harm with almost no reference to scientific studies^{xiii}. When they have referenced a handful of studies it only shows how contested the understanding of the genetic functioning of plants and their effects on us is. FSANZ quibbles about details in the design of studies showing harm that do not trouble them in studies done by corporations. They use the opinion of the European Food Safety Authority's to reinforce their own. Sadly EFSA has a reputation for conflicts of interest and underfunding, in part due to lack of confidence in the agency.^{xiv}

Seralini's study stands in the scientific literature.

In our second presentation to the Productivity Commission MADGE explained Seralini's study showing damage to liver, kidneys and pituitary glands of rats stands in the scientific literature^{xv}. FSANZ's website still lists the Seralini study as retracted. This is incorrect as it has been republished.

In their dismissal of Seralini, FSANZ states:

"Key limitations include the small number of animals in each test group, selective reporting of data, and no acknowledgement of the well-known spontaneous occurrence of mammary tumours in this strain of female rats."^{xvi}

Why can Monsanto use 10 rats in studies but Seralini can't?

Seralini followed the OECD Toxicological Guideline 408. He tested 10 rats per group, the same number that Monsanto scientist, Hammond, did in his 2004 90-day study on the same Roundup Ready corn, NK603^{xvii}. The Hammond study was used in the approval of the GM corn NK603 in Europe.

Interestingly although both Hammond and Seralini used the OECD testing guideline 408, Hammond fed 20 rats in each group but only tested 10. How Hammond chose which rats he tested is not explained. FSANZ's claims that the number of test animals is too small is wrong. Cancer studies require 50 animals per group but Seralini was doing a toxicological study

which requires only 10. Doing a cancer study on 50 rats for two years with GM foods and Roundup would be an excellent idea, it hasn't yet happened.

Claims Seralini selectively reported data is meaningless when no standard protocols exist.

FSANZ's claim that there is selective reporting of data is meaningless. Seralini extended Hammond's 90-day study to two years to see whether the initial differences in the GM and non-GM fed rats developed into serious problems. They did.

If the type of rat Seralini used is wrong, most toxicological studies will have to be ignored.

FSANZ implies that the strain of rats Seralini used did not acknowledge it has a high rate of tumours. **Both Seralini and Hammond used the Sprague Dawley rat, the standard rat for toxicological testing.** To dismiss Seralini's study due to the strain of rats used would mean that a vast body of studies would have to be removed from the scientific literature. Once again FSANZ's dismissal of Seralini's study is not scientific.

Unnamed scientists using secret corporate studies do not show Roundup (glyphosate) is safe.

FSANZ says 'The claimed toxicity of Roundup is implausible and doesn't align with extensive data from well designed and conducted long-term studies that used the active ingredient of Roundup; glyphosate, in multiple species (i.e. mice, rats, rabbits and dogs) at higher doses where no effects were observed.'^{xviii}

The International Agency of Research into Cancer (IARC) released its monograph on glyphosate in March 2015^{xix}. It was authored by seventeen named scientists with no conflicts of interest. They examined all the peer-reviewed studies on glyphosate and concluded it is a Probable Carcinogen (2A). They debated classifying it as a Carcinogen (1) but decided that the statistics on human health were not clear enough. The evidence shows it is an animal carcinogen. The IARC is a WHO panel which is regarded as having produced work of high integrity for the past 40 years.

The report the European Food Safety Authority (EFSA) used to claim glyphosate is unlikely to be carcinogenic (Renewal Assessment Report) has been refuted. 94 scientists, published letter explaining the flaws in the Journal of Epidemiological and Community Health. The Renewal Assessment Report (RAR) ignores or dismisses publicly available peer-reviewed studies and places reliance on unpublished studies done by industry that are hidden from others, including the IARC scientists.^{xx}

The RAR was prepared by the German regulator BfR. **They initially used the Glyphosate Task Force's carcinogenicity data and statistical evaluation to decide glyphosate was not carcinogenic. The Glyphosate Task Force is the group of companies that market glyphosate.** The IARC monograph on glyphosate was released while the BfR was preparing their report. The BfR then decided that five industry provided studies showed tumour

incidence in animals but dismissed them. Six NGOs have filed a formal legal complaint against those responsible for assessing glyphosate.^{xxi}

The Glyphosate Task Force has just announced they will allow public access to the 71 industry studies used to approve glyphosate. This is only open until the end of September and only if the observers submit to a stringent set of conditions. This includes being unable to make any copies. Therefore no reanalysis of data will be possible undermining any benefit from seeing the studies.^{xxii} It is not good enough to have this level of secrecy when studies show that Roundup is present in breast milk, urine, many foods and drinks, rainwater, groundwater and the air.

