

Submission to the GM review panel by Madge.

August 2007

Who is Madge?

Madge is a network of people, especially mothers, who are very concerned about GM food. We formed after the announcement on Mothers' Day 2007 that the State Government would review the ban on growing GM canola in Victoria.

We have grown quickly, which reflects the disquiet in the community about GM food and the presence of unlabelled GM products in the food chain.

We have members living in the:

- Inner city
- Rural towns
- Biodynamic small holdings
- Broadacre farms

Madge will address the economic effects of both ending and continuing the ban on growing GM canola in Victoria.

Why grow GM crops when there is a demonstrated lack of demand for them?

Over the eleven years since the introduction of GM crops and food there has been strong worldwide opposition to them. The 2004 Victorian moratorium on growing GM canola was introduced in recognition of that fact:

"We do not believe it is the appropriate time to introduce commercial scale GM technology to Victorian farms and risk overseas markets when Victoria's largest rural exporter and Australia's two major grain exporters have reservations."

and

"Many parts of the Middle East have serious reservations about importing crops from GM growing areas and the Government does not want to jeopardise such key Victorian markets," Steve Bracks, former Victorian Premier.⁽¹⁾

Since 2004 nothing has changed in that there is continued rejection of GM crops and food in both domestic and export markets. Japan, the Middle East and Europe are especially strong in their GM-free requirements.

Domestically, there is no market for GM foods. The claimed increase in support for GM food in a recent poll was due to the misleading nature of the questions. They were phrased to imply that GM would solve many agricultural and nutritional problems. The question asked in other polls: *"How likely would you be to eat GM food" with a choice of very unlikely, unlikely etc...* was absent. This is an example of push polling and is therefore not credible. ⁽²⁾

In contrast Victorian dairy companies recognize that their customers still do not want GM products. In response to the United Dairyfarmers of Victoria lifting their ban on using GM feed in June 2007, Ian MacAulay Chairman of **Murray Goulburn** stated:

*“We will respect the decision of the industry as to how it goes forward, but **Murray Goulburn’s** policy on being GM free will remain.”*

National Foods spokesman Rupert Hugh-Jones said that the most important message was that consumers could be assured National Foods products were GM free.

Tatura Milk Industries, Warrnambool Cheese and Fonterra have likewise confirmed the systems they have in place guarantee the milk they process is GM free, and don't plan to change that in the foreseeable future.

Tatura Milk Industries managing director Maurice Van Ryn said its inflexible stance on GM was dictated by the sensitivity of its product mix that includes infant milk formula for the Japanese market. (3)

In assessing economic concerns this panel must address the fact that the opposition to GM food is still deep and widespread. GM crops are reversing the normal rules of supply and demand. Customers demand GM free and yet agribusiness increasingly wants to supply GM crops.

Why not supply the increasing demand for clean, green GM free food?

Demand for organic and other 'whole system' chemical-free, GM-free food is increasing exponentially. Customers are becoming increasingly interested in knowing where their food comes from, how it is produced and even who is producing it.

This has created an explosion of vibrant, diverse and mouth-watering food choices in Victoria. There are now over 50 farmers markets in Victoria, up from none less than a decade ago. (4) Gourmet trails around the Mornington Peninsula, Gippsland and the Daylesford and Macedon ranges combine food with tourism (5). A Melbourne restaurant has designed its whole menu around food sustainably-grown within a 100 mile radius. (6)

Niche food producers are working together to both create and benefit from the agricultural reputation of an area. They value add to basic crops and support and secondary industry of tourism. This provides local, profitable work in rural areas while enlivening the cultural life of a district. Local, interstate and international tourist dollars are attracted by Victoria's enviable reputation as a source of quality sustainably-grown food (7).

The market has shown a clear shift towards demand for clean, green, locally produced food. In response to the arrival of GM more than 175 companies in Australia now label their food as GM free. Murray Goulburn Cooperative, with 35% of Australian dairy goods production, has a policy of specifying 95% GM free stock feed to satisfy its export and domestic markets. Maintaining GE free canola has created record profits for Australian canola growers. (8)

Australia has a natural advantage in that it has the largest area of land under organic production in the world. Demand is growing worldwide and there are supply shortages. In addition there are proven increased profits for farmers in organic

production (9). Why jeopardize this market driven diversity and prosperity for the sake of imposing GM canola?

