



To the Department of Agriculture Fisheries and Forestry

Thank you for initiating the discussion on the National Food Plan. MADGE welcomes the chance to comment on our national food system and how it intersects with the global system.

Since we all eat we all need to be part of the discussion.

MADGE would welcome a wider and more inclusive group of representatives than exist currently in the National Food Policy Working Group:

Members of the National Food Policy Working Group

- * Michael Luscombe – Managing Director and CEO Woolworths
- * Michael Byrne – CEO Linfox Logistics
- * Dr Alastair Robertson – Deputy Chief Executive of CSIRO
- * Terry O'Brien – Managing Director Simplot Australia
- * Simone Tully – Owner of OBE Organics
- * Jock Laurie – President National Farmers' Federation
- * Janine Allis – CEO Boost Juice
- * Kate Carnell – CEO Australian Food and Grocery Council
- * Malcolm Jackman – CEO Elders Ltd
- * Nick Stace – CEO Choice (Australian Consumers Association)
- * Alison Watkins – Managing Director and CEO Graincorp
- * Jeff Lawrence – ACTU Secretary
- * Dr Peter Williams – Associate Professor of Nutrition and Dietetics at University of Wollongong

There are an enormous amount of smaller groups of farmers, food growers, eaters and researchers who are integral to the present and future of our food system.

Some of them are represented by a group such as the Australian Food Sovereignty Alliance. It seems vital to include a group such as this, as well as others, in the National Food Policy Working Group.

If they are not included the appearance is that only large organisations are represented in planning food for the diverse population and environment of Australia. This is inadequate to create a well-rounded plan for Australia.

Main Submission

Food is a large and complex issue but we will attempt to be brief and succinct. We will address three main assumptions that underlie the discussion document:

- that we have a global market system and therefore need to tailor our National Food Policy to fit within this system
- that we can run the existing food system in the face of peak oil, peak water, peak phosphorus, and climate chaos
- that new technologies like Genetic Modification and nanotechnology are useful and that the only barrier to their use is consumer acceptance

We will also provide suggestions for the question:

29. What would encourage more innovation in the food industry?

1) The global food system: the market, free trade, speculation and the abuse of power.

The first assumption is that we exist in a competitive global market where openness, excellence and innovation bring success.

“Exposing businesses to global competition is good trade policy and sound domestic economic policy. Openness to trade keeps the cost of farming inputs low and drives economic reform as Australia’s competitors find new ways to reduce costs and improve quality through innovation, which obliges Australian companies to match or better them. (page xii)”

This is simply not the case. The global food system is a collection of cartels, monopolies and monopsonies:

- Four companies, ADM, Bunge, Cargill and Louis Dreyfus, control somewhere between 75-90% of the global grain trade. No one knows the exact amount as these companies are extremely secretive. The recent G-20 agriculture ministers meeting in Paris on 23rd June 2011 proposed an Agricultural Marketing Information System (AMIS). This would provide one of the bases required for a market ie the free flow of information about grain trading. The irony is this cannot happen without the co-operation of the four large companies who dominate the trade.¹ Therefore currently the world grain trade is run by secretive cartels with immense power such that the governments of the 20 most powerful countries do not know the details of the grain stocks they keep. This is not a market.
- Six chemical and pharmaceutical companies, Monsanto, Du Pont, Syngenta, Dow, Bayer and BASF, dominate world seed ownership². In 2008 one company,

¹ <http://www.iatp.org/documents/g-20-agriculture-ministers-meet-in-paris-with-little-result>

² <https://www.msu.edu/~howardp/seedindustry.html>

Monsanto, owned 92% of the soy and 85% of the corn planted in the US.³ Once again this is not a market, it is a cartel and in some areas a monopoly.