The Joint Meeting on Pesticide Residues (JMPR) which claims Roundup is unlikely to cause cancer if you eat it, has conflicts of interest. The Chair of JMPR co-runs a scientific institute that received money from Monsanto, the maker of Roundup.^{xxiii}

This type of assessment and regulation is not science, but power, dressed up a science.

Roundup is linked to birth defects and cancer.

Roundup was first sold in the 1970s. Endocrine disruption, where hormones are affected sometimes in non-linear ways, where a low dose may have a significant effect but a higher dose produces smaller, or different effects, were unknown. Endocrine disruption is likely to have the greatest effect while embryos are developing. 'Roundup and Birth Defects: are we being kept in the dark?'^{xxiv} details the studies showing the possible link between Roundup and birth defects. These defects are mirroring those increasingly being seen in South America near the GM soy fields. There is also a huge increase in cancer.^{xxv} The affected communities are calling the devastation being caused to their health as 'close to a genocide.'^{xxvi}

Since glyphosate is sprayed on the majority of GM crops worldwide and is a probable carcinogen it is hard to see how GM crops can be considered safe.

There is no scientific ombudsman to which we can appeal FSANZ's distortion of science in their continued recommendation for approval of GM crops, pesticide residues, nanotechnology and other risky, unnecessary technologies. This is an abuse of human and environmental rights.

3) In the absence of studies, no group, however prestigious, can claim safety

Unreferenced statements from the WHO does not mean proof of safety.

The Productivity Commission Panel claimed that GM is safe because every reputable scientific body says it is. This is debateable. It also ignores the scientific bodies who are more sceptical. They include the Royal Society of Canada^{xxvii}, the Australian Medical Association, the British Medical Association, the French Agency for Food, Environmental and Occupational Health & Safety (ANSES), The International Assessment of Agricultural

Knowledge Science and Technology for Development (IAASTD),^{xxviii} the Public Health Association of Australia^{xxix} and the American Academy of Environmental Medicine^{xxx}.

Many scientists have signed a statement saying there is no consensus on the safety of GM food. They 'do(es) not assert that GMOs are unsafe or safe. Rather, the statement concludes that the scarcity and contradictory nature of the scientific evidence published to date prevents conclusive claims of safety, or of lack of safety, of GMOs. Claims of consensus on the safety of GMOs are not supported by an objective analysis of the refereed literature^{xxxi}

The US FDA does not safety test GM food.

The WHO's website says each GM should be individually assessed. 'GM foods currently available on the international market have passed safety assessments and are not likely to present risks for human health.'^{xxxii} The problems with this assumption are explored below.

The US FDA expects the GM company to test for safety and they do not see the full studies done by the companies.

“(T)he FDA never sees the methodological details, but rather only limited data and the conclusions the company has drawn from its own research....the FDA does not require the submission of data. And, in fact, companies have failed to comply with FDA requests for data beyond that which they submitted initially. Without test protocols or other important data, the FDA is unable to identify unintentional mistakes, errors in data interpretation, or intentional deception...

At the end of the consultation, the FDA issues a letter ending the consultation. Here is a typical response from FDA, in its letter to Monsanto about its MON 810 Bt corn:

'Based on the safety and nutritional assessment you have conducted, it is our understanding that Monsanto has concluded that corn products derived from this new variety are not materially different in composition, safety, and other relevant parameters from corn currently on the market, **and that the genetically modified corn does not raise issues that would require premarket review or approval by FDA.... as you are aware, it is Monsanto's responsibility to ensure that foods marketed by the firm are safe**, wholesome [emphasis ours] and in compliance with all applicable legal and regulatory requirements'.^{xxxiii}

FSANZ allowed Monsanto submit a different protein as they couldn't characterize the one in GM RR canola.

In Australia, FSANZ may receive the full studies but they do not appear to read them closely. FSANZ gave MADGE the documents on which they approved GM Roundup Ready canola GT 73. Our report shows that Monsanto was unable to identify and categorize one of the intended proteins^{xxxiv}. This is important as food allergies are in response to protein and this may be increasing allergic reactions. It also became clear that the GM canola prepared by Monsanto for various feeding trials was potentially contaminated with other GM traits, not

sprayed with Roundup and toasted in a way that distorted its nutritional value^{xxxv}. FSANZ accepted these poor quality studies without question.