Why would farmers want to grow GM canola?

The main arguments used to promote GM crops are:

- They are more profitable for farmers
- They increase yield
- They reduce pesticide use and therefore are beneficial for the environment

These arguments were used in the recent letter from the Victorian Farmers' Federation (VFF) to farmers. They claimed that farmers are being disadvantaged by the ban on GM canola:

Profitability

"If we look to Canada for an example of opportunity costs associated with the moratorium we see that they have enjoyed a yield benefit of over 10% on average and a resulting profitability increase of \$22/ha - \$45/ha." (10)

The VFF's letter quotes one of two reports prepared by PG Economics Ltd., UK on behalf of ISAAA and Agricultural Biotechnology in Europe (ABE), which are both biotech associations. The full report however goes on to say:

"Cost of production (excluding the cost of the technology) has fallen, mainly through reduced expenditure on herbicides and some savings in fuel and labour. These savings have annually been between about \$25/ha and \$32/ha. The cost of the technology has however been marginally higher than these savings resulting in a net increase in costs of \$3/ha to \$5/ha." (11)

Therefore the increased profitability of GM crops has been revealed as an illusion by the very report cited to promote their adoption.

Yield

Increased yield is not guaranteed by growing a GM crop. Commercial GM crops have only two traits:

- Insect resistance
- Herbicide resistance

Neither of which increase yields, in fact there has been yield drag recorded in some GM crops (12). Yield is reliant on many factors including good climatic growing conditions. As evidence of this we can look at the example of GM cotton crops grown in Australia over the last ten years:

"Unlike the other main countries using GM IR cotton, Australian growers have not derived yield gains from using the technology."
University of New England study from 2003 (11)

Pesticide use

The third advantage of growing GM crops is stated to be that they need less chemical inputs. In Australia, they have added to farmer expenses:

"The herbicide active ingredient/ha load on a GM HT (herbicide tolerant) Cotton crop has been about 0.11 kg/ha higher (at 2.87 kg/ha) than the conventional cotton equivalent crop" (11)

Additionally, because of the development of resistance of weeds to repeated spraying of herbicides, it appears that both a larger quantity of herbicides and more toxic sprays will be required to control weeds:

"The impact of GM HT traits has, however contributed to increased reliance on a limited range of herbicides and this poses questions about the possible future increased development of weed resistance to these herbicides.... this will increase the necessity to include low dose rates applications of other herbicides in weed control programmes... may reduce the level of net environmental and economic gains derived from the current use of the GM technology." (11)

This will negate any initial, but short-lived, environmental benefit from the introduction of GM canola.

The economics for GM crops are far from straight forward. In the absence of demonstrated yield gains and long term reductions in the use of chemicals, farmers' profits would be heavily reliant on the cost of seed and chemicals. These costs are not within the control of farmers but are determined by the agrochemical companies themselves.

Will the introduction of GM canola cause contamination?

Contamination occurs in three areas:

- Seed production
- Crop production
- Commodity trading and food processing

Seed contamination

Seed contamination results from cross-pollination, accidental seed mixing and contaminated machinery.

"The contamination of North American seed resources has become a serious nationwide problem" (13)

Organic and non-GM canola farmers in Canada have found it so difficult to source uncontaminated seed that most organic farmers have given up growing canola altogether.

Genetic resources have also been compromised by GM contamination. In March 2001 the Northern Plains Sustainable Agricultural Society (NPSAS) found that the North Dakota State University had run GM wheat trials next to its "foundation seed stock" plots. Foundation seed stock programmes are designed to maintain, increase and distribute genetically pure seed of established and new cultivars.

The University responded that *"There can be no guarantee that GMO DNA has not been introduced (into the seed stock plants)."* (13)

Crop contamination

Crop contamination occurs through wind (GM canola has extremely fine pollen), insect pollination, animal activity (including birds), the spillage of seed along transport routes and by flood water. It also occurs through using machinery such as combines, trucks and silos for both GM and non-GM crops.

