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The Natural Law Party (NLP) of South Australia Submission to the Standing Committee on Primary Industries & Regional Services, Inquiry into Primary Producer Access to Gene Technology

Opening Remarks

The Natural Law Party is registered and active as a political party in 80 countries in the world.

It has taken a leading role globally in opposing the development of genetic modification in food and has consistently called for a ban on such development until such time as it can be scientifically proven to be completely safe for humans and to the environment. Serious issues are simply not being addressed in the rush to keep ahead of the field in the biotech race. The biotech companies can be seen feverishly working to stake a pre-eminent claim on the world's food supply.

The Natural Law Party is able to claim to be highly informed on all issues relating to the GMO\ non-GMO food debate, having been continuously and deeply involved in this issue for the past 4 years.

This is a time when consumer resistance to GM food is dramatically rising in Britain, Europe, the U.S., Japan, South America, and also now in Australia. When giant food companies such as Unilever and Nestle are withdrawing their acceptance of GM foodstuffs, we ask does it make economic sense for Australia to heavily involve itself in this technology.

Right now, unless the government is already captivated by the vested interest of biotech companies and intends to support the industry regardless of consumer resistance, one should ask the question is there, will there be a market for such foodstuffs.

All the evidence so far indicates clearly that the demand is for non-GMO foods – the NLP asserts that Australia must adopt a position as the pre-eminent world supplier of clean, pure, non-GMO agricultural commodities and foodstuffs.

In a recent interview which the NLP was privy to, a major European food importing consortium responsible for the importation of over 20% of the entire foodstuffs requirements for the UK and Europe stated their intention to directly oppose the biotech companies' attempts to push GMO food. They will also directly oppose the government of the day if they supported GM food, and publicly stated to significant Australian agricultural supply interests that if Australia wants GMO it was "mad".

This was not an expression relating to a personal novel position on the issue, rather a consumer driven response by a profit driven giant food retailing consortium.

The health risks to our citizens, the prospects of an environmental and ecological disaster greater than anything we've ever contemplated, the enormous litigation costs that will arise, call for greater caution and prudence in this matter. When in doubt be very conservative, especially when the effects are irreversible (referring to genetic pollution of our food supply and human DNA, as forecast by many leading scientists around the world if GM crops are allowed to spread).

In this submission, we draw your attention to a number of issues, in particular we express that:

1. The question of whether there will ever be a significant local and global market for GMO foods must be considered – surveys in Britain, Europe, Japan indicate that when consumers are given the choice 80-90% say they will not buy GM foods. In Australia, a similar percentage of people insist on full labelling so they can make a choice.
2. Contamination and risks to bio-diversity of our agricultural resources from cross-pollination by GM varieties will occur, will be irreversible and have the potential to be catastrophic.
3. Terminator Seed technology and patenting, the obvious agenda of biotech companies to monopolise all aspects of food production and its' ramifications, are awful to contemplate. See Note 1.

Giant Companies to Phase Out Biotech Foods

Environmental News Service

LONDON, UK, April 28, 1999 - The world's two largest food production companies are withdrawing their acceptance of genetically modified foodstuffs. Foods giant Unilever UK said Tuesday it would phase out genetically engineered foods, a move that was closely followed by a similar announcement by Nestle UK tonight.

Unilever, an Anglo-Dutch firm, sells over 1,000 brands of foods through 300 subsidiary companies in 88 countries world-wide with products on sale in a further 70 countries. Nestle, headquartered in Switzerland, is the world's largest food production company with 495 factories around the world.

The announcement by Nestle UK has major implications for the company's international production system, as most of its centralised production facilities produce for the entire European market and not for the UK alone.

The announcements are in response to continued demonstrations by European consumers of a strong resistance to foods containing genetically modified crops. In February, an unprecedented wave of debate on genetic technologies in agriculture swept the country, putting the government and biotechnology firms firmly on the defensive. Fears were founded on research that showed experimental rats had been harmed by eating modified potatoes.

Greenpeace spokesperson Benedikt Haerlin said the Nestle and Unilever announcements represent a major victory for European citizens. "When Monsanto's first GE (genetically engineered) soya beans were shipped to Europe Nestle, Unilever and Monsanto told us

there was no way to stop having GE ingredients in our food. Three years later they have learned that there is no way to ignore the concerns and demands of the majority of consumers,” said Haerlin.