Corn expressing six GM insect killing genes and sprayed with two weedkillers escaped any pre-market assessment by FSANZ.

Smartstax corn is sprayed with two pesticides. One is glyphosate (Roundup), a probable carcinogen^{xxxvi}, the other is glufosinate that causes autism like behaviour in mice^{xxxvii} and was banned in the EU. It also contains six GM insect killing toxins produced by the same GM corn. This corn was not assessed as FSANZ decided it was not GM, having been conventionally bred from four GM parents^{xxxviii}. This is semantics, not science.

Ten years of EU research referenced only 5 published animal studies, none on a commercial GM crop.

The report 'A decade of EU-funded GMO research' was not designed to test for the safety of even one GM food. Instead it looked at 'the development of safety assessment approaches.' It only references five published animal feeding studies.

'None of the studies tested a commercialized GM food; none tested the GM food for long-term effects beyond the medium-term period of 90 days; all found differences in the GM-fed animals, which in some cases were statistically significant; and none concluded on the safety of the GM food tested, let alone on the safety of GM foods in general. The EU research project provides no evidence that could support claims of safety for any single GM food or of GM crops in general.

It is difficult to work out from the EU report how many studies were completed, what the findings were, and how many studies were published in peer-reviewed journals, because the authors of the report often fail to reference specific studies to back up their claims. Instead, they randomly list references to a few published studies in each chapter of the report and leave the reader to guess which statements refer to which studies.

In some cases it is unclear whether there is any published data to back up the report's claims. For example, a 90-day feeding study on hamsters is said to show that "the GM potato is as safe as the non-GM potato", but **no reference is given to any published study or other source of data, so there is no way of verifying the claim.**^{xxxix}

The US, Australia and the EU regulators are doing no independent research into the safety of GM food.

GM research looking at the breast weight of chicken does not show it is safe to eat.

GM companies do most of the research, it rarely looks at human health endpoints but instead investigates the weight of chicken breasts and the juiciness of lamb chops.^{xi} The regulators accept it uncritically. **It is hard to see how the WHO justifies its claim of GM foods passing safety assessments, especially when there is no standard safety assessment to pass.**

There are no epidemiological studies to see if increase in ill-health linked to GM food.

The WHO also claim GM foods **‘are not likely to present risks for human health’**. This is a **value judgement, as the science to make this claim simply has not been done**. They also claim ‘no effects on human health have been shown as a result of the consumption of such foods by the general population in the countries where they have been approved.’ Once again this is an opinion.

No epidemiological studies have been done anywhere in the world to see if increasing ill-health is linked to the introduction of GM foods or not. What we do know is that people increase their health and well-being once they remove processed food from their diets. Whether this is due to the GM in the foods or something else, is not known.

National Academy of Sciences report could be entitled ‘there’s a lot we don’t know, which isn’t surprising, as no one is looking’.^{xii}

The National Academy of Sciences report recognises that each GMO can create unpredictable effects and so doesn’t have an ‘umbrella’ view on the safety of all GMOS. It has produced a 400-page document with the first and last chapters more favourable to GM but the middle ones are more equivocal.

It says “The research that has been conducted in studies with animals and on chemical composition of GE food reveals no differences that would implicate a higher risk to human health from eating GE foods than from eating their non-GE counterparts.” This has been taken to mean GM foods are safe.

How do they justify this when there is a long list of animal studies showing harm? They elevate two reviews of studies^{xiii}. The first is Van Eenennaam and Young. It looks at the livestock data of 100 billion farm animals. 95% of these were broiler chickens who died at around 49 days. This is irrelevant to human health as is the data on the other 5% of livestock. There were no controls and no one knows how much GM feed the animals ate. There was no investigation into the health of the animals, the only test they needed to pass was an ability to be sold for human consumption. Animals are slaughtered young and so are not relevant to a human life span of 80+ years. This is not a scientific study but a quick PR soundbite to influence the general public.

The second review is Snell and colleagues. It looked at 24 studies and **dismissed significant differences between the GM and non-GM fed animals by saying they were not biologically**

relevant. This is not science. Interestingly the NAS noted this was problematic and that biological relevance should be defined in advance.