- Global companies like Cargill, Viterra and Monsanto are moving into Australian agriculture without public discussion and adequate oversight. Monsanto bought 19.9% of InterGrain, the ex-public plant breeding body of WA, last year. It provides the germplasm for 40% of Australian grown wheat.⁴ Cargill purchased the Australian Wheat Board's grain trading and handling business in May this year.⁵ Viterra now controls the bulk grain handling in South Australia and farmers are complaining of a lack of competition.⁶ This means that Australia is losing control of vital parts of its agricultural assets. The companies that have bought these assets will work hard for their own profitability but this will not necessarily be in the interests of Australia or Australians. In fact other countries have found their presence negative for their citizens (see below in Speculation and the abuse of power).
- The Chicago Mercantile Exchange (CME) is world's largest privatized trading clearinghouse. "By the end of 2008, the CME was posting over \$2.5 billion in annual revenue, handling over a billion contracts worth \$1,000-plus trillion dollars." It is trading not only in commodities but also in farmland itself. 70% of the trades are done by computer algorithms through its Globex electronic platform. It affects the prices given to farmers and paid by consumers worldwide.⁷ Once again this is not an adequately functioning market. It is allowing a private trading company to control a large section of the market for the benefit of itself without regard of the damage it is causing to food prices, farmers or the future of farming itself.
- Food retailers are becoming increasingly concentrated. Australia has two main retailers who control about 60% of the food dollar.⁸ There has been concern raised about this duopoly and the effect it has on suppliers and shoppers. However even these giants may come under pressure from even larger global retailers like Costco, Aldi and Target.⁹ Retailing has now become global as can be seen with Wal-mart, the largest retailer in the world. It has stores in many countries including Europe and China. It controls almost 30% of all supermarket food sales in Mexico.¹⁰ Wal-mart has a track record of appalling pay and conditions for workers and suppliers. It appears this, and subsidies, are part of the reason for its success.¹¹ A global market

³ <http://www.dailyyonder.com/speak-your-piece-president-and-seed/2011/08/23/3490>

⁴ <http://www.gmwatch.org/latest-listing/1-news-items/12445-wa-government-partners-with-monsanto>

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<http://www.fionanash.com.au/Media/NewsArticles/tabid/70/articleType/ArticleView/articleId/775/Cargill-buy-not-in-national-interest.aspx>

⁶ <http://www.abc.net.au/iview/?gclid=CP-Outz7m6oCFVIQHAodIRURxg#/view/803049>
(41.40 minutes into the Landline programme)

⁷ http://host.madison.com/ct/news/opinion/column/article_e0205b82-6ca1-5c08-817f-aeb0ad21f3d7.html

⁸ <http://www.brisbanetimes.com.au/business/supermarket-reform-would-cost-millions-20110606-1fozu.html>

⁹ <http://seekingalpha.com/article/239815-wal-mart-heads-list-of-top-10-global-retailers>

¹⁰ <http://cronkitezine.asu.edu/Mexico/walmart.html>

¹¹ <http://reclaimdemocracy.org/walmart/index.html#articles>

where the most successful retailer is the most ruthless in extracting maximum advantage from taxpayers while contributing as little as possible to the commonwealth is undesirable and ultimately cannot exist in either a market or democratic system. Either the constraints on the companies change, or the name of the system under which we are governed changes to reflect the realities of where power resides.

Free Trade and the Washington Consensus:

The assumption is that the Washington Consensus, the opening up of markets and free trade agreements, has benefitted Australian farmers and consumers. Since the 1970's the reduction of tariffs, the removal of subsidies, the deregulation of co-operative marketing arrangements and structural adjustment has damaged agriculture in Australia as well as around the world.

In 1973 Australia had:

- 185,000 farms
- Employing 377,000 Australians
- Producing gross value of \$47.15 billion (\$09/10)
- Net value of \$20.72 billion (\$09/10)
- Using \$17.66 billion of debt (\$09/10)

In 2009 Australia had:

- 140,704 farms
- Employing almost 318,000 Australians
- Producing gross value of \$45.91 billion (\$09/10)
- Net value of \$8.38 billion (\$09/10)
- Using \$22.5 billion of debt (\$09/10)

The result for Australia is that production has risen, but the real value of production has stagnated. Farming is now almost irrelevant to the national economy, it has dropped from 18% of GDP in 1974-5 to just over 2% in 2008-9. For farmers increased production has driven down prices, input prices have increase while deregulation and the end of protection have left them exposed. As a result real net income of farmers has halved and farm debts have tripled between 1973-4 and 2007-8. Farmers have left the land and rural jobs have disappeared. Consumers have not benefitted and are paying proportionally more for food. The beneficiaries from these reforms domestically are companies like Woolworths and Wesfarmers.¹² The beneficiaries of these reforms globally are the companies and markets listed above.

Free trade agreements have drawn intense opposition from community organisations and individuals.¹³ "There is widespread concern that current trade policy gives priority to the flow of goods, services, investment and finance at the expense of local development, protection of the environment and human rights.

¹² <http://www.madge.org.au/Docs/M-Cebon-Ag-Trad-policy-impacts-Feb10.pdf>

¹³ <http://aftinet.org.au/cms/about>

Trade agreements can restrict the scope of legitimate government regulation in many areas. Under the guise of deregulation and free trade, regulatory powers are in fact transferred to international institutions beyond the reach of democratic accountability.”