Finally, if a non-GM crop is planted in a field that previously contained a GM variety then contamination through volunteers (plants self-seeded from the previous year) is inevitable. GM canola is a high risk crop for crop-to-crop gene flow. (13)

The Victorian Farmers Federation, in a recent form letter to its members, denied that there would be an issue with co-existence between GM and non-GM crops. They use as evidence two reports prepared by PG Economics Ltd., UK on behalf of ISAAA and Agricultural Biotechnology in Europe (ABE), which are both biotech associations.

Whilst claiming to be impartial: "*the authors acknowledge that a funding contribution towards the researching of this paper was provided by Agricultural Biotechnology in Europe*" (14).

The report claims:

"...*canola grown in North America, have co-existed with conventional and organic crops without significant economic or commercial problems.*" (14)

Yet in the same report Brookes says "*It is unrealistic to expect 100% purity for any crop/product.*"

Therefore it is clear this report does not deny that cross contamination between modified and conventional crops has and will continue to occur.

Commodity and food contamination

StarLink Bt maize

In September 2000, it was discovered that taco shells on sale contained the Cry9C protein, indicating the presence of StarLink corn. This corn had not been authorised for human consumption due to concerns that the Cry9C novel protein was an allergen.

StarLink was authorised as an animal feed. Although only 1% of the US corn harvest was StarLink it became mixed with and contaminated nearly half the national corn supply that year.

Nearly 300 food products had to be recalled. The US Department of Agriculture and Aventis, the company that developed the corn, bought back the GM corn at above market rate. Many people, who suffered allergic reactions to Starlink, sued Aventis. The court case and the buy back of the corn have cost Aventis an estimated US\$1 billion. (15)

Allergic reactions, some severe, loss of confidence in the food system, class actions and economic failure has been the result of the contamination of the food chain by a GM corn. No other crop has produced this kind of devastation.

Who benefits from and who pays for the contamination caused by the introduction of GM canola?

Agricultural Biotech Companies benefit

As detailed in the previous section the “choice” of one farmer to grow GE canola permanently removes the choices of his neighbours to grow non-GE or organic canola. This removal of choice has greatly benefited GM agribusiness.

In 1998, Percy Schmeiser, a canola farmer from Saskatchewan, was sued for infringing Monsanto’s patent by growing GM canola without a licence. The company eventually admitted that Schmeiser had not “brownbagged”. That is Schmeiser had not saved seed without a licence.

Monsanto claimed over 90% of his crop was GM. Independent tests found varying levels of GM canola from zero per cent in most samples but one had over 60%. Schmeiser said he had planted seed saved from the previous year. A neighbour had grown GM canola that year and Schmeiser believes his crop was contaminated by the neighbouring crop.

In March 2001 the court ruled that the “*source of the Roundup Resistant canola (GM canola) ...is really not significant for the issue of infringement*”.

This means that even though Monsanto’s canola had polluted his crop, Schmeiser was liable to pay Monsanto. Schmeiser was left with a bill of \$600,000. This comprised \$250,000 in legal fees, \$105,000 in profits that Monsanto claim Schmeiser made on the 1998 crop, \$13,500 for the technology fees to the company and \$25,000 in punitive damages. (16)

Given the inevitability of contamination and the severe financial penalties imposed by the courts, many North American farmers have bought GM seed purely to avoid being sued. This has benefited the agricultural biotech companies but brought no advantages to farmers.

Farmers lose choice and profits

Marc Loiselle, an organic farmer from Saskatchewan, received inquiries from an Asian buyer for organic canola. The price for organic canola was offered as \$18/bushel compared to \$7/bushel for conventional canola. Loiselle knew it would be impossible to keep the crop free of GM contamination because of the nearby GM canola fields.

If he had taken up the contract he would have sown 130 acres to canola. He estimated a yield of 12 bushels/acre as there was a drought. This would have meant an income of \$28,080. Instead he planted barley which earned him \$4,160. This meant a drop in his income of \$23,920. (17)

The reports cited in the letter from the VFF offers two answers to accidental cross contamination:

- to not differentiate between GM and non-GM crops. Thus no separation or labeling of products
- to raise the allowable amount of genetic contamination found in non GM crops. Thus weakening the current high organic standards and removing the ability of farmers to sell non-GM crops.