NAS then dismisses the Seralini study as if it was a carcinogenicity study, rather than the toxicology study it is. This is not a scientific approach, it is accepting the GM industry PR blitz designed to discredit the study.

The NAS receives millions of dollars of money from the biotech industry^{xliii}. 11 of the 19

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Nobel Laureates unqualified in agriculture do not show that GM is safe.

The Productivity Commission produced a letter signed by 107 Nobel Laureate's claiming this showed GM is safe. None of the signatories had relevant qualifications in agriculture.^{xliv} One of them won the prize for economics and shortly after his firm, Long Term Capital Management, nearly crashed the global economy. The Nobel Laureate's letter was launched in Washington DC by known GM PR operatives^{xlvi}. Once again power is more prevalent than science in the GM project.

The GM Golden Rice that was the subject of the letter is still in development by the International Rice Research Institute^{xlvii}. It has taken 24 years and millions of dollars so far and is still not ready. Meanwhile the Philippines has reduced Vitamin A deficiency by encouraging a more varied diet, food fortification and vitamin pills. No one has been brought to account for the colossal waste of time and money by the GM Golden Rice project.

Many peer-reviewed studies show harm or potential harm from GM crops and their associated pesticides.

One collection of them is 'GM Myths and Truths'. Productivity Commissioner Ken Baxter said he would look at this document. It can be accessed here.^{xlviii} It requires an email address before the document of over 300 pages can be downloaded. It is fully referenced and explores the claims of the GM industry and the evidential basis for them. It is a clear and easy read.

Links between GM companies, scientists, universities, PR companies and front groups exposed.

The US Right to Know Group has used FOIs to reveal that there is an **active attempt to promote GM and mislead the public and authorities being funded by GM companies.**

Their report 'Seedy Business' says 'Science can be swayed, bought or biased by the agricultural industry in many ways, such as **suppressing adverse findings, harming the**

careers of scientists who produce such findings, controlling the funding that shapes what research is conducted, the lack of independent U.S.-based testing of health and environmental risks of GMOs, and tainting scientific reviews of GMOs by conflicts of interest.’xlix

No doubt the GM industry is targeting bodies like the Productivity Commission. Friends of the Earth report ‘Spinning Food’¹ on the same subject shows the dangers of this PR campaign:

‘.....the industrial food and agriculture sector is trying to defuse concerns about the real risks of chemical-intensive industrial agriculture and undermine public confidence in the benefits of organic food and diversified, ecological production systems. We hope this report helps reporters, policymakers, opinion leaders and the public bring increased scrutiny to the food industry’s messages and messengers. **By revealing key groups and tactics used by industry, we also hope that it will help generate more balanced and accurate reporting on our food system.’**

MADGE requests that the Productivity Commission reads both reports, namely:

- US Right To Know: ‘Seedy Business’
- Friends Of the Earth: ‘Spinning Food’

4) Signs of harm.

GM linked to death and injury

There have been two GM products linked to the death and injury of people. The first was the production of L-tryptophan amino acid supplement by the Showa Denko KK Company. The LT supplement was produced by GM bacteria via fermentation. It was tested to be 98.5% pure but it did have 60 contaminants at miniscule levels. US consumers of the supplement reported severe muscle pain and raised eosinophil counts, so the disease was called Eosinophilia-myalgia syndrome(EMS). **Between 5,000 and 10,000 people were affected, 80 died and 1,500 were permanently disabled.**

Showa Denko had started using GM bacteria to produce LT in October 1984. By tracing the epidemic back from its height in 1989-90 it was seen that there had been increasing incidences and severity of cases corresponding to each new generation of GM bacteria. Many different retail brands of LT were associated with EMS. There were only six manufacturers that supplied all the varying brand names in the US with LT, they were all Japanese. **All the EMS cases that could be traced back (95%) were found to come from one manufacturer, Showa Denko KK. It was the only one that used a GM process to produce LT.** The full investigation into the issue with notes is reported in Chapter 3 “Disappearing a Disaster” in Steven Druker’s book “Altered Genes Twisted Truths.”

