

Submission From: Claire McFee [REDACTED]
[REDACTED]

To whom it may concern,

Thank you for the opportunity to provide this submission against approving food derived from herbicide-tolerant cotton line MON88701

My concerns about this GMO application being approved have to do with:

- Biased research
- Inadequate health and safety research
- The fact that biotech companies who carry out research on GMO's are not required to submit any negative findings.
- Too much trust being put into Monsanto and the chemicals they use when they assured us Agent Orange and Bt were safe which has since been proven otherwise.
- The concern about use of glyphosphates in increasing doses over time and the dangers to public health as a result
- The potential of animals fed this gmo food could not only adversely affect the animal but also humans who then consume products from these animals.
- Food sovereignty/security
- Not enough regard for long term consumer safety
- Not enough consumer information dissemination about GMO foods
- If so many other countries have banned GMO's why haven't we at least put a moratorium in place until adequate independent research has been carried out?
- Inadequate reporting system set up for those possibly suffering from GMO related health problems – human or animal
- Not enough thought given to the financial longevity of Australian farmers given they are not able to 'save GMO seeds' – with this serious problem already evident in countries like India
- The issues surrounding the potential financial crippling of business ruined by contamination of their crops by GMO seeds, which due to their patents can be infringed upon and tied up in court cases for years.
- The issues around creating monocultures and lack of biodiversity
- The myths surrounding the benefits of saturating the world with GMO's to purportedly save the world from hunger when it clearly has not had this affect nor will it due to the increasingly reliance on chemicals from those same companies selling the seeds (creating an unfair monopoly) and the above mentioned inability to save seeds.
- FSANZ role is supposed to protect the Australian public from foods that may cause harm and given there appears to be more than enough reasons to wait to approve any more GMO's until more research is done to allay the growing concerns and evidence against GMO's.
- Pesticide use (such as those use in Monsanto's crops) potentially causing the bee colony collapses around the world.
- There are countless cases of people who, when they go on a GMO free diet are free of one or many medical problems. If GMO's are as FSANZ say they are identical then what on earth is making these people better? Collating data from Doctors specializing in this area is clearly a must to figure this out.
- I assert that something is wrong with the formulas FSANZ uses to work out your 'Equivalence' test because something is clearly affecting people and it is your duty to find out what to keep us safe.
- It needs to be proven that there is no link between the increase in prevalence in health issues such as leaky gut syndrome and food allergies due to their increase in the population alongside the introduction of GMO's into the food chain rather than prove there is a link. The burden of proof is around the wrong way given we are talking about human health here.

I would like to say at the outset that I am not opposed to gene altering technology on the whole but I am opposed the approval of GMO's in Australia that have been approved primarily on inadequate research conducted by the companies who have developed the seeds due to this being a direct conflict of interest. There are now a significant

number of countries and States of numerous countries who have banned GMO's due to the growing belief that there hasn't been enough adequate research. This is based on the belief that GMO's may be of concern to human and animal health as well as a threat to the environment and therefore food security. This should be reason enough for FSANZ to stop approving any GMO's until such time that this has been rectified and proven otherwise.

I am disturbed by the attitude of some people in government decision making roles that research concluding that GMO's are unsafe for animal and human consumption are 'conducted by anti GMO activists' rather than seeing them as experienced scientists who have come to their conclusion independently. Irrespective of whether they are anti GMO, the evidence should speak for itself and even if it is not perfect (as with the research provided by the companies who technologies you are approving) if there is enough alarm bells ringing then isn't it common sense that we should stop until we are certain they are safe?

One only has to look at numerous issues that were largely ignored in the past which was predicted by some in the scientific community sometimes decades earlier. Such as water and soil degradation/greenhouse effect/ozone layer depletion/the obesity epidemic/multiple resistant antibiotics through overuse/cigarette smoking and their link to cancer to name just a few. It's all about long term cumulative effect and also the effect of the interaction of any 'matter' not normally found in the food supply.

I apologise in advance for the length of my submission, but in case you haven't read/seen/heard some of the highly relevant information I have found then I thought it was important to include all this compelling and worrying info.

Given this statement "FSANZ is required to use the best scientific evidence available in its decision-making processes", I would like to begin by reiterating that the 'best' scientific evidence in any case would therefore need to be carried out by an impartial body and not by a company who could profit by the results of the research they carry out.

Below is a selection of information I believe is relevant to this submission.

Firstly FSANZ says it has high standards when it comes to assessing applications yet does not follow all the Codex *Guidelines for the Conduct of Food Safety Assessment of Foods Derived from Recombinant-DNA Plants*. FSANZ says "The Codex document is a guideline and its considerations are therefore not mandatory for the safety assessment of GM foods. The FSANZ *Application Handbook* incorporates many but not all of the Codex recommendations."

Given the complexities of the topic and the growing amount of oppositional scientific views on the safety of GMO's you should at the very least incorporate all the CODEX guidelines.

I would like to highlight some points of concern to me in relation to the FSANZ Safety Assessment Supporting Doc 1 found here:- <http://www.foodstandards.gov.au/code/applications/Documents/A1080-GM-SD1.pdf>

RE: Possible allergy issues with this GMO. This (highlighted in bold) is inadequate given it admits the analysis is completely theoretical.

3.4.3 Open reading frame (ORF) analysis

Bioinformatic assessment of any putative ORFs inherent to the inserted DNA or contiguous with the adjacent plant genomic DNA is used to identify whether any might encode a peptide with homology to known toxins or allergens, or otherwise indicate a need for further characterisation if translated. **The bioinformatic analysis is entirely theoretical and does not inform on whether any of the ORFs are actually transcribed into RNA and translated into protein.** Putative ORFs in all six reading frames are considered (that is, three forward reading frames and three in the reverse orientation).

Also here: - **4.3.1 Expression of DMO in MON88701 cotton - where this sample was not measured for pollen due to not enough for a sample. This could show concerning results and is not good enough. Proper results should be provided in all areas.**

"The levels of DMO in collected plant tissues from MON88701 were determined by a validated enzyme-linked immunosorbent assay (ELISA). The results are presented in Table 2. **Moisture content was not measured for pollen due to a limited amount of material collected.**"

Additionally in relation to detection of the new gmo proteins being detected in pollen as seen referred to here:-

4.7 Conclusion The two newly expressed proteins in MON88701 cotton are DMO (conferring tolerance to dicamba) and PAT (conferring tolerance to glufosinate ammonium herbicides). Both proteins are expressed in mature cottonseeds at low levels, **and trace amounts are detected in pollen.**

This is highly concerning given how sensitive bees are and the bee colony collapses around the world which many scientists say are to do with issues concerning gmo's. More research needs to be done to adequately assert that the changes to gmo's will not affect bees in any negative way given the possible dire ramifications on the world food supply otherwise.

- More info on this topic can be found here: - <http://www.energygrid.com/ecology/2010/03po-colonycollapse.html> - <http://www.spiegel.de/international/world/0,1518,473166,00.html>
University of Jena, Germany, 2004
Spiegel Online International: March 22, 2007

- COLLAPSING COLONIES

Are GM Crops Killing Bees?

By Gunther Latsch

quote: "when, by sheer chance, the bees used in the experiments were infested with a parasite... a "significantly stronger decline in the number of bees" occurred among the insects that had been fed a highly concentrated Bt poison feed."