Raj Patel’s book “Stuffed and Starved” explains how the dominance of global corporations and free trade agreements has led to hunger, obesity, farmer suicides, forced migration, loss of food sovereignty and poverty worldwide. ¹⁴

The Australian government is currently negotiating the Trans Pacific Partnership Agreement. It is happening without most people knowing although it could have far reaching effects on the powers of Australia’s future governments. These agreements and the way they are negotiated, in virtual secrecy away from the public gaze, are anti-democratic and underhand. They appear to be created from a basis of economic ideology rather than any demonstrated benefit to the general population.

Speculation and the abuse of power:

Unsurprisingly the concentration of power over food in a few global companies has led to abuse:

- In July 2011 a company part owned by Cargill bought up all the available UK wheat feed. “The fact that a single company can buy up the entire British feed wheat harvest for a month demonstrates the need for regulation to stop individual companies from dominating the market in order to drive up prices and profiteer.” ¹⁵
- Argentina has accused the four large grain traders (ADM, Bunge, Cargill and Louis Dreyfus) of large scale tax evasion. ¹⁶
- “Brazilian authorities announced Thursday they are seeking \$1.2 billion in fines against 14 companies accused of buying beef from farms exploiting illegally deforested areas or slave labor in the Amazon.” “Among the accused was JBS Friboi, the world’s largest beef exporter.”¹⁷ “In Australia, JBS Australia has an extensive presence along the eastern seaboard, with operations including 11 meat processing plants and 6 feedlots.

JBS Australia has a number of brands that have strong domestic and global recognition, including AMH, King Island Beef, Royal, Swift Premium, Tasman Meats

¹⁴ <http://www.guardian.co.uk/books/2007/sep/15/healthmindandbody.health>

¹⁵ http://www.foodnavigator.com/Financial-Industry/Cargill-and-ABF-owned-firm-accused-of-manipulating-wheat-market/?c=j%252Fnls1FdIzUEYs4cmn%252B3JQ%253D%253D&utm_source=newsletter_daily&utm_medium=email&utm_campaign=Newsletter%252BDaily

¹⁶ <http://www.guardian.co.uk/business/2011/jun/01/argentina-accuses-grain-traders-tax-evasion>

¹⁷ <http://au.finance.yahoo.com/news/Brazil-issues-1-2-blm-fines-afp-4145828300.html?x=0>

and Tasmanian Premium Beef.”¹⁸ To have a company owning a large amount of meat processing plants and feedlots in Australia who has used slave labour and illegally deforested areas in Brazil is a scandal.

- Relaxation on rules around speculation in commodities markets has increased volatility and prices. This is increasing hunger. ¹⁹ However the companies involved in the trade and speculation are benefitting, Cargill has increased earnings by 23% in 2011. ²⁰ The deregulation of the futures market has allowed Goldman Sachs to develop the “long only” derivatives market. This has transformed commodities into an investment for those looking for an alternative to housing and fleeing from the 2008 financial crash. ²¹ People are being forced into hunger and civil unrest for ideological reasons surrounding a certain form of market capitalism that benefits a tiny number of wealthy people and companies. This is unconscionable.
- Speculative profits in commodities and farmland is leading to global land grabs, dispossessing farmers and graziers many of whom are subsistence farmers. ²²

Therefore it is clear that the global food system is no longer a market where buyers and sellers can find fair prices or fair access. It is also not designed to feed our growing population. Instead it is increasingly controlled by and for the benefit of a small number of powerful global companies and speculators. Companies have taken control of seeds, markets, land and retail. The losers are the farmers, consumers, small business, civil society and governments. Since no one can live without food this is an abuse of human rights as well as undermining democracy and fair markets.

The National Food Plan’s assumption that there is a free and fair market in food in which Australia needs to compete is a dangerous one given the situation outlined above.

2) Peak oil and the competition between food and fuel, constraints on industrial farming

The second risky assumption is that in spite of the constraints around the availability of oil, water, phosphorus and climate that we can still, more or less, carry on with the globalised energy intensive food system we have developed over the past few decades.

¹⁸ <http://www.amh.com.au/>

¹⁹ <http://www.weed-online.org/themen/english/5021520.html>

²⁰ <http://blogs.worldwatch.org/nourishingtheplanet/and-now-for-something-completely-different-big-powers-missing-in-action-on-food-price-crisis-but-new-leaders-emerge/>

²¹ http://www.foreignpolicy.com/articles/2011/04/27/how_goldman_sachs_created_the_food_crisis

²² <http://www.foodfirst.org/en/node/3425><http://bit.ly/inhDCe> ,

<http://www.grain.org/articles/?id=70>

<http://www.grain.org/articles/?id=64>, www.farmlandgrab.org

<http://media.oaklandinstitute.org/land-deals-africa>

Statements like:

“Land freight, for example, is growing and expected to double by 2030 from the current 515 billion tonne kilometres. The government is investing in infrastructure and working to improve infrastructure services generally through national reforms. In the six years from 2008–09 to 2013–14 the Australian Government will have invested nearly \$37 billion in infrastructure. (Page ix)”

Show the massive misallocation of scarce resources being planned.