Neither of these so called solutions is acceptable. They would be very unfair to non-GM farmers removing both their choice of crop and the premium prices associated with organic and GM-free crops.

Economic loss, permanent loss of choice of crops and type of cultivation and the risk of disputes between farmers over GM contamination will create a legal and logistical nightmare of:

- Liability and insurance issues;
- Coordination with other canola growing States;
- Practical issues about implementation of GM free zones within Victoria;
- The difficulty of sufficient segregation to avoid cross contamination between GM and non-GM canola;
- Sensitivities regarding GM canola in some export markets, including Europe.

The introduction of GM canola therefore offers nothing to farmers beyond the pyrrhic victory of choosing a crop no one wants. Once introduced, it will inevitably out-cross with previously non-GM canola, wild radish and other brassicas, ensuring irretrievable, on-going, living GM contamination of those species.

Consumers pay more and lose choice

As previously discussed, most consumers, both domestically and worldwide, do not want GM crops or food. Therefore there is a market for segregating, testing and labelling GM-free food. This adds additional costs to food that were simply not necessary before the introduction of GM food in 1996.

The difficulty of implementing segregation and maintaining it over time is obvious from the discussion about contamination. Eventually people stop buying crops they do not trust to be GM-free:

“Here in Canada, where we invented canola, there is no longer any organic grain available. Now you either eat GE canola or no canola (which is what we eat), which is unfortunate because canola oil is one of the healthiest.” Canadian resident (18)

Food costs in general will rise to cover the increased costs of production caused by GM testing and labelling. Therefore the consumer will be paying for the opportunity to avoid a crop whose introduction they did not want and whose products they do not wish to eat.

Why is there continuing resistance to GM crops and food?

Opposition to GM crops and food is labelled as unscientific and unjustified by GM promoters. However investigation reveals there have been no adequate, independent, long term, multi-generational feeding studies of these foods. Therefore there is no evidence whatsoever that they are safe.

In May 1992 the Food and Drug Association (FDA) in the US decided that most of the foods produced by Genetic Modification should be regarded and regulated as if they were foods produced by traditional methods.

Unless there are major changes in nutrient composition or there are specific proteins known to cause allergic reaction, GM foods in the US do not need a pre-market approval process, public notification or testing.

The GM companies themselves decide when and whether to consult with the Food and Drug Association (FDA). The GM companies conduct safety tests on their own products and only notify the FDA if they suspect a problem. (19)

When Food Standards Australia and New Zealand (FSANZ) is asked by a GM company to approve a GM food here in Australia they look at the data supplied by the company itself. FSANZ does none of its own safety testing.(20)

A pro-GM website has a list of 60 abstracts of scientific papers and uses these as evidence that GM crops are safe to eat. A review of this list was conducted. (21)

The review eliminated papers not published in peer reviewed scientific journals. Next it eliminated studies that were not relevant to human health i.e. the effect of eating GM silage when humans do not eat silage, where animal production measures such as milk production were studied or where animals dissimilar to humans were used i.e. chickens, cows and pigs.

Then the details of measurements, materials and methods of the studies were examined. This is only available from the full paper. Finally the independence of the institutions and scientists were examined. A high proportion of GM studies have been conducted by employees, people or institutions funded by the GM companies. Not all GM company sponsored research acknowledges funding sources. This is a concern as recent evidence from the medical literature has shown that published research funded by an industry body tends to be favourable to that industry body.

Nine abstracts remained at the end of the above process. Six abstracts showed adverse effects: GM potatoes could harm the liver and gastrointestinal tract and GM soy could adversely affect the liver and pancreas. One paper found that GM DNA from corn was detectible in the guts of pigs' up to 48 hours after eating. This makes it available for uptake into tissues and gut bacteria.

Three studies found no adverse effects. They studied the development and function of mouse testes from eating GM corn, some biochemical measurements from eating GM potatoes and some pathology, haematology, biochemistry and urine measurements from eating GM soy.