According to Hans-Hinrich Kaatz, a professor at the University of Halle in eastern Germany and the director of the study, the bacterial toxin in the genetically modified corn may have "altered the surface of the bee's intestines, sufficiently weakening the bees to allow the parasites to gain entry — ..."

And in this section of your document:- 4.3.1.1 Dietary exposure to DMO:- I would like to know if approved, if this GM cotton could be used in less processed foods without needing to re-apply for permission from FSANZ for this to be legal. If so then it would appear that completely inadequate (apart from potential biased due to conflict of interest) research has been conducted in relation to dietary exposure would it not?

"Cottonseed is the source of the only human food currently produced from MON88701 cotton. This is used to produce refined, bleached and deodorised (RBD) oil, and to a smaller extent, linters which are **highly processed** and consist of nearly pure cellulose (>99%). The mean level of DMO in MON88701 cottonseed was 21 µg/g dw (Table 2). As the mean percent dry weight of total protein in MON88701 cottonseed is 28%, the amount of DMO protein was calculated to be 0.008% of total protein (80 ppm) in MON88701 cottonseed. In view of the low levels of DMO in **cottonseed, its presence in refined, bleached and deodorised (RBD) oil will be difficult to detect. This suggests that dietary exposure to DMO is likely to be negligible.**"

Similarly, in relation to section 4.4 Potential toxicity of the newly expressed proteins

4.4.1 History of human consumption – where it asserts below that there is 'no evidence of toxicity associated' with this GMO. Am I correct in saying that no long term, let alone short term studies have been conducted on humans so how can they say this with any confidence or authority whatsoever? The possibility of links to all manner of human health problems as discussed in the documentaries/interviews pasted below cover this in more detail.

4.4.1.1 DMO '...since 1995, humans have also been directly exposed to the PAT protein through the consumption of a variety of foods derived from previously approved GM soybean, cotton, corn and canola crops tolerant to glufosinate ammonium. **There is no evidence of toxicity associated with the PAT protein as a result of dietary exposure from any of these sources.'**

This section is also extremely concerning:- 4.4.4 Acute oral toxicity studies – "Separate acute oral toxicity studies in mice using respective E.coli-produced test substances DMO and PAT were submitted by the Applicant but are not

included in this safety assessment. Such studies are only deemed necessary if the results of the biochemical, bioinformatic, digestibility or stability studies indicate further investigation of potential toxicity is warranted.”

Given they are highly relevant to anyone concerned about the findings they should have been included for others to assess their validity independently.

These studies should be included regardless.

In regards to this section -4.6.3.1 DMO digestibility studies where it says about this gmo‘...if ingested as a component of the diet, it is unlikely that intact DMO protein would be in contact with the intestinal mucosa.’ My concern is that as with these types of studies the important point of cumulative build up over time as well as the interaction of countless other potentially questionable proteins not to mention environmental toxins. The honest answer is no one really knows. Additionally where it says ‘..as a component of (a person’s) diet..’ - they can not predict the extent to which a huge proportion of the population eats an appalling diet that (particularly in America where there are no GM labelling requirements) people are not eating countless other gmo’s and highly processed rubbish that may interact in unforeseen negative and harmful ways. Additionally even though the protein is not detectable after 30 minutes in the artificially created digestive tract –doesn’t it go into the bloodstream..and if so then what happens to it?

In this section - 4.6 Herbicide metabolites – where it discusses – “the presence of herbicide residues on the food.(whereby) Any food products ..sold in both Australia and New Zealand must not have residue levels greater than the relevant maximum residue limit (MRL).’

There is growing concern about the fact that GMO’s often end up requiring an increased use of pesticides, herbicides etc due to resistance and superweeds as seen via this link :-

http://www.livinghistoryfarm.org/farminginthe70s/pests_08.html “In 2008, a biotech industry lobbying group, the International Service for the Acquisition of Agri-Biotech Applications (ISAAA), claimed that in 2007 alone use of GMO crops resulted in a reduction of pesticide use of over 77,000 metric tons of active ingredients. The group said that was equivalent to using 18 percent less pesticide on farmers' fields. However, a 2009 survey of USDA data by the advocacy group the Organic Center countered that HT crops were causing a significant increase in pesticide use, particularly in the last few years: "GE [genetically engineered] crops have increased overall pesticide use by 318.4 million pounds over the first 13 years of commercial use, compared to the amount of pesticide likely to have been applied in the absence of HT and Bt seeds."

The Organic Center argued that many fields of CMO crops were being overrun by new weeds that had developed a resistance to Roundup. The problem seemed to be worst in the South and the Midwest where resistant strains of Palmer amaranth, horseweed, giant ragweed, common waterhemp and six other weeds have infested fields in 16 states. So, farmers were either applying much more Roundup, were going back to applying higher rates of traditional herbicides, or were manually reducing the weeds, either by cultivating with tractors or by hiring crews with hoes and machetes to chop the weeds.” And additionally with this “paper published in the peer-reviewed *Environmental Sciences Europe*, Chuck Benbrook, research professor at Washington State University’s Center for Sustaining Agriculture and Natural Resources, shreds that claim. He found that Monsanto’s Roundup Ready technology, which dominates corn, soy, and cotton farming, has called forth a veritable monsoon of herbicides, both in terms of higher application rates for Roundup, and, in recent years, growing use of other, more-toxic herbicides.

<http://www.enveurope.com/content/24/1/24/abstract>

With respect to this section: -Residues of dicamba and metabolites in MON88701 cottonseed

And the “...field study was conducted at 13 sites across the United States to determine the residue levels of dicamba and its metabolites in MON88701 but “(data from treatment 2 are not relevant for this assessment and are not presented).”

It is worrying that some of the data was not included and accepted as such. A reason should have been noted in this document so that lay people such as myself understand the whys and wherefores. What was the reason?

Table 6: Summary of Cotton Undelinted Seed Concentration Factors in Treatment 4 Processed Fractions from MON88701 concluded ‘from these analyses was that dicamba residues in dicamba-tolerant cottonseed and meal ***should not result in any impact on the current livestock dietary burden*** for dicamba in the United States.” This does

not sound definite enough and does not include how they came to this conclusion. Given all the farmers voicing concerns on this topic in the documentaries on the dangers of GMO's provided in this submission -saying that their animals are suffering ill effects of eating GMO feed, more needs to be done to assess this.

RE: 4.6.3 Minor substances

'...any environmental effects of formaldehyde resulting from dicamba treatment of crop plants are considered to be negligible.'

As seen here:- <http://voh.chem.ucla.edu/vohtar/spring00/30H/pdf/Banks.pdf>

'there are many potential health risks that go along with exposure to the gas, ranging from simple irritation cancer. Formaldehyde can be very dangerous, simply because it seems to be ever present in our surroundings. Aside from the fact that formaldehyde is a strong irritant, known to cause watery eyes, sinus irritation, abdominal problems and nausea, it has also been labelled as a probable human carcinogenic.' And this from:- national cancer Institute <http://www.cancer.gov/cancertopics/factsheet/Risk/formaldehyde> - "Formaldehyde has been classified as a known human carcinogen (cancer-causing substance) by the International Agency for Research on Cancer and as a probable human carcinogen by the U.S. Environmental Protection Agency. Research studies of workers exposed to formaldehyde have suggested an association between formaldehyde exposure and several cancers, including nasopharyngeal cancer and leukaemia." Again more research needs to be done with the interactions to be sure for human safety.