The International Energy Agency announced that Peak Oil occurred in 2006²³. Peak Oil is the year the largest amount of oil was produced. There will be new oil finds and production will continue but supply will inevitably be lower than the peak year of 2006 regardless of demand or price.

Symptoms of Peak Oil are the:

- drilling of extremely deep wells in difficult areas ie the Deepwater Horizon in the Gulf of Mexico
- development of coal seam gas, which is happening worldwide with such negative effects on land, water and people.
- expectation that biofuels and fuel from algae could be an oil substitute.

There is no substitute for the energy dense, easily available oil we have had access to for the past century. The extent to which fossil fuel exploration is now impacting on Australia can be seen in the unequal struggle between land for mining and agriculture in rural Australia. Federal and State governments are granting licenses for coal seam gas and other forms of mining despite the fact these mines damage water and land and therefore the ability of Australia to produce food.²⁴ Agrofuels are not a substitute as they are not able to produce the energy density of fossil fuel and may only be suitable for local applications on small scale.²⁵ Algal fuels still need land, water and nutrients and similarly will raise the issue of resources being sent to fuel versus food. It is already clear that diversion of food to fuel is part of the increase in hunger globally.

“One factor is a major product shift from food to fuel by many high-producing farms, a trend driven by the fact that most G20 governments mandate and subsidize this shift toward feeding cars instead of people. In Canada, for example, 40 percent of corn is converted to car fuel. Such a mobilization of government policies and incentives and farm resources has never been done in the name of fighting hunger, poverty or environmental destruction – exposing an ethical black hole.

²³ <http://news.nationalgeographic.com/news/energy/2010/11/101109-peak-oil-iea-world-energy-outlook/>

²⁴ <http://newmatilda.com/2011/08/17/farmers-no-match-big-mining>

²⁵ <http://www.energybulletin.net/primer.php>

There's a ripple effect to governments offering premium prices and subsidies for crops that feed machines, not people. A new generation of "land-grabbing" has begun, whereby foreign investors buy up huge swaths of land in Africa and Asia – the continents where absolute hunger is most common –to convert to tropical energy crops such as sugar and palm."²⁶

Therefore the idea that Australian land freight can and will double by 2030 is questionable. Even if it does the costs involved in this increase will be enormous and will put immense pressure on Australia's balance of payments. If Australia decides on the extensive production of agrofuels it will have to use arable land and other scarce resources to grow it. It must be asked whether a reduction in all but the most essential land freight would be a better solution. This would have to occur simultaneously with a revitalising of local and regional food networks which is discussed in the answer to question 29 below.

Peak oil directly affects our food supply as our current food system has been described as turning oil into food. The use of fossil fuels for fertilizer, farm machinery, transport, irrigation and pesticides is very energy intensive.²⁷ In 1994 Giampietro and Pimentel estimated that it required the equivalent of 10 calories of oil to produce one calorie of food in the US food system.²⁸ Australia's food production is similar to the US's and will be affected both by the increase in price and scarcity of fossil fuel.

The discussion paper seems to place reliance on technology to solve the problem of declining fossil fuel energy:

"The government believes that in future Australia will need to focus on second generation biofuels, which use low cost, non-food crops, algae and agricultural wastes as feedstocks. Second generation biofuels will help mitigate competition between food and fuel. The government is therefore targeting investment at second-generation biofuels. The government has previously made available funding of \$12.6 million for the Second Generation Biofuels Research and Development program. More recently, it announced that it will provide \$20 million to establish an Australian Biofuels Research Institute at James Cook University. The focus of the institute will be research into second generation biofuels food security." Page 20

This appears to be a techno-optimistic view of a solution. There is a promise of a "bio-economy" where fossil carbon is replaced with living matter "biomass". The companies that are driving this process are familiar and include:

- Forestry and agribusiness: Cargill, ADM and Bunge
- High tech companies: Microsoft, Monsanto, Syngenta, Synthetic Genomics
- Pharma, chemical and energy: Du Pont, BASF, BP, Shell, Exxon Mobil
- Finance: Goldman Sachs, JP Morgan

²⁶ <http://blogs.worldwatch.org/nourishingtheplanet/and-now-for-something-completely-different-big-powers-missing-in-action-on-food-price-crisis-but-new-leaders-emerge/>

²⁷ http://www.copvicia.com/free/ww3/100303_eating_oil.html

²⁸ <http://www.dieoff.com/page40.htm>

- Consumer products and food companies: Unilever, Proctor and Gamble, Coca-cola

The problems are that: the technologies all still require energy, plants, land and water; the technologies they intend to use, synthetic biology, genetic engineering and nanotechnology, are new and potentially extremely risky. Furthermore much of the “biomass” intended to be used exists mainly in the South.