The second GM disaster was the contamination of the food supply chain with a GM corn, StarLink Bt maize. In September 2000, it was discovered that taco shells on sale contained

the Cry9C protein, indicating the presence of StarLink corn. **This corn had not been authorised for human consumption due to concerns that the Cry9C novel protein was an allergen.** StarLink was only authorised as an animal feed. Although only 1% of the US corn harvest was StarLink it became mixed with and contaminated nearly half the national corn supply that year.

Nearly 300 food products had to be recalled. The US Department of Agriculture and Aventis, the company that developed the corn, bought back the GM corn at above market rate. Many people, who suffered allergic reactions to StarLink, sued Aventis. **The court case and the buyback of the corn cost Aventis an estimated US\$1 billion.** Allergic reactions, some severe, loss of confidence in the food system, class actions and economic failure has been the result of the contamination of the food chain by a GM corn.^{li} StarLink was found in corn in Saudi Arabia in 2013.^{lii}

Biotech proponents covered tracks

LT was a supplement that people knew they were taking. It was traceable and was removed from sale but not before thousands of people were injured and many died.

GM StarLink corn was only discovered by testing carried out by an NGO not a food company or a regulator. Neither the supplement nor the corn were labelled as GM.

The harm caused was minimized and hidden because there was US government support of GM technology. In the case of LT **“the proponents of genetic engineering, including the United States Food and Drug Administration (the FDA), which admits it has a policy “to foster” biotechnology, strove to convince the public that the technology was blameless. But to do so, they had to issue a string of deceptive statements.** Those deceptions have been highly successful. Consequently, despite the fact the evidence points to genetic engineering as the most likely cause of the toxic contamination, most people who know of this tragedy are under the illusion that the technology has been exonerated. Worse, because GE proponents routinely claim that none of its products has ever been linked to a health problem, most people aren’t even aware that such a catastrophe happened.^{liii}

Threats from new foods and substances differ from traditional foodborne illnesses

Traditionally food safety was concerned with spoilage and foodborne illnesses that were acute in onset and reasonably easy to link to a specific food ie listeria in cheese. The illness could be tested for and treated. **The food could be recalled and the problem dealt with appropriately. None of this is the case with GM crops or other novel foods and processes.**

The threats with GM, pesticides and all the other procedures, processes and ingredients are entirely different to those raised by ordinary food. Yet there is a lack of understanding of this and no appropriate safeguards or reporting systems in place.

These new foods, processes, and packaging are unethical and unmonitored.

Smartstax GM corn may end up in foods with nanoparticles, packaged in a plastic container that leaches endocrine disruptors into the food. How will it affect pregnant women and their unborn children, the elderly, the sick? FSANZ has done no investigation as to what the consequences of eating this combination may be. They require no animal testing at all claiming lab tests are sufficient. This is contested by scientists. Labelling is avoided or minimised to suit the companies. **There are no post-market monitoring, no diagnostic tests and no epidemiological studies.**

Recent studies suggest paternal diet can influence the expression of genes in offspring via epigenetics. The RNA of sperm is involved but the mechanism is not yet clear^{liv}. When we eat, we eat 'data', which affects our health, including at the cellular level. **We cannot both develop these technologies and then ignore the science showing the deep and far reaching consequences they have on us and especially our children.** To ignore this and make it unavoidable that people unwittingly eat these new technologies is an abuse of human rights.

Rural children in US have increased brain cancer and leukaemia.

The Pesticide Action Network's recent report, Kids on the Frontline^{lv}, report shows children in rural US have increased brain cancer and leukemia. "Overall, childhood health problems continue to climb. **Childhood cancer incidence continues to rise** (see Figure A), **as do rates of autism spectrum disorder, attention deficit hyperactivity disorder and other developmental disabilities.** Some **birth defects** are also on the rise. Fast-rising childhood cancers have strong links to pesticides. **Evidence linking pesticide exposure to increased risk of leukemia and brain tumors continues to mount, with new "meta-analysis" studies pointing to higher risks among children in rural agricultural areas.** Incidence of these two cancers is rising more quickly than other types of childhood cancer."

We have no idea of what is going on in Australia as no similar studies have been done. Australia uses some chemicals that are banned elsewhere. Endosulfan is banned in the US but not here.

GM crops have vastly increased the use of pesticides.