RE: 4.6.4 Glufosinate residues

"The use pattern and rate of glufosinate application on MON88701 will follow the existing glufosinate-tolerant cotton uses outlined on the label, and residues are below the established pesticide residue tolerances for cottonseed. Additional data on the identity and levels of herbicide and any metabolites are therefore not given in this assessment."

Again Monsanto does not provide data which it should as it could be relevant to the health safety assessment of the product, especially if as with many other gmo crops the levels of pesticide use increases over time due to superweeds and resistance.

Concerningly you already admit that it '...may be necessary for FSANZ to amend the Maximum Residue Limit (MRL)5.' Re: A separate consideration involves Standard 1.4.2 – Maximum Residue Limits. In the case of food entering Australia via imports (that is, the crop will not be grown in Australia)." As stated in the approval document for SOYBEAN MON87708

<http://www.foodstandards.gov.au/code/applications/documents/A1063%20GM%20Soybean%20MON87708%20ApPR%20FINAL.pdf>

This is completely unacceptable that you would change previously set maximum limits to suit companies like this rather than having the Australian public's safety first and foremost in mind!

In regards to this section of the application: - 5. Compositional analysis where it states:-

'The purpose of compositional analysis is to determine if any unexpected changes in composition have occurred to the food and to establish its nutritional adequacy. Compositional analysis can also be important for evaluating the intended effect where the genetic modification has resulted in a deliberate change to one or more nutrients in the food. In this case, MON88701 is herbicide tolerant and **there was no intention to alter the nutrient composition of food derived from this plant line.**'

From the information I have found there are many alterations to the nutrient compositions of foods such as this one. In addition it should not matter if this is deliberate or not. What matters is that it is the case or not and that adequate research be conducted to find out as Stephanie Seneff, PhD, a Senior Research Scientist at MIT found in her work. (see interview with her below)

In this section 5.3.4 Amino Acids - it is stated that "The mean level of methionine was increased 4.8% in MON88701 compared with the control' Stating FSANZ does not regard this as 'a safety concern because the mean levels were within the context of natural variation in methionine levels found in commercial cotton' This figure sounds very high and if many GMO's were found to be higher by this percentage, even though it is within your supposed safe range then isn't this big concern due to the cumulative effect over time?

Also in relation to this FSANZ document pertaining to the approval of a separate GMO: -

<http://www.foodstandards.gov.au/code/applications/documents/A1063%20GM%20Soybean%20MON87708%20ApPR%20FINAL.pdf> where it states ix. Protein characterisation studies lack a description of detection limits for e.g. the

immunoblot analysis, MALDI-TOF analysis and glycosylation analysis. Knowing the limit of detection of an analytical technique is important only where there are no relative comparisons or weight of evidence to support a conclusion. In the case of the immunoblot analysis, a positive recognition was obtained for the DMO and DMO+27 proteins. Knowing (or not knowing) the limit of detection does not in any way alter the conclusion that the identity of the proteins 'was confirmed in the Western blot.'

In relation to the possibility that FSANZ says something similar in relation to **this submission**, I would like to say the levels should be included for the public to see regardless, as they may hold highly relevant information even if it is outside your normal process of assessment.

And this section of the same document:-

3.2 Risk management 3.2.1 Labelling

In accordance with general labelling provisions, food derived from soybean line MON87708, if approved, would be required to be labelled as genetically modified if it contains novel DNA or novel protein, or has altered characteristics. **MON87708 does not have altered characteristics.**

Given the plethora of information out there in the scientific community, GMO's have not been proven unequivocally to not have altered characteristics. The word 'modified' as part of the term G.M.O, by its nature means changed. Not only approving the GMO's you have but also not labelling them as GMO's based on the research Monsanto and other related companies are providing when they have been proven to mislead the public in the past in unacceptable and breaching your duty of care to the Australian public.

Where in this document FSANZ says "Submitters concerns about environmental impacts of growing a GM crop or safe use of dicamba have not been considered in this report since FSANZ does not have responsibility for assessing these other than in the context of a consideration of any food products that may be derived from a crop sprayed with a herbicide." In relation to environmental concerns people have. They go hand in hand with human health safety concerns, and as such in my opinion, FSANZ should be responsible for this area so that one department can assess the safety for us as a whole.

Next, if you haven't seen it please watch this video By The Health Ranger, Mike Adams, explaining how studies in cell research have demonstrated the mechanism by which micro RNA from genetically engineered foods may alter organ function in humans. <http://www.youtube.com/watch?v=2kSmgAUuoYA#at=134>

Please take the time to watch this all encompassing movie Genetic Roulette with a plethora of **experts** who illustrate why they think there are major problems with genetically modified foods and the problems they are already causing. Due to your important role please your due diligence by watching the whole thing if you have not already. Thank you. http://www.youtube.com/watch?v=EBlp_thTqOY **Full Documentary of Genetic Roulette.**

In addition please read this article from NCBI - the US National Library of Medicine National Institutes of Health highlighting major problems with exposure to herbicides such as glyphosate (GLYP) and gluphosinate via GMO's with disturbing results. <http://www.ncbi.nlm.nih.gov/pubmed/21338670> - Maternal and fetal exposure to pesticides associated to genetically modified foods in Eastern Townships of Quebec, Canada.

Please listen to this Radio interview with Jeffery Smith Executive Director of the Institute of Responsible Technology – who has been quoted by government leaders extensively. NB- skip to 5 mins in for relevant part about soy beans and how it binds with trace minerals affects next crop rotation and also about concerns around GMO's affecting animals such as hamsters that by the third generation of being exposed to GMO's mostly become infertile. <http://www.youtube.com/watch?v= nt8pcUBmuw> - **The Hidden Truth - GM Food Dangers,**

And another documentary full of concerned scientists, academics and health professionals in regards to all GMO's.

Seeds of Death: Unveiling The Lies of GMO's - Full Movie

https://www.youtube.com/watch?feature=player_embedded&v=a6OxbpLwEjQ

Sufficient evidence of harms for the Academy of Environmental Medicine says 'all doctors should be prescribing non-gmo diets to all patients.' Also that GMO studies clearly show links to the following problems.

This very detailed interview is highly relevant to the application before so please watch in its entirety.

http://www.youtube.com/watch?v=h_AHLDXF5aw - **Monsanto's Roundup Herbicide**

Jeffrey Smith interviewing co-author Stephanie Seneff, PhD, a Senior Research Scientist at MIT

In this interview amongst other things they cover information about the active ingredient Glyphosate in herbicides used on GMO crops causing devastation devastating effect of multiple chronic diseases . " The herbicide sprayed on most of the world's genetically engineered crops—and which gets soaked into the food portion—is now linked to "autism ... gastrointestinal issues such as inflammatory bowel disease, chronic diarrhea, colitis and Crohn's disease, obesity, cardiovascular disease, depression, cancer, cachexia, Alzheimer's disease, Parkinson's disease, multiple sclerosis, and ALS, among others."

As noted in a document from Friends of the Earth there could be serious consequences of feeding livestock GM feeds which simply have not been proven beyond a reasonable doubt to be as safe as the equivalent non GM feeds. In fact there seems to be enough research to prove beyond a reasonable doubt that they are not safe –as seen in some of the documentaries and interviews with experts included in this submission.