“The most productive and accessible biomass is in the global South – exactly where, by 2050, there may be another 2 billion mouths to feed on lands that (thanks to climate chaos) may yield 20-50% less.”²⁹

The justice and wisdom of turning living plants and systems that feed, clothe, and sustain people and the environment into oil substitutes must be questioned.

The constraint the world is running into regarding resources is a wicked problem of immense scale. It challenges the basics of the global society we have built up and live in. It is a deeply complex issue and require using the least worst, or the most sensible, ways of tackling the multiple issues. It will not be simple or easy. Responding to this challenge in a way that facilitates and magnifies our dependence on a declining energy source for our food system in Australia seems perverse.

3) GM and nanotech, the reality compared with the hype

The document assumes that technologies such as GM and nanotech have a useful role to play in the future of Australian food:

“Innovation in its many forms is critical for industry success. However, there is some consumer concern about the use of some new technologies in food production and food products (such as genetic modification and nanotechnology).” Page 44

To consider if this statement is true it is important to consider the results of the 16 year global experiment with growing GM crops:

- GM crops have failed to increase yields. A review of academic studies on GM corn and soy found that yield increases are due to traditional breeding or improvements in agricultural practices.³⁰ The exception was a marginal increase in yields of GM bt (insect resistant) corn. However this advantage may be lost as bugs are developing resistance to the GM corn.³¹
- Superweeds are developing leading to loss of crop yields, an inability to use farm machinery and severe problems for farmers.³² Problems with soil, crops and animals

²⁹ http://www.etcgroup.org/upload/publication/pdf_file/biomassters_27feb2011.pdf

³⁰ http://www.ucsusa.org/food_and_agriculture/science_and_impacts/science/failure-to-yield.html

³¹ <http://www.gmwatch.eu/latest-listing/1-news-items/13390-monsanto-shares-fall-on-bug-resistant-corn-woes>

³² <http://www.youtube.com/watch?v=B-cka5s4AqE>

are being reported from the increased use of Roundup associated with GM Roundup Ready crops. Bob Kremer, a microbiologist with the U.S. Department of Agriculture's Agricultural Research Service; Michael McNeill, a PhD in genetics and botany from Iowa State and plant pathologist and former Purdue University professor Don Huber have reported:

*reductions in yields

*rapidly spreading weed resistance

*a rise in fungal root disease

*a rise in sudden death syndrome in soybeans

*a rise in wilt in corn

*proliferation of a damaging microscopic organism

*a higher incidence of infertility and/or early-term abortion in cattle, hogs and poultry fed RR crops.³³

- GM crops are increasing pesticide use. “Compared to pesticide use in the absence of GE crops, farmers applied 318 million more pounds of pesticides over the last 13 years as a result of planting GE seeds.” The source of this data is the U.S. Dept of Agriculture, National Agricultural Statistics Service (NASS).³⁴
- Glyphosate (Roundup) is being found in the rain in areas of the US. “Monitoring by the US Geological Survey (USGS) has revealed that glyphosate and its breakdown product Aminomethylphosphonic acid (known as AMPA) are frequently found in rainfall and rivers in the Mississippi Basin, where most GM crops tolerant to glyphosate are grown.”³⁵
- A recent review of Roundup conducted by Earth Open Source has found that Roundup is an endocrine disruptor that is linked to birth defects in animals at low levels. This was shown to have been known to industry and regulators for over a decade.³⁶
- Argentina has increased birth defects and illness in areas where GM crops are grown and Roundup is heavily used. The Argentina TV report “Poison on the Pampas”(English subtitles) reveals the severe human cost being placed on these communities.³⁷
- There is concern about the ecological effects GM crops are having including: the potential to alter soil biota negatively, gene flow to related crops and plants, damage to beneficial insects and that “the large-scale landscape homogenization with

³³ http://www.gmwatch.eu/index.php?option=com_content&view=article&id=13369:more-experts-raising-concerns-over-roundup

³⁴ http://www.organic-center.org/science.pest.php?action=view&report_id=159

³⁵ <http://www.gmfreeze.org/news-releases/165/>

³⁶ <http://www.scribd.com/doc/57277946/RoundupandBirthDefectsv5>

³⁷ <http://www.gmwatch.eu/gm-videosb/26-gm-in-latin-america/12580>

transgenic crops will exacerbate the ecological problems already associated with monoculture agriculture.”³⁸

Therefore it appears that the main traits that GM has developed so far:

- Herbicide tolerance – crops survive being sprayed with weedkiller
- Insect resistance – crops create a poison to kill certain insects. This toxin cannot be washed off

Have not solved problems and in fact are causing severe problems that may be extremely difficult to deal with.