While non-GM crops also use pesticides the introduction of GM crops has increased the use of pesticides, after an initial fall^{lvi}. This is because weeds develop resistance to the chemicals. The same happens with the GM bt crops that produce an insect killing toxin in their cells. This is why the new GM crops are designed to be sprayed with a mixture of chemicals including glyphosate, 2,4-D and Dicamba.^{lvii}

Seeds, GM and non-GM, are increasingly coated with neonicotinoid pesticides. These are linked to the die off of bees as well as harm to all forms of life. An agriculture where most seeds are owned by chemical companies automatically finds the increase in the use of pesticides a lucrative avenue.^{lviii}

The GM industry quotes reports like Quaim and Klimper or PG Economics to claim a reduction in pesticide use. The Quaim meta-analysis looks mainly at GM bt crops before pest resistance developed although most GM crops are herbicide resistant not bt. The studies look at three years of data or less and the methodology in the papers is extremely varied making comparisons dubious.^{lix} . PG Economics writes reports commissioned by industry. Their data is skewed and seen to be creative rather than accurate. Claims that their studies are peer-reviewed appears to mean they are published in industry journals.^{lx}

Endocrine disruption costs the EU 150 billion euros a year.

A series of studies published in the **Journal of Clinical Endocrinology and Metabolism** for EDC's cost the **EU 150 billion euros a year**^{lxi} in actual health care costs and lost earning potential. **Lost IQ, intellectual disabilities, infertility, male reproductive dysfunction, obesity, diabetes, cardiovascular disorders, ADHD and autism spectrum disorders. Many pesticides are endocrine disruptors.** The increasing use of pesticides in food, especially GM, may be having vast effects on the health of our population. It appears no one is looking into this in Australia.

Half of US children now have a chronic disease

Dr Michelle Perro, the pediatrician that MADGE brought to Australia on tour last year, was a pediatric emergency doctor in New York over 30 years ago. She now works in one of the wealthiest areas of the US, in California. She has seen the health of US children rapidly decline over her career, 50% of US children now have a chronic health condition. **She has recently diagnose an 18 month old with ulcerative colitis is an auto-immune disease. This would have been unthinkable a few years ago.**^{lxii} **She is seeing conditions that did not exist when she was training.** There are few, or no, recognized treatments for them. She reads the scientific literature and contacts scientists directly to try and find out how to help her increasingly sick patients. She has found that moving patients off the standard mainstream diet and treating their guts is an important first step to healing. This should not be ignored.

Illnesses linked to food rising but no labelling or monitoring system to track problems or diagnostic testing.

There is inadequate labelling of GM ingredients, nanoparticles and the many other contaminants that FSANZ has allowed into our food. There are no diagnostic tools for doctors to find out if their patients may be affected by the food they are eating. **Most health professionals are unaware of the rapid and concerning changes to our food.**

The Public Health Association of Australia (PHAA) has called for a comprehensive monitoring and surveillance system to track the effects of GM foods. They want full labelling, including of produce from animals fed GM feed.^{lxiii}

The Australian Medical Association's (AMA) submission to the 'Labelling Logic' review called for a full process-based labeling of GM foods similar to that of the EU. They also called for a

monitoring system so doctors can report if they think a patient has had a reaction to a GM food.^{lxiv}

5) Corporate profit from poison is a familiar pattern: lead, asbestos, PCBs, DDT, tobacco....

Numerous substances and chemicals that were considered safe by the scientific and regulatory bodies have been found to be harmful. **The industries involved in profiting from them have all strongly resisted their removal.** There is ample evidence of the disgraceful ways that corporations have used science, scientists, PR and their political influence to delay the removal of these substances. Corporations that benefit from toxic substances are actually profiting from harm to the wider community. It is hard to see this as being anything but criminal.

To take only one example the reduction in childhood lead poisoning has led to huge social and economic health benefits to Australia.

“benefits of reduction attributed to each cohort for health care (\$11–\$53 billion), lifetime earnings (\$165–\$233 billion), tax revenue (\$25–\$35 billion), special education (\$30–\$146 million), attention deficit–hyperactivity disorder (\$267 million), and the direct costs of crime (\$1.7 billion).^{lxv}

‘Each dollar invested in lead paint hazard control results in a return of \$17–\$221 or a net savings of \$181–269 billion.’

What is the cost to Australia of GM foods, pesticides, nanoparticles, irradiation etc?

We have no idea as no studies have been done. What we have instead is reports of far happier and less violent children when ultra-processed food is removed.

Fossil fuel powers both industrial agriculture and climate denial.