"The effect on livestock of GM feeds could be very serious. The US Government's Center for Veterinary Medicine has said that "unlike the human diet, a single plant product may constitute a significant proportion of the animal diet...therefore, a change in nutrient or genetically modified animal feed toxicant composition that is considered insignificant for human consumption may be a very significant change in the animal diet"^{xvii} . Yet there has been little long-term safety testing for GM animal feeds, and there are concerns that the European Food Safety Authority (EFSA), which provides scientific advice to the European Commission and member states on food and feed safety, has failed to address genuine concerns over the safety of GMOs."

http://www.foe.co.uk/resource/briefings/gm_animal_feeds.pdf

<http://www.foeeurope.org/glyphosate-reasons-for-concern-briefing-130613> Nb: There are many more relevant documents available from Friends of the Earth specifically to do with glyphosphate.

Biotech's are not known for being 100% honest with safety authorities . For example Syngenta admitted in March 2005 that they had sold unapproved Bt10 GM seeds to US farmers for four years,(supposedly)mistaking them for the approved variety Bt11. Monsanto asserts their GM seeds are identical to their non gm counterparts. In the past this has been found to not be the case and could well be found with this GM seed if more thorough independent research was carried out. Syngenta for example initially claimed that the Bt10 maize was "physically identical" to Bt11. But Bt10 also contains a controversial antibiotic resistance gene, which confers resistance to an important group of antibiotics. Syngenta finally admitted this was indeed the case. For more info and references go to http://www.foe.co.uk/resource/briefings/gm_animal_feeds.pdf

Also from FOE:-http://www.foe.co.uk/resource/briefings/gm_animal_feeds.pdf
Biodiversity issues in regards to GMO's

"The UK Government's four-year Farm Scale Evaluations looked at the impact of growing herbicide tolerant GM crops on farmland wildlife, and found negative impacts associated with growing GM beet and oilseed rape. GM maize came out better than its conventional equivalent, but the comparison was flawed because the conventional maize in the trials was grown using the extremely damaging weedkiller, atrazine, which is now being phased out in Europe^{xxvii} .

Insect resistant crops also have associated environmental problems. There are concerns about the impact of such crops, which produce an insecticide throughout the plant, on non-target organisms, such as butterflies, moths and other invertebrates^{xxviii} . There is also little research on this impact that is relevant to European farming and species and little evidence on the impact on soil organisms. Yet when these issues were raised by Member States in relation to the approval of such crops, the EFSA GMO Panel failed to take such concerns seriously^{xxx} . However, EC documents forming part of the EC's defence in the GM dispute at the World Trade Organisation state that "it is a reasonable and lawful position" those insect-resistant crops should not be planted until all the effects on the soil are known^{xxxi} ."

And on Cross pollination

Cross pollination between GM and non-GM crops, wild crop plants or weed crop plants in following crops, as well as wild relatives, causes gene escape. Contamination of non-GM crops causes economic losses for farmers, wild plants may incorporate several GM traits creating so called 'superweeds'^{xxxii} , and traditional crop varieties can be contaminated. In Mexico, where only food and feed imports of GM maize were allowed, local varieties of maize still became contaminated with GM constructs, probably due to inadvertent planting of GM maize grains sold as food or feed^{xxxiii} . http://www.foe.co.uk/resource/briefings/gm_animal_feeds.pdf

There are also many experienced vets who believe GMO feed given to animals is highly dangerous given what they have observed in their practices since GMO's were introduced. "The symptoms veterinarians and researchers have observed in animals are not unlike many of the chronic, and increasingly prevalent, health problems plaguing humans today. Digestive disorders; Damaged organs; Infertility; Weak immune systems; Chronic depression. "We've got a real mess," says Dr. Art Dunham, an Iowa veterinarian who has treated farm animals for several decades. Dunham is a staunch believer that GMO crops are wreaking havoc with the health of animals and humans.

To see the full article on this topic please go to - http://www.organicconsumers.org/articles/article_28062.cfm

when humans eat the meat of animals fed GM Foods we are potentially causing much ill health in ourselves. Again, I say it is imperative that more independent long term research be done on animals and humans alike on ALL GMO's

Many countries have already banned GM foods including all those listed here—
<http://www.examiner.com/article/what-countries-have-banned-gmo-crops>

Info about why Italy has chosen to ban this GMO with 80% support from the public. The topic of GMO's should be publicised more widely so that average Australians are able to make up their own minds and understand the issues around GMO's.

http://www.organicconsumers.org/articles/article_27939.cfm - **Italy to Ban Monsanto GMO Corn with 80% Public Support**

Information from Dr.Vandana Shiva on why GMO's may contribute to world famine rather than prevent it.

5 Reasons Why GMOs are a Recipe for Global Famine



It is not an
investment
if it is
destroying the
planet.

-Dr. VANDANA SHIVA

1. Patented Seeds are illegal to save for replanting. farmers are denied their traditional right to save seed for replanting.

2. Soil Infertility. GMO agriculture is a chemical intensive system. Agrochemicals are building up in our bodies, our water and most of all, in our soil. The accumulation of Glyphosate (roundup weed killer) is especially alarming.

3. Monocropping. Because of industrial agriculture we have already lost 75 percent of the seed diversity passed down to us from our ancestors. Biodiversity equals food security.

4. Terminator Seed Technology. Terminator refers to plants that are genetically modified to kill their own seeds. Seeds harvested from terminator crops will not germinate if replanted the following season. Pollen from terminator plants can cross-pollinate with other natural varieties, making otherwise viable seeds infertile. The goal of this technology is crystal clear, it aims to maximize seed industry profits by preventing farmers from reusing seed from their harvest, forcing them to return to the commercial seed market every year.

5. Dependency on a Centralized Food System. A network of home gardens, and small to midsize farms offers far greater food security than a centralized, globalized system. Just as diversity of varieties is best, diversity of farms create a more stable food supply.

Additionally please review the findings of analysis done on GM corn and non GM corn via ISIS –the Institute of Science in Society whose mission statement is :- ‘To promote science responsible to civil society and the public good, independent of commercial and other special interests, or of government control. ‘

NB: As with all of the information provided that isn’t to do with GM Cotton is still highly relevant as it hasn’t been proven that these issues are not a problem for all GMO’s.

http://www.i-sis.org.uk/Stunning_differences_of_GM_from_non_GM_corn.php - A comparison of US Midwest non-GM with GM corn shows shockingly high levels of glyphosate as well as formaldehyde, and severely depleted of mineral nutrients in the GM corn by Dr Mae-WanHo

Please also take this study by Dr. Benedetti into consideration via Science Direct - a leading full-text scientific database offering journal articles and book chapters from more than 2,500 peer-reviewed journals and more than 11,000 books.

<http://www.sciencedirect.com/science/article/pii/S138357181300003X> - Genetic damage in soybean workers exposed to pesticides. (the same that would be used with this GMO cotton) A new peer-reviewed study has found DNA damage and elevated cell death of blood cells in soybean workers exposed to fungicides, herbicides, and insecticides in Brazil. Glyphosate and 2,4-D were among the herbicides used by the exposed group. 2,4-D is increasingly used to combat glyphosate-resistant weeds in GM soybean fields.

In other related GM news worldwide here is some more information about India ‘s moratorium on GM crops - <http://www.downtoearth.org.in/content/indefinite-ban-gm-field-trials-recommended> - “A committee of technical

experts comprising scientists from top public research laboratories and academic institutions set up by the Indian Supreme Court last year has changed the 10-year moratorium on field trials of Bt transgenics that it recommended in October 2012 to what appears to be an indefinite moratorium on food crops in its final report. Based on “the examination/study of the safety dossiers, it is apparent that there are major gaps in the regulatory system. These need to be addressed before issues related to tests can be meaningfully considered. Till such time it would not be advisable to conduct more field trials,” the experts say in their final report without specifying any time frame.”