There are constant promises of salt-tolerant, drought resistant and more nutritious GM crops in the pipe line. They have been in the pipeline for years and the recently released GM drought resistant corn has proved to be no more drought resistant than conventional crops.³⁹

The evidence is becoming increasingly clear that GM crops are a failure. Depending on future promises from a technology with track record of repeated failure ,when there are extremely successful alternatives, seems extremely foolish.

To also consider using such new and untested technology as engineered nanomaterials seems extremely risky.

“Chinese researchers, for example, have discovered in animal testing that absorption of nano-silver may interfere with the replication of DNA molecules and can reroute molecular networks that could create genetic mutations. Nano-silver, among myriad other uses, is incorporated into food packaging materials to kill pathogenic bacteria and thereby extend a food’s shelf life.

Estimates of the global cost of testing even just the toxicological effects of known ENMs range from \$265 million to \$1.8 billion.”⁴⁰

Once again new and extremely risky technologies appear to be introduced to fulfil an emotional need to believe that complex problems can be solved with a technofix. They also fulfil political and economic needs to continue with the fantasy that business as usual can produce products that solve complex problems with no negative effects. There is a complete lack of adequate scientific inquiry, development or study and a refusal to even consider the precautionary principle. We and our descendants may come to bitterly regret these reckless actions.

Instead of heeding the reluctance of the public to take up these new technologies government and business appear to try and devise ways to enforce their adoption.

“36. How could the tension between new technology adoption (such as biotechnology or nanotechnology) and public concerns about possible associated risks best be managed?”Page 47

³⁸ <http://www.actionbioscience.org/biotech/altieri.html>

³⁹ <http://www.gmwatch.org/latest-listing/1-news-items/13147-drought-tolerant-gm-corn-will-not-feed-the-world>

⁴⁰ <http://www.iatp.org/documents/racing-ahead-us-agri-nanotechnology-in-the-absence-of-regulation>

The public would be far more accepting of new technologies if they were properly tested, labelled and introduced in a way that their developers bear the risk of any negative consequences and not the public at large.

Genetic Modification of plants is presented as a well understood and controlled procedure. However the 2005 study “The Mutational Consequences of Plant Transformation” by Latham et al reports:

“Transgene insertion is infrequently, if ever, a precise event. Mutations found at transgene insertion sites include deletions and rearrangements of host chromosomal DNA and introduction of superfluous DNA. Insertion sites introduced using *Agrobacterium tumefaciens* tend to have simpler structures but can be associated with extensive chromosomal rearrangements, while those of particle bombardment appear invariably to be associated with deletion and extensive scrambling of inserted and chromosomal DNA. Ancillary procedures associated with plant transformation, including tissue culture and infection with *A tumefaciens*, can also introduce mutations. These genome-wide mutations can number from hundreds to many thousands per diploid genome. Despite the fact that confidence in the safety and dependability of crop species rests significantly on their genetic integrity, the frequency of transformation-induced mutations and their importance as potential biosafety hazards are poorly understood.”⁴¹

In other words GM is a technique that alters DNA in ways that produce random outcomes and potential hazards that are poorly understood.

The general public is sensibly cautious of a technology like GM that:

- has no benefits for them (ie herbicide tolerance and insect resistance)
- is controlled by GM companies via patents. These GM companies can, and do, restrict independent testing of their GM crops.⁴²
- has reports of many negative effects on animals in GM feeding trials. They include increase in inflammation, allergy, immune dysregulation, infertility; changes to the liver, kidney, pancreas and spleen.⁴³
- has companies that stand to benefit from the product having an unhealthy control over the studies done. A review looking at Conflict of Interest has found that where at least one of the researchers was connected to the GM industry, 100% of peer reviewed studies made a favourable GM safety finding (Diels 2011).⁴⁴
- has no scientific consensus of safety. The latest review of GM safety studies noted their limited number, that most reporting favourable findings had been conducted by

⁴¹ <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1559911/>

⁴² http://www.emilywaltz.com/Biotech_crop_research_restrictions_Oct_2009.pdf
http://www.gmfrecymru.org/pivotal_papers/more_evidence.html

⁴³ <http://www.aaemonline.org/gmopost.html>
<http://www.enveurope.com/content/pdf/2190-4715-23-10.pdf>
<http://www.gmwatch.org/gm-videos/6-must-see-videos/12072-prof-gil-serali...>