The review concluded that the list of abstracts does not support the claim that GM crops are safe to eat. On the contrary it provides evidence that GM crops may be harmful to health. (21)

Increased death rates and stunting of offspring of rats fed GE soy.

Dr Irina Ermakova, a leading scientist at the Institute of Higher Nervous Activity and Neurophysiology of the Russian Academy of Sciences (RAS) conducted research on rats and their offspring in 2005.

The study was published in the peer reviewed journal, *Ecosinform* (22). It was also presented at the Epigenetics, Transgenic Plants and Risk Assessment Conference in Frankfurt am Main December 2005. (23 and 24)

Female rats were fed GE soy and normal soy before conception, during pregnancy and while nursing. The mother rats fed GE soy had 55% of their pups die compared to 9% of the offspring of the mothers fed normal soy. That is pups of mothers fed GE soy died at six times the rate of the pups of rat mothers fed normal soy (23).

They were also six times more likely to be stunted.

This appears to be one of less than a handful of intergenerational feeding studies. It seems to be the only one where the rats were fed GM food prior to conception.

Consumers are not acting without thought or unscientifically when, faced with food that produces this result in laboratory animals, they decide not to buy it or eat it.

CSIRO GM field peas produce allergies in mice

CSIRO spent 10 years developing a field pea that would be resistant to weevil attack. They transferred a gene from beans that block the activity of an enzyme for the digestion of starch.

The subtle difference of the protein expressed by peas rather than beans meant that it became an allergen. Mice fed GM peas had increased antibodies in their blood stream. Mice treated with an aerosol of the GM peas had increased levels of lung inflammation.

This shows that gene expression in different plants is impossible to predict. There is doubt about whether the allergen would have been picked up in the approval process for foodstuffs as feeding trials are not usually conducted. (25)

GT 73 canola caused 15% increase in liver weights in rats.

Monsanto's GT73 canola was released commercially in Canada in 1995.

Monsanto wanted to export it into the EU in 1998. The European Food Safety Authority's (EFSA) Scientific panel on GMO's gave approval for its import. The EFSA did no independent testing but relied on the information supplied by Monsanto.

In spite of this recommendation, the EU Regulatory Committee did not authorise its use as the majority of EU countries were concerned about the safety of GT73. They were not satisfied by the data on the feeding trials supplied by Monsanto.

The trials were criticised for:

- Being very short
- Not adequately explaining why rats fed GT73 showed an average liver weight gain of 15% compared to control rats. The explanation of an increase in glufosinolates was unconvincing as it was only one third of the official level of concern as measured by Codex
- Not doing follow up tests to establish the root cause of the liver weight gain in the rats.
- Not investigating molecular changes at the insertion site of the host genome

- Not testing proteins from GT73 canola for mammalian toxicity and environmental safety. Instead proteins from bacterial enzymes were assumed to be identical and were tested instead. (26 and 20)

GT73 has been passed for growing in Victoria by Office of the Gene Technology Regulator and passed as safe for human consumption by FSANZ, yet the member states of the EU voted not to allow its use in Europe.

While there is uncertainty about the health effects of GM food we are not prepared to feed it to our families.

Where is the evidence of GM foods causing harm?

Farmers have reported death, sterility and illness from animals fed on GM feed. Animals are also reported to refuse GM feed (27). There appears to have been no formal studies to investigate these reports.

York Nutritional Laboratory has found that since the introduction of GM soy into the UK, allergies have jumped 50%. Soy is now in the top 10 list of allergens. (28)

StarLink GM corn caused allergic reactions in the general public in the US and resulted in the recall of 300 food products. (15)

Are health and economic factors inextricably linked?

This review is limited to assessing the economic effects of either lifting or extending the ban on growing GM canola in Victoria.

Mattel and Fisher Price recently had to recall toys made in China because toxic lead paint had been used in their manufacture. Chinese food exports have also been found to be contaminated with toxic substances. These recalls have caused losses both economic and to the reputations of the companies involved.

Therefore, it is obvious that health issues cannot be divorced from economic issues. They are intimately and inextricably linked.