In relation to the study submitted to you by the applicant -I have a few concerns. One is the short time frame used for the study, as from my understanding and many of the scientists I have read about, it is the long term cumulative effect of toxins in the body and also the interactions of different toxins over time also that can be potential problems. Another issue is the fact that the ‘oral toxicity study’ that was done was not included so this could be publicly assessed –as highlighted below. Lastly in relation to the information provided by the applicant why is it that the LATEST version of the document was not provided which had additional information about ‘.. the OECD recommendations for analysis of phospholipids, sterols and saponins.’

<http://www.foodstandards.gov.au/code/applications/Documents/A1081-GM-CFS-SD1.pdf> **4.6.5 Acute oral toxicity study**

Study submitted: Eapen, A.K. (2012) AvHPPD-03: single dose oral (gavage) toxicity study in mice with a 2-day or 14-day observation period. Unpublished Syngenta Report, March 8, 2012. T007563-08.

An acute oral toxicity study in mice, using bacterially-produced AvHPPD-03 protein was submitted by the Applicants but is not included in this safety assessment since no safety concerns were identified in any of the other studies. Similarly, an acute oral toxicity study is not required for the PAT protein.

Key components of soybean

For soybean intended for human food use, the key components considered important for compositional analysis include the proximates (moisture, crude protein, fat, ash, fibre), amino acids, fatty acids, minerals, vitamins, isoflavones, phospholipids, sterols, saponins and the anti-nutrients phytic acid, trypsin inhibitors, stachyose, raffinose and lectins, (OECD, 2012). ***It is noted that the OECD recommendations for analysis of phospholipids, sterols and saponins are not emphasised in the previous version of the consensus document (OECD, 2001) and that the compositional studies done by the Applicant were based on this previous version.***

Also of interest on the topic is this article in MDPI which is an Open Access Publishing of peer-reviewed, open access journals, established in 1996. As seen on their website ‘MDPI publishes over 110 diverse open access electronic journals, including *Molecules* (launched in 1996; Impact Factor 2.428), the *International Journal of Molecular Sciences* (launched in 2000; Impact Factor 2.464), *Sensors* (launched in 2001; Impact Factor 1.953), *Marine Drugs* (launched in 2003; Impact Factor 3.978), *Energies* (launched in 2008; Impact Factor 1.844), the *International Journal of Environmental Research and Public Health* (launched in 2004; Impact Factor 1.998), *Viruses* (launched in 2009; Impact Factor 2.509), *Remote Sensing* (launched in 2009; Impact Factor 2.101), *Toxins* (launched in 2009; Impact Factor 2.129) and *Nutrients* (launched in 2009; Impact Factor 2.072). Our publishing activities are supported by more than 4000 active scientists on our journals’ international editorial boards, including several Nobelists. More than 60,000 individual authors have already published with MDPI, and 170,000 scholars are in the pool of reviewers’

Not enough attention has been paid to the importance of the gut brain connection on this topic. For example Glyphosate has been shown to disrupt enzymes, which causes a multitude of problems as explained in detail by Stephanie Seneff, PhD, a Senior Research Scientist at MIT. Cancers often don’t exhibit themselves until after 3 months. It is clear that there needs to be long term tests – Not just the usual max 90 day studies. Simply not long enough to conclusively show potential links to various diseases.

Full details can be seen via the link about but here is part of their Abstract:

"Glyphosate, the active ingredient in Roundup®..Glyphosate's inhibition of cytochrome P450 (CYP) enzymes is an overlooked component of its toxicity to mammals. CYP enzymes play crucial roles in biology, one of which is to detoxify xenobiotics. Thus, glyphosate enhances the damaging effects of other food borne chemical residues and environmental toxins. Negative impact on the body is insidious and **manifests slowly** over time as inflammation **damages cellular systems** throughout the body. Here, we show how interference with CYP enzymes acts synergistically with disruption of the biosynthesis of aromatic amino acids by gut bacteria, as well as impairment in serum sulfate transport. Consequences are most of the diseases and conditions associated with a Western diet, which include gastrointestinal disorders, obesity, diabetes, heart disease, depression, autism, infertility, cancer and Alzheimer's disease. We explain the documented effects of glyphosate and its ability to induce disease, and we show that glyphosate is the "textbook example" of exogenous semiotic entropy: the disruption of homeostasis by environmental toxins."

Next are excerpts from an article written by a journalist who after years of major health issues found that she was intolerant to GMO corn. This is obviously anecdotal yet should not be dismissed because there are thousands of similar stories both here and overseas, yet due to the medical profession not knowing what they are looking for when it comes to possible reactions to GM foods and the lack of related reporting systems on this issue it is currently one big mess. Of most concern to me about this piece is that fact that after years of tests that they came back saying everything was 'normal'. Given what transpired when she finally found a specialist who could help identify the problem, clearly the current testing is woefully inadequate to identify such problems in humans. Granted this anecdotal story is not about cotton but it still highlights problems with approving GMO's without more research nonetheless.

The Bad Seed: The Health Risks of Genetically Modified Corn - <http://www.elle.com/beauty/health-fitness/healthy-eating-avoid-gmo-corn>

- ***With symptoms including headaches, nausea, rashes, and fatigue, Caitlin Shetterly visited doctor after doctor searching for a cure for what ailed her. What she found, after years of misery and bafflement, was as unlikely as it was utterly common.***
BY Caitlin Shetterly July 24, 2013

...At the office of allergist Paris Mansmann, MD

"I was 36. I'd been sick for three and a half years... I visited doctors and had tests...I had no diagnosis, just a collection of weird symptoms: tight, achy pain that radiated through my body and caused me to hobble around; burning rashes that splashed across my cheeks and around my mouth like pizza sauce; exhaustion; headaches; hands that froze into claws while I slept and hurt to uncurl in the morning; a constant head cold; nausea; and, on top of all that, severe insomnia—my body just could not, would not, turn off and rest. I visited every doctor who'd see me and tried everything they threw at me: antidepressants; painkillers; elimination diets (inc ...eight months..without any of the major allergens, ..gluten, nuts, dairy, soy, and nightshades); herbal supplements; iodine pills; steroid shots; hormone treatments; Chinese teas; acupuncture; energy healing; a meditation class—you name it, I did it. Nothing worked...I was sent to neurologists in Boston.

All of my tests came back normal.. after a long and unhappy antibiotic treatment for Lyme disease, my newest GP (who's still my doctor today), Chuck de Sieyes, MD, announced that he was referring me to Mansmann—a third-generation allergist.. at Jefferson Medical College in Philadelphia... he helped his dad develop two asthma drugs. Later, he headed an allergy and immunology clinic at a West Virginia hospital for 10 years... He listened patiently, asking questions every so often: When did my rashes flare? Was the pain an ache in my muscles, or did it feel deeper? Was I worse after I slept or at the end of the day? Then, with no pyrotechnics, he offered his theory: "I think it's possible you've developed a reaction to genetically modified corn.".. Mansmann explained that starting in the

mid-1980s, the biotechnology giant Monsanto began to genetically alter corn to withstand its herbicide Roundup—the goal being to eradicate weeds but not crops—as well as to resist a pest called the corn borer. These small changes in the DNA of the corn are expressed by the plant as proteins. It's those proteins, Mansmann believes, that can act as allergens, provoking a multisystemic disorder marked by the overproduction of a type of white blood cell called an eosinophil.