⁴⁴ http://www.gmwatch.org/index.php?option=com_content&view=article&id=13151
http://www2.grist.org/pdf/gmo_conflict.pdf

the GM companies, and that the debate remains undecided at all levels. (Domingo 2010)⁴⁵

- has an assessment system where Food Standards Australia New Zealand (FSANZ) does no testing itself, commissions no testing and requires no animal feeding studies. Instead FSANZ relies on the studies done by the by the companies that own the GM crops.⁴⁶
- has such lax labelling requirements that although most processed food contains ingredients derived from a GM crop or process there are almost no food product has a GM label.⁴⁷
- has GM companies fight against labelling so shoppers have no idea of what they are eating.⁴⁸
- is owned by a handful of chemical and pharmaceutical companies many of which, like Monsanto, have a long history of producing unsafe products that have polluted harmed and killed enormous numbers of people.⁴⁹
- is based on patenting and controlling genes which were previously unpatentable⁵⁰. They used to be part of the global commons. This is a major transfer of wealth, power and opportunity from the public to private companies.

This is in spite of the fact that the basis for patenting individual genes appears invalid as the genome is more complex than initially thought.⁵¹

- is happening in an environment where the US government is aggressively promoting GM crops in spite of intense and sustained opposition from many governments and their citizens. The Wikileaks cables show the extent of the problem.⁵²

Therefore in the absence of adequate scientific data, regulation, labelling, corporate responsibility or government oversight it is entirely reasonable that people reject these

⁴⁵ <http://gaiapresse.ca/images/nouvelles/28563.pdf>

⁴⁶ <http://www.foodstandards.gov.au/consumerinformation/gmfoods/frequentlyas...>

⁴⁷ http://www.foodstandards.gov.au/srcfiles/Standard_1_5_2_GM_v120.pdf,
<http://www.madge.org.au/labelling-review/MADGE-labelling-review-submissi...>,
<http://www.madge.org.au/labelling-review/MADGE%202nd%20round%20submissio...>

⁴⁸ <http://www.nature.com/nbt/journal/v21/n1/full/nbt0103-6a.html>
<http://www.thehindu.com/sci-tech/agriculture/article822265.ece>
<http://www.commondreams.org/headlines03/0708-10.htm>
<http://www.monsanto.com/newsviews/Pages/food-labeling.aspx>

⁴⁹ <https://www.msu.edu/~howardp/seedindustry.html>
<http://www.spinifexpress.com.au/Bookstore/book/id=205/>

http://www.foe.co.uk/resource/reports/who_benefits_from_gm_crops.pdf

⁵⁰ http://en.wikipedia.org/wiki/Gene_patent

⁵¹ <http://www.nytimes.com/2007/07/01/business/yourmoney/01frame.html>

⁵² <http://www.truth-out.org/new-wikileaks-cables-show-us-diplomats-promote-genetically-engineered-crops-worldwide/1314303978>

technologies. It would be refreshing to have these serious concerns addressed. Instead the paper seems to imply that these concerns can be “managed” away.

29. What would encourage more innovation in the food industry?

There is a huge reworking of the global food industry already underway. The easiest way to encourage this is to ensure that governments of all levels allow it to emerge by not unduly restricting it with inappropriate laws or lack of research.

Agroecology is making enormous strides in feeding people and restoring the environment

“Based on an extensive review of recent scientific literature, the report demonstrates that agroecology, if sufficiently supported, can double food production in entire regions within 10 years while mitigating climate change and alleviating rural poverty.”⁵³

“Agroecology is a scientific discipline that uses ecological theory to study, design, manage and evaluate agricultural systems that are productive but also resource conserving. Agroecological research considers interactions of all important biophysical, technical and socioeconomic components of farming systems and regards these systems as the fundamental units of study, where mineral cycles, energy transformations, biological processes and socioeconomic relationships are analyzed as a whole in an interdisciplinary fashion.”⁵⁴

There are also extremely successful local food systems developing that create better fed people, local economies and social harmony:

- Growing Power, based in Milwaukee, Wisconsin, produces a million pounds of organic food on 3 acres a year.⁵⁵
- A US report shows that modest support of the emerging food system would create jobs, keep money in local economies, promote community development, and can reduce the environmental and public health costs of the food. The report suggests the following policy changes:
 - Increase funding for programs that support local and regional food systems.
 - Raise the level of research on the impacts of local and regional food systems.