Individuals also make economic decisions regarding their health. Many medical conditions require dietary awareness. Those who suffer from food allergies, Crohn's disease, chronic fatigue, autism and many other conditions change their diet to benefit their health. GM food has not been shown to improve anyone's health. The studies listed referred to in this submission suggest the opposite.

Finally, the overall health and well-being of current and future generations is a massive economic issue and needs to be treated accordingly by this inquiry. If the introduction of GM canola leads to widespread public health problems this would be a huge economic and social disaster.

Conclusion – will the introduction of GM canola economically benefit Victoria?

There is a demonstrated lack of demand for GM crops and food both domestically and worldwide. In contrast there is an increasing demand for clean, green, GM free food. Victoria is in a very good position to supply both the local niche markets and the international demand for GM free broadacre crops.

The arguments for adopting GM crops; that they increase yield, are more profitable and reduce pesticide use, have all been shown to be based on assertion and not evidence.

GM canola in North America has contaminated the environment to such an extent that farmers can no longer choose to grow GM-free canola. The only beneficiaries of this are GM companies. Farmers and consumers are faced with a lack of choice, loss of premium markets, a restriction in what they can buy and the additional costs of inadequate segregation, testing and labelling.

The irreversible nature of releasing living, self-replicating, genetically polluting plants into the environment should not be underestimated. Glib estimates of an increase in profits through the introduction of GM canola, in spite of global rejection of this technology, should be treated with caution.

This on-going resistance of consumers to GM foods appears to have scientific backing. Feeding studies have shown a variety of negative health effects, some severe, on laboratory fed animals.

The increase in soy allergies, mass reactions to StarLink GM corn and numerous reported problems with GM fed livestock show that urgent studies are required into the safety of GM food and crops.

Health and economic factors are inextricably linked. With an essential commodity like food there is no room for mistakes.

Therefore it is obvious that the moratorium on growing GM canola must be extended to 2013. Independent studies need to be done on GM food and crops. Labelling and testing of GM foods must be monitored and enforced.

The demand for clean, green, GM-free food is a developing and lucrative market that Victoria can expand into. This is the only way to safeguard and enhance the economic performance of Victoria's agricultural interests.

References

(1) Victorian Government media release 25th March 2004

(2) In the recent Biotechnology Australia survey participants were asked the following questions:

Q4. Now I'm going to ask you about different objectives of genetically modifying plants to produce food. I'd like you to tell me how valuable you feel these objectives are to individuals or society. Please tell me whether you think these objectives are very valuable, somewhat valuable, not very valuable or not at all valuable. So what about genetically modifying plants...

- (i) to make the food healthier
- ii) to make the food last longer
- (iii) to make the plants herbicide tolerant
- (iv) to make the plants pest resistant
- (v) to make the plants frost resistant
- (vi) to make the plants mature more quickly
- (vii) to make plants drought resistant
- (viii) to make the food cheaper

(With the exception of herbicide tolerance and limited success with pest resistance- none of these crops are a commercial reality)

Q6. Thinking about the environmental problems that society currently faces, would you be in favour of...

- 1) Using only natural or traditional methods of agriculture and environmental management OR
- 2) Pursuing only technologies made available through advances in gene technology OR
- 3) Pursuing all avenues available

The full list of questions is at the back of the report on the Biotechnology Australia website.

Notably absent was the question that has been there in previous years:

"How likely would you be to eat GM food" with a choice of very unlikely, unlikely etc...

(3) Stock and Land, 28th June 2007

(4) White Hat Guide to Farmers' and Growers' Markets in Victoria
www.whitehat.com.au/Victoria/Markets/Farmers.asp

(5) Gippsland Gourmet Deli Trail, Victoria <http://au.travel.yahoo.com/great-outdoors/australia/victoria/gippsland/gippsland-gourmet-deli-trail-victoria.html>