He swabbed inside my nose with a Q-tip, then placed the results under a microscope. "Take a look," Mansmann said. "See all those pink cells? Those are eosinophils." ..When the immune system is working properly, eosinophils swarm certain invading substances, be they parasites or viruses, and work to eliminate them. Sometimes, however, an allergenic protein may prompt the immune system to release eosinophils. Then, it's as if a faucet gets turned on but can't be turned off—eosinophils just keep coming. Eventually they begin to leave the bloodstream and may infiltrate and damage the GI tract, esophagus, mucous membranes, lungs, the fascial system (the layer of connective tissue that surrounds the muscles, blood vessels, and nerves), and the skin—hence, the avalanche of symptoms.

... To experiment with a new GMO food in this country, a developer must first get a permit from the USDA to conduct field trials (literally, trials in open fields), following guidelines largely intended to prevent GMO crops from mixing with conventional ones. In addition, **according to Helscher, biotech firms like Monsanto are required to compile a document that compares the biology of the modified plant to the unmodified one, determining, for example, if there is a "statistically significant difference" in the levels of nutrients such as carbs and fats between the two plants, or, if new proteins are introduced, whether they're included in the database of known allergens. If nothing goes obviously wrong, the crop is free to go to market. It all sounds fine, until you dig a bit deeper, critics of this process say. For one thing, they question the objectivity of the allergen database because it's compiled at the University of Nebraska–Lincoln, whose facilities are funded by the six major biotech companies: Monsanto, Syngenta, Dow, Dupont Pioneer, Bayer, and BASF. Indeed, no GMO proteins are on the list, but that's for lack of "sufficient evidence" to put them there, says Richard Goodman, PhD, a UNL research professor and former Monsanto employee.** He does add, however, that much of the existing data regarding the allergenic potential of GMO foods simply examines them for amino acid sequences similar to those in known allergens—like peanuts or milk—which limits the usefulness of the whole enterprise to people like Mansmann: They think **GMOs may be carrying heretofore undiscovered allergens.** (If you're thinking, Well, **what do the clinical trials with humans show?** The answer is: **They're nonexistent because, the biotech firms say, they are impractical, and, again, GMO foods are basically presumed safe and thus don't undergo near the level of scrutiny as new drugs.**)

..."The scandal is that the USDA does not force the companies to give results of trials that had negative outcomes," says Harwood Schaffer, PhD, a research assistant professor at the University of Tennessee's Agricultural Policy Analysis Center. "We've seen this in medicine: You only get the data that the [industry] wants you to see." Schaffer also points out that the biotech firms consider their research proprietary, so there's no record for the public to inspect:

Australian-born immunologist Simon Hogan, PhD, who, interestingly, was the lead author of one of the few independently funded GMO-food studies. In the early 2000s, Hogan's interest was piqued when he learned GMO peas were being developed in his native country, so he decided to investigate the new product. "I felt there was a fundamental lack of knowledge on whether GMOs could have an effect" on animals (and possibly people).

He was surprised by the results: Mice given the GMO peas had inflammatory reactions such as "mucus hypersecretion," "pulmonary eosinophilia" (eosinophils in the lungs), and airway hyperresponsiveness ("the lungs were twitchy," says Hogan). Most important, the peas may have "perturbed" a tolerance mechanism in the mice, leading to enhanced immunoreactivity.

When I think back to how suffocatingly powerless I felt, how sidelined as a wife, mother, and productive person, I just feel, well, sick. Although Dr. Mansmann told me that most people allergic to GMO corn can end up tolerating small amounts after a couple years of abstinence, each time I've dared cheat, I've awoken the next morning with a frozen left hand, a sore hip, and a facial rash. So for now, at least, the extra work isn't really a choice; it's a way of

life, one that reminds me daily that our modern world is full of challenges..'

Article Link- [GMO Foods in America - Avoid Genetically Modified Corn - ELLE](#)

The more I have researched this topic the more I have seen everyday people search for years to find what is wrong with them only to finally be put on a GM free diet by Doctors who understand that for many, GMO foods are a problem and definitely not 'identical' to non GM foods.

Although this is anecdotal, it clearly points to the need for more independent research to find out what is really going on.

In relation the other work coming from around the world, the Europeans Food Safety Authority- EFSA has issued guidelines for two-year whole food feeding studies to assess the risk of long-term toxicity from GM foods. See the full guidelines here -<http://www.efsa.europa.eu/en/efsajournal/pub/3347.htm> and an article on independent research that has already followed these guidelines here

<http://gmosereralini.org/seralini-validated-by-new-efsa-guidelines-on-long-term-gmo-experiments/>

Part of these guidelines state "EFSA requires a priori power analysis to ensure appropriate sample size, depending on the effect size that is being looked for." The author of the above article notes that they have.." **never noticed the GM industry doing one of these, resulting in experiments that are virtually guaranteed not to find anything.**" This is highly worrying. For more comment on this, see: <http://www.ijbs.com/v05p0706.htm>

I read with disappointment FSANZ response to independent GM researcher Dr. Judy Carmen's recent GMO research findings. Whether or not the research was conducted to your specifications or not, the results of the research should obviously make alarm bells ring. To write off her findings completely due to the reasons given is extremely concerning to me. In case you haven't seen Dr. Carmen's response please read the following from her website.

<http://gmojudycarman.org/>

Monsanto (M): Some of the factors reported as different between the test and control groups appear to be in the normal range of observation for both.

Answer Summary: Monsanto provide no proof for this statement. Carman et al used adequate sample sizes, appropriate statistical tests and generated reliable findings.

Detailed Answer: Monsanto do not back up their assertion with any data. That is, they do not provide an officially-endorsed normal range for uterus weights for pigs, nor do they provide an officially-endorsed normal level of stomach inflammation in pigs. In fact, they provide no data at all.

It is important to understand that Monsanto are saying that the level of severe stomach inflammation seen in pigs fed the GM diet is normal in piggeries – i.e. that it's normal for a third of pigs to experience severe stomach inflammation in piggeries. This is a worrying animal welfare allegation about conditions in commercial piggeries and Monsanto needs to provide proof for their allegations.

It is also important to understand that the level of severe stomach inflammation in the GM-fed pigs was many times higher than in the non-GM fed pigs. Overall, GM-fed pigs had 2.6 times the level of stomach inflammation, with female pigs experiencing 2.2 times the rate and male pigs experiencing 4 times the rate. This is not "normal".

M: The author's speculation about differing uterine weights might be the result of pigs in estrus (heat) which would be complicated by the use of a pen design that had only 1 or 2 pens per treatment.

Answer Summary: Randomisation and proximate housing ensured estrus was not a confounding factor.

Detailed Answer: Two to six pens were actually used per dietary group, depending on the age of the pigs, not 1 or 2 as Monsanto says.

The weights of the uterus cannot be due to differing rates of estrus (heat) in the pigs, as pigs were thoroughly randomised before they began their diets. And then all the pens were placed very close to each other, so that pigs could touch snouts between pens. So, if estrus in one pig stimulated estrus in another pig in this study, then all the pigs in both dietary groups should have been in estrus together. Which means that estrus cannot be causing the differences that were seen between the GM-fed and the non-GM-fed groups.