⁵³ <http://www.srfood.org/index.php/en/component/content/article/1-latest-news/1174-report-agroecology-and-the-right-to-food>

⁵⁴ http://nature.berkeley.edu/~agroeco3/what_is_agroecology.html

⁵⁵ <http://foodfreedom.wordpress.com/2011/08/24/will-allen-and-a-million-pounds-of-organic-food-on-3-acres/>

- Restructure the safety net and ensure credit accessibility for local food system farmers.
 - Foster local capacity to help implement local and regional food system plans.
 - Support the realization of farmers market certification standards.⁵⁶
- Australia has a similar emergence of local food systems, farmers markets and box schemes. In the recent floods in Brisbane’s Food Connect box scheme was able to supply food to people where the major supermarkets couldn’t.

“The Rocklea Markets were taken out during the floods, and they are the major distribution point in SEQ. ... Food Connect went through unabated and actually ended up with excess produce and, in the process, also managed to supply 3,000 meals over the weekend and delivered ice to all the areas with no power. ... This shows the strength of local family farms having a direct network to their consumers and the advantages in by-passing the major supermarkets. The sheer power of the major logistics chains, owned by the big supermarkets, clearly didn’t cut it in times of emergency.”⁵⁷

Food Connect is cheaper for the customer and earns far more for the farmer than using the large supermarket chains. For every \$1 spent at Food Connect \$16.83 of social value was created for the community.⁵⁸

- Allowing people land on which to grow food also leads to positive social outcomes. A community allotment for local residents in Leigh, Greater Manchester, is “thriving, and local police are amazed to find that anti-social behaviour has fallen by over 50% in the area.”⁵⁹
- Actively ending hunger and ensuring the poor can be well nourished can be achieved by government. The city of Belo Horizonte did this by creating an agency to design and implement a new food system.⁶⁰

“It offered local family farmers dozens of choice spots of public space on which to sell to urban consumers, essentially redistributing retailer mark-ups on produce—which often reached 100 percent—to consumers and the farmers. Farmers’ profits grew, since there was no wholesaler taking a cut. And poor people got access to fresh, healthy food.” “

“In addition to the farmer-run stands, the city makes good food available by offering entrepreneurs the opportunity to bid on the right to use well-trafficked plots of city land for “ABC” markets, from the Portuguese acronym for “food at low prices.” Today there are 34 such markets where the city determines a set price—

⁵⁶ http://www.ucsusa.org/food_and_agriculture/solutions/big_picture_solutions/market-forces.html

⁵⁷ <http://communitygarden.org.au/blog/2011/03/06/floods-2/>

⁵⁸ <http://brisbane.foodconnect.com.au/about-us/our-social-return-on-investment/>

⁵⁹ <http://wakeup-world.com/2011/08/16/gardening-allotments-lead-to-staggering-51-fall-in-anti-social-behaviour/>

⁶⁰ <http://www.yesmagazine.org/issues/food-for-everyone/the-city-that-ended-hunger>

about two-thirds of the market price—of about twenty healthy items, mostly from in-state farmers and chosen by store-owners. Everything else they can sell at the market price.”

“Another product of food-as-a-right thinking is three large, airy “People’s Restaurants” (Restaurante Popular), plus a few smaller venues, that daily serve 12,000 or more people using mostly locally grown food for the equivalent of less than 50 cents a meal.”

Regarding food as a human right and providing everyone with access to nutritious food helps everyone.

- Young farmers in the US are joining up to carve out a system that works for them.⁶¹ Since the average age of farmers in the developed world is over 50 this is a vital development⁶². Farmers must be able to see an enjoyable and viable future for themselves and their families.
- Entrepreneurial farmers are creating opportunities for themselves and their communities. US farmer Joel Salatin explains how to create a thriving local food system.⁶³

There are also groups linking up small farmers worldwide and supporting their interests in their region. They include:

- Via Campesina⁶⁴
- Navdanya⁶⁵
- Nyeleni Europe⁶⁶

They are working towards food sovereignty and security. Australia would be wise to do the same.

Conclusion

The global food system is no longer a market system. Peak oil and other constraints will radically alter our ability to run our current food system. Technologies such as GM and nanotechnology cannot solve the complex issues we face. They appear to add new threats and dangers.

Many communities, farmers, groups and individuals are already working on food systems that will mitigate the threats posed by the above issues. It would be wise if the Australian government assisted their development.

⁶¹ <http://www.serveyourcountryfood.net/static/manifesto>

⁶² <http://www.prb.org/Articles/2000/TheGrayingofFarmers.aspx>

⁶³ <http://foodfreedom.wordpress.com/2010/06/12/joel-salatin-shows-oz-how-to-have-a-thriving-local-food-system/>

⁶⁴ <http://viacampesina.org/en/>

⁶⁵ <http://www.navdanya.org/>

⁶⁶ <http://nyeleni2011.net/>