- Local produce in Daylesford and the Macedon Ranges
<http://www.visitmelbourne.com/displayObject.cfm/ObjectID.0008D0D8-3CA3-1A5D-BC6180C476A90000/vvt.vhtml>
- Mornington Peninsula food map
http://www.visitmorningtonpeninsula.org/pdf/map_food.pdf
- (6) 100 mile café <http://www.bestrestaurants.com.au/restaurants/VIC-Melbourne-100milecafe.aspx>
- (7) Prom Country Slow Food Winter Festival
<http://www.sustainablelivingcalendar.org.au/index.php?page=calendar&subpage=events&eid=190&id=551>
- (8) ABARE canola price statistics – see enclosed
- (9) D.D. Treadwell, Organic Vegetable Production, University of Florida
<http://edis.ifas.ufl.edu/CV118>
Demand for Organic Food Exceeds Supply, Associated Press, July 2006
<http://www.foxnews.com/story/0,2933,202433,00.html>
Don Comis, Growers can make more money by going organic. July 2006
<http://www.ars.usda.gov/is/pr/2006/060725.htm>
- (10) Letter from VFF to GM Canola Review Panel Secretariat
- (11) Graham Brookes and Peter Barfoot *GM Crops: The First Ten Years - Global Socio-Economic and Environmental Impacts* PG Economics Ltd., UK ISAAA 2006
- (12) Benbrook, C.M. (1999) Evidence of the magnitude and consequences of the Roundup Ready soybean yield drag from university-based varietal trials in 1998, Ag BioTech InfoNet Technical Paper Number 1,
http://www.biotech-info.net/RR_yield_drag_98.pdf
- (13) Seeds of doubt: North American farmers' experiences of GM crops. Soil Association, Bristol, 2002 p25-7 (see enclosed copy)
- (14) Graham Brookes, *Co-existence of GM and non-GM crops: current experience and key principles* PG Economics 2004
- (15) Seeds of doubt: North American farmers' experiences of GM crops. Soil Association, Bristol, 2002 p33
- (16) Seeds of doubt: North American farmers' experiences of GM crops. Soil Association, Bristol, 2002 p48
- (17) Seeds of doubt: North American farmers' experiences of GM crops. Soil Association, Bristol, 2002 p29
- (18) Don Maroc, Canadian resident, private communication, August 2007
- (19) Luke Anderson, *Genetic Engineering, Food and our Environment: A brief guide*, Scribe Publications, Melbourne, 2000 p113-4
- (20) Dr Judy Carman, *Is GM food safe to eat?* www.iher.org.au

(21) Dr Judy Carman, *Report on a List of Abstracts on GM crop safety* July 2006
see attached

(22) <http://www.seedsofdeception.com/DocumentFiles/120.pdf>

(23) Proceedings of the Conference “Epigenetics, Transgenic Plants and Risk Assessment” 1st December 2005, Frankfurt am Main, Germany
<http://www.oeko.de/oekodoc/277/2006-002-en.pdf> p41-7

(24) “It is the only published research in which female rats fed GE feed prior to conception. Other studies introduced GE feed after conception that may miss toxic effects to reproductive organs, eggs and sperm. (*The study was repeated 3 times between June and October 2005 with similar results*).

The study is preliminary, the number of rats was small, the feed was not evaluated, and the organs were not analysed. But given the enormous implications, immediate replication, and expansion of the study is the only responsible option. According to Ermakova, however, she and her colleagues were forced to stop all GMO studies by the Institute’s administration, who were put under pressure by the Presidium of the Russian Academy of Sciences.”

<http://www.seedsofdeception.com/DocumentFiles/120.pdf>

(25) CSIRO *GM pea study backs case-by-case assessment* November 2005

<http://www.csiro.au/news/pssp.html>

GM peas cause immune response – A gap in the approval process? January 2006

<http://www.gmo-compass.org/eng/news/stories/175.html>

(26) Institute of Science in Society *No to GM oilseed rape GT73* September 2004

<http://lists.ifas.ufl.edu/cgi-bin/wa.exe?A2=ind0409&L=sanet-mq&T=0&P=13503>

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(28) Jeffrey M. Smith, *Seeds of deception: Exposing Industry and Government Lies About the Safety of the Genetically Engineered Foods You’re Eating*, Scribe Publications, Victoria 2004 p159-161