By Monsanto suggesting that the rate of estrus was different between the GM-fed and non-GM-fed pigs, then because of the way the study was conducted, with everything except for the GM aspect of the diet "randomised out" from having an effect on the results, then Monsanto is actually suggesting that the GM diet caused a difference in the rates of estrus in pigs. This is a hypothesis that is both interesting and worrying for health and should be followed-up.

M: the results are due to poor animal husbandry practices, as shown by the fact that pigs died, even in the control group.

Answer Summary: The pigs in both groups were treated equally, humanely and within commercial piggery standards. Any assumption otherwise would be contesting the standards of the U.S. government and should be directed as a complaint to U.S. legislators.

Detailed answer: Pigs were housed under conditions that apply in commercial piggeries in the US. If Monsanto is suggesting that these pigs were subjected to inhumanely poor conditions, then they are also suggesting more widely that pigs in commercial piggeries in the US are subjected to those conditions as well. Pigs in commercial piggeries are housed in groups. They can and do get infectious diseases and there are indeed a number of infectious diseases that tend to occur in US commercial piggeries. Furthermore, pigs fight, bite and harass each other. As a result, some pigs, particularly runts, can, and do, die. Piggery owners **expect** some pigs to die and they factor this into their financial returns. Indeed, if no pigs had died in this study, many US piggery owners would have found the results of the study rather incredible.

The number of pigs that died was essentially the same between the GM-fed and non-GM-fed pigs. All pigs that died underwent autopsies. In all cases, death was found to be due to things such as infectious diseases, i.e. things that were piggery-related. At no time did any pig handler or veterinarian note, or autopsy indicate, that there was anything treatment-related associated with any pig's death, including intestinal or stomach problems. Moreover, the number of deaths were the same between groups, which adds weight to the evidence that there was no treatment-related aspect to these deaths.

All pigs, regardless of dietary group, were fed and treated the same way by experienced pig handlers that were blinded as to the dietary group of the pig so that any differences between the two dietary groups can only reasonably be due to the effect of the GM component of the diet.

<http://gmoevidence.com/location/australia/>

[Dr Judy Carman replies to comments that GM crops are safe to eat](#)

GM industry comment: GM crops have a clear record of safety. There have been hundreds of animal feeding studies that show that GM crops are safe to eat.

Reply: Most of the papers referred-to like this are usually animal production studies, where diets that were used or outcomes that were measured are not applicable to humans, and hence could not be used to assess effects on human health. These examples have been found in these sorts of studies:

- The effects of eating GM silage when humans do not eat silage. Silage is a type of rotted plant material.
- Diets were altered using ingredients that are not permissible in human diets e.g. sand and ground cardboard.
- Animal production outcomes were measured such as death rates, milk production, feed conversion to various types of carcass weight and even “sticky droppings”. These are not measures of human health.
- Animals with completely different physiologies to humans were used as experimental animals. For example, chickens were often used when they are clearly not comparable to humans – they have feathers, fly, lay eggs, do not suckle their young, have nucleated red blood cells, caeca, air sacks instead of lungs, kidneys that do not produce urine, two “stomachs”, and swallow grit and pebbles to help grind their food – all of which would be considered highly unusual in a human. Studies on fish are even less comparable. Cows are also not comparable because, while they are at least mammals compared to many other animal models used in these studies, amongst other things, they have several stomachs, chew their cud, and can digest cellulose so that they can thrive on a diet of grass, which would kill a human. Pigs are physiologically closer to humans and can be used in feeding studies designed to test human end points but in practice are rarely used due to their size. That is, they cost more to house and feed than rats.

Other studies cited are often measurements done *in vitro* or on soil or plants. Examples of the latter include comparisons of the composition of a GM crop to a non-GM crop and measurements of the amount of transgenic protein expressed in a GM plant. Furthermore, some of the papers used to support this sort of statement actually show adverse health effects on the animals that have eaten GM crops.

GM industry comment: Americans have eaten billions of meals with GM ingredients over at least a decade and there has never been a documented case of anyone getting ill from eating GM crops.

Reply: Since GM crops were introduced into the US food supply, millions of Americans have gone to hospital and millions of Americans have died. There has been no investigation into whether any of those hospitalisations or deaths were due, in full or in part, to eating GM crops. So there is simply no evidence to determine if GM crops have caused any adverse effects in people, or not.

- <http://gmojudycarman.org/a-specific-reply-to-mark-lynas/>

[A specific reply to Mark Lynas](#)

Prominent pro-GM activist, Mark Lynas has, as expected, attacked the study by Dr Judy Carman and her colleagues for their recent work titled, “A long-term toxicology study on pigs fed a combined genetically modified (GM) soy and GM maize diet.” *Criticism Source:* marklynas.org

Author: GMO Judy Carman Website Editors

ML: The authors are GM activists/campaigners and their results shouldn't be trusted.

Answer Summary: The authors are not GM activists; they are highly credentialed experts.

Detailed Answer: Two authors are Associate Professors in Health and the Environment, School of the Environment, Flinders University in South Australia. Another is a Senior Lecturer at Adelaide University in South Australia. Two are

veterinarians, one is a medical doctor, and two are farm experts. The authors have over 60 years of combined experience and expertise in medicine, animal husbandry, animal nutrition, animal health, veterinary science, biochemistry, toxicology, medical research, histology, risk assessment, epidemiology and statistics.

ML: The paper's acknowledgements are a veritable who's who of anti-biotech activism, including Jeffrey Smith, John Fagan and Arpad Pusztai.

Answer Summary: Two of these individuals are scientists with serious qualifications (qualifications Mr. Lynas does not possess). Mr. Smith's acknowledgement derives from his role in fostering the international collaborations that were necessary part of the study's completion.

Detailed Answer: There were 38 people in the acknowledgement section, including an ex government Minister, an ex Chief of Staff to the Govt Minister and an ex member of the Board of Australia's food regulator, as well as numerous scientists with more qualifications than Mr. Lynas has (as author, advisor, and speaker) and numerous farmers who were involved in the research.

Mr. Lynas has picked out three people in that list of 38 and alleged that they are anti-GM activists. This is not the case. In fact two of them are scientists with serious qualifications, qualifications that he doesn't have.

The only anti-GM activist, Jeffrey Smith, is acknowledged simply because he suggested that Howard, who was seeing these effects in pigs and wanted to determine if they were scientifically real, should contact Judy who had the scientific expertise to conduct the study. That simple and singular action resulted in discussions between Howard and Judy which resulted in this research. This starting point was rightfully acknowledged, but importantly, the research was conducted entirely independently of all three people Mr. Lynas mentions.

ML: Funding for the research was derived from anti-GM advocates and therefore biases the results.

Answer Summary: Funding for the study was actually derived from a current supporter of GM technologies.

Detailed answer: It is clearly stated in the paper that the major funder of IHER's involvement in the study is the Government of Western Australia, and the current government is a supporter of GM crops.

With regard to IHER's previous work in opposing Bt brinjal in India and CSIRO's GM wheat in Australia, IHER conducted a thorough review of the evidence presented and concluded that there were serious safety concerns about GM brinjal and CSIRO's GM wheat. The organization opposed the release of these based on a review of the evidence, not on ideology.

ML: All the animals were in very poor health. Weaner mortality rates indicate inadequate husbandry standards, and higher rates of abnormalities of the heart and liver in non-GM fed pigs were conveniently ignored.