The science that the climate is changing is clear, and we are seeing increasing evidence of this. Why is the world taking so little meaningful action? Naomi Klein in her book ‘This Changes Everything’ convincingly argues that it is because fossil fuel companies are rich and powerful. They have spent billions and decades casting doubt on the science and influencing public opinion as well as funding politicians and parties. They receive huge government subsidies and grants. They undermine alternative energy which can be networked, local and resilient rather than consolidated and monopolized.

Industrial agriculture, including GM, is highly dependent on fossil fuel inputs. They are used to create the vast monocultures that then require artificial fertilizer and pesticides.

Deforestation creates large plantations for palm oil in Indonesia and soy in South America. Farm machinery, the transport commodities of vast distances and increasing use of refrigeration is all dependent on fossil fuel. It is estimated that each calorie of industrial food required ten calories of fossil fuel to produce. This makes it an incredibly unproductive system. The alternative to this, like the alternative energy futures, are local, diverse, ecosystem specific and empower the producers. They do not need the monopolies, monopsonies and cartels that are the trademark of both the current energy and food orthodox systems.

Solving the climate crisis cannot happen without enormous changes to agriculture. It is suggested that 50% of emissions are due to wasteful industrial agriculture^{lxvi}. An excellent book 'The Great Climate Robbery'^{lxvii} explains how the 'Exxon of agriculture' are destroying the climate. The destruction of the climate and the destruction of regenerative food and farming systems are linked to powerful companies. These companies that intertwined in their dependence on each other and fossil fuel.

Money and power trump science and democracy.

This results in the interesting phenomena of corporations funding climate denial while promoting GM crops. Recipients of this largesse include the: American Enterprise Institute, Hudson Institute, Scientific Alliance, Centre for the Defense of Free Enterprise and the American Council on Science and Health. Prominent pro-GM speakers that are linked to these, or similar groups, include CS Prakash, Henry I Miller and Dennis Avery^{lxviii}. Memorably climate change denier and GM enthusiast Patrick Moore refused to drink a glass of Roundup after claiming it is safe.^{lxix}

Powerful interests negate meaningful action on climate in the political arena. They suppress regulatory action to protect people from endocrine disruptors^{lxx}. Vested interest ensure that agroecology,^{lxxi} which has been shown to double food production in the areas that need it while cooling the climate and reducing rural poverty, are ignored. Instead the 'saviour' that will 'feed the world' is presented as GM and CRISPR and other patented technologies. Fossil fuel power drives both climate denial and toxic agriculture. Power is trumping both science and democracy.

6) Market rejection – people object to being guinea pigs.

Even if all MADGE's evidence is unconvincing to the panel it should be remembered that people have a right to know what they are buying and eating. It is oppressive to be told things are 'safe' and do not need labelling when there are community members that react to food and need to know what it is in it. It is also reasonable for people to want to buy food to support certain farming and production methods. **Eating is the most intimate act we perform. We are what we eat.** Denying our ability to know what we are eating and how it has been prepared is a human rights abuse.

Consumers worldwide are concerned about food. A Farm Policy Journal review of Asian consumer attitudes to GM^{lxxii} found Chinese buyers trust Australian produce because they see it as safe and premium quality. They do not consider GM clean, green or safe. **If Australia decides to grow more GM it will limit its market to bulk commodities that will find a market in the poorest consumers with the least options. It will destroy Australia's ability to provide premium, non-GM food.**

EU consumers do not want to eat GM food. Even conventional food manufacturers aim to source ingredients with 0.3% or less GM contamination^{lxxiii}. If the recent Parliamentary report 'Smart farming – Inquiry into Agricultural Innovation' recommendation is followed and Australia allows 0.9% GM contamination in organic and bio-dynamic produce, it will be unacceptable, even as conventional food, in the EU. The EU market for Australian produce, organic or not, will be destroyed.

CONCLUSION:

What can this Inquiry into Regulation in Agriculture produce?

Low value, poor quality GM, including new GM, CRISPR, food that is increasingly rejected by our largest export markets.

A society struggling with adults with reduced IQ, neurological problems and other health problems that manifest in decreased opportunity, increased crime and a bankrupt health system.

OR

A recognition of the importance of listening to what shoppers want. This is full transparency and which will create trust in our food.

Responding to consumer demands for clean, green, food growing in ways that regenerate the land will increase public health and reboot the rural economy. Farmers and food producers will benefit from having all their produce eagerly sought after.

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