Answer Summary: Mr. Lynas does not appreciate the role of statistics in ascertaining scientific certainty.

Detailed answer: Mr. Lynas is incorrect. These are not the mortality rates for weaners. The rates presented are for the entire lifespan of the animal. Furthermore, animal husbandry was the same for both the GM and non-GM fed groups. This effect has been randomised-out as an effect on the results. Therefore, animal husbandry is not a factor in the difference between GM and non-GM-fed pigs.

There are hundreds of numbers in the paper. Mr. Lynas has "cherry-picked" a few of these numbers that were not statistically significant and tried to allege that they are. Carman et al only discuss statistically significant findings because this is the scientifically credible approach. GM-fed animals had smaller livers, more pneumonia and more

abnormal lymph nodes, but the researchers did not make any statements about these findings because they were not statistically significantly different when compared to non-GM fed animals.

ML: The authors used “statistical fishing” in their interpretation of the results, clearly attempting to skew or exaggerate their findings. What visual evidence is presented is done so to justify this statistical fishing experiment.

Summary: The authors executed careful and comprehensive statistical analysis to answer two hypotheses that had been generated by previous observations by the researchers in the U.S. piggeries.

Detailed answer: The authors performed statistical tests on all of the parameters that Mr. Lynas mentions, and none of them were found to be statistically significantly different. These analyses are clearly presented in the paper. Mr. Lynas either did not read the paper well enough or saw the analysis but did not understand them.

The counter argument from supporters of Mr. Lynas suggests that the study was not designed to test and statistically evaluate a sole hypothesis. If the authors had measured just the variables associated with the hypotheses being specifically tested (stomach inflammation and reproductive problems) and nothing else, few statistical tests would have been done and little to no statistical adjustment would have been suggested. The significant results that the authors found around the hypotheses that were tested should not be made invalid simply because the authors took some other measurements.

Furthermore, the level of inflammation in the non-GM fed group was concentrated in the mild to moderate range of inflammation. Feeding GM crops boosted that to severe inflammation, and this was a significant finding. Importantly, inflammation is a graded variable; the more inflammation, the more biologically impactful it can be to the animal. So, you cannot equalize the biological consequence of nil or mild inflammation to severe inflammation. Doing so goes against scientific knowledge on the effects of inflammation.

ML: This study subjects animals to inhumanely poor conditions.

Summary: The pigs in both groups were treated equally, humanely and within commercial piggery standards. Any assumption otherwise would be contesting the standards of the U.S. government and should be directed as a complaint to U.S. legislators.

Detailed answer: Pigs in commercial piggeries are not like laboratory animals that are raised and housed in specific-pathogen-free environments, sometimes only one animal to a cage. On the contrary, pigs in commercial piggeries are part of an industrialised food chain. Pigs are born in commercial farrowing facilities housing many sows at a time. Once weaned, pigs are housed communally in large pens. The result is a real-world experiment that is closer to the interactive, infectious-disease-transmitting and messy school yard than the more controlled environment of a laboratory animal house. Commercial pigs can and do get infectious diseases and there are indeed a number of infectious diseases that tend to occur in US commercial piggeries. Furthermore, pigs fight, bite and harass each other. As a result, some pigs, particularly runts, can, and do, die. Piggery owners **expect** some pigs to die and they factor this into their financial returns. Indeed, if no pigs had died in this study, many US piggery owners would have found our results rather incredible.

The number of pigs was essentially the same between the GM-fed and non-GM-fed pigs.

All pigs that died underwent autopsies. In all cases, death was found to be due to things such as infectious diseases, i.e. things that were piggery-related. At no time did any pig handler or veterinarian note, or autopsy indicate, that there was anything treatment-related associated with any pig's death, including intestinal or stomach problems. Moreover, the number of deaths were the same between groups, which adds weight to the evidence that there was no treatment-related aspect to these deaths.

All pigs, regardless of dietary group, were fed and treated the same way by experienced pig handlers that were blinded as to the dietary group of the pig so that any differences between the two dietary groups can only reasonably be due to the effect of the GM component of the diet.

Another major issue of concern is that of reported bee colony collapses due to the overuse of pesticides on chemical resistant crops as well as terminator seeds more of which you can read about in this article here:-

<http://www.globalresearch.ca/death-of-the-bees-genetically-modified-crops-and-the-decline-of-bee-colonies-in-north-america/25950>

There's also plenty of information pointing to the fact that not only do GMO crops not increase yields in the way the manufacturers say they do, they often actually decrease yield. Again look at the impartial research readily available on the net and discussed within the information included in this submission. http://www.non-gm-farmers.com/news_details.asp?ID=914 For example a study by Fulton and Keyowski found Roundup Ready canola in Canada was associated with lower yields of around 7.5 percent. I have no doubt that similar results would be found with cotton. Independent testing should be done to assess this otherwise this supposed benefit turns into a negative and should lead to extreme caution on approving any more GMO's.

(Reference: Fulton, M. and Keyowski, L. "The Producer Benefits of Herbicide Resistant Canola." *AgBioForum*, Vol 2 No 2, 1999, as reported in Stone, S. Matysek, A. and Dolling, A. *Modelling Possible Impacts of GM Crops on Australian Trade*. Productivity Commission Staff Research Paper, October 2002, at 32.)

On the topic of contamination of non GM Australian crops which would potentially cripple non GM farmers – from my research, I understand that Australia's 'Legislation has assumed GM is no different to non-GM and yet there is an unmanageable zero tolerance of GM contamination allowed in non-GM products eg: Trade Practises Act, half of our wheat export volume requires this guarantee etc. ([More](#).) There is no regard to the market reality of no tolerance. ([More](#)). Zero tolerance is unachievable after GM introduction which is a clear indication that we will lose markets if commercially grown or even with the introduction of large trials.' http://www.non-gm-farmers.com/news_details.asp?ID=664 This is unacceptable. We personally know of an organic farmer in Western Australia who livelihood was ruined by a GMO crop allowed next to his property due to contamination. Contamination so easily occurs due to the weather variables and cross pollination and cannot be avoided. Farmers who are trying to ensure the biodiversity of our foods should not be penalised by gmo seeds that haven't even been studied properly. This is clearly a risk to the future of un-tampered non-gmo seed and food sovereignty. Further to this topic please see more info on the following link.

[http://www.scribd.com/doc/134899632/Scientific-Papers-Compiled-March-2013-Coalition-for-a-Gm-Free-India - ADVERSE IMPACTS OF TRANSGENIC CROPS/FOODS - A COMPILATION OF SCIENTIFIC REFERENCES WITH ABSTRACTS](http://www.scribd.com/doc/134899632/Scientific-Papers-Compiled-March-2013-Coalition-for-a-Gm-Free-India-ADVERSE-IMPACTS-OF-TRANSGENIC-CROPS/FOODS-A-COMPILATION-OF-SCIENTIFIC-REFERENCES-WITH-ABSTRACTS)

To conclude, given all of the above, all I can reiterate is that alarm bells should well and truly be ringing worldwide on the issue of all GM food which we need to take heed of. These are clearly not 'just' conspiracy theories – the experts obviously know what they are talking about and importantly and not biased in their findings like the companies putting forward these applications are. Please do not allow this GM crop to be allowed in Australia unless exhaustive research conclusively proves it is safe for animals, humans and the environment.

Thanks for your time. I look forward to being kept up to date with how this application goes.

Yours sincerely,