“With Nestle and Unilever, the two biggest food producers in the world, have now broken ranks with international agro-chemical companies like by Monsanto, Du Pont/Pioneer, Novartis and AgrEvo and started a stampede out of GE food,” said Haerlin.

The UK’s Iceland Stores is opposed to the introduction of genetically modified (GM) foods and has banned all GM ingredients from their own-brand products. Other supermarkets have followed Iceland’s lead. Marks and Spencer’s own-brand products will be GM free by the end of June 1999.

Charles, the Prince of Wales, has come out against genetically engineered crops, saying, “I am not convinced we know enough about the long-term consequences for human health and the environment of releasing plants (or, heaven forbid, animals) bred in this way.”

“I suspect that planting herbicide resistant crops will lead to more chemicals being used on our fields, not fewer. But this isn’t the whole story,” the Prince said. “Such sterile fields will offer little or no food or shelter to wildlife, and there is already evidence that the genes for herbicide resistance can spread to wild relatives of crop plants, leaving us with weeds resistant to weedkiller.”

Meanwhile, Friends of the Earth UK has criticized U.S. biotech giant Monsanto for trying to use the law to deter public debate and protest over genetically modified food.

Monsanto has obtained an injunction against six named defendants. The company asked the High Court April 19 to order the defendants to hand over a mailing list of recipients of a “Handbook For Action.” The Handbook, which outlines ways of protesting against genetically engineered foods, is believed to have been sent to public figures including Prime Minister Tony Blair, Prince Charles and the Pope. Monsanto’s intention may be to target any individual or organisation who might be held to have “encouraged” direct action against genetically modified (GM) crops, by for example, publishing details of trial sites, Friends of the Earth believes.

In the United States such legal action is known as a SLAPP (Strategic Action Against Public Participation) lawsuit, a tactic sometimes used by large companies facing environmental protests.

Friends of the Earth would consider such an order a gross intrusion of civil liberties and “one which would bring our system of justice into disrepute,” the group said in a statement.

Tony Juniper, policy and campaigns director of Friends of the Earth, said, “Monsanto have lost the public arguments over GM crops, and are now resorting to legal strong-arm tactics in response. I’m not the least bit surprised, given Monsanto’s track record. They would be better advised to accept the failure of their marketing strategy and to accept the opinion of the British public who do not want GM food foisted upon them.”

The first farm to take part in the UK government’s farm scale trials of GM crops may be forced to plough up seed that it planted over the Easter weekend. Friends of the Earth is calling on the government to suspend farm scale trials of genetically modified crops at Lushill Farm, in Hannington, near Swindon, Wiltshire following revelations that AgrEvo, the company undertaking the trials, appears to have broken the law by not informing local people of its plans. AgrEvo, now plans to notify the local public.

But it has already planted GM seed on the farm and that the law requires GM seed firms to notify the public prior to planting.

GM foods - Victory for grass-roots action

It was an extraordinary scene, a fitting start to the week that surely marks the beginning of the end for genetically modified foods in Britain.

At nine o'clock last Monday morning two of the most powerful men in the global food industry turned up at a pressure group's door.

Richard Greenhalgh, chairman of Unilever UK, and Michel Ogrizek, the international head of corporate affairs for the giant multinational - the world's largest food manufacturing company - came to Greenpeace's offices in Islington, north London, in what appears to have been a last-ditch attempt to make peace. But next day the company had to admit defeat, announcing that it would stop using GM ingredients in its products in Britain.

The announcement started a week-long stampede by leading companies, all household names. The speed and suddenness of the flight from "Frankenstein foods" has surprised everyone, humiliated the Government and provided the most spectacular example to date of consumer power. Its repercussions will reverberate far beyond this country: it could prove a turning point in the battle over genetic modification worldwide.

Unilever insists that Monday's visit was just "part of a general ongoing discussion in regard to issues on genetically modified organisms". But Greenpeace recounts how it received a call from Mr Greenhalgh's office late the previous Friday, requesting an urgent meeting. It says that the company was "trying to resist going GM-free".

"Their suggestion was that some sort of full debate or discussion might be valuable," says Peter Melchett, Greenpeace's executive director. "We said that things had moved beyond that point."

Up to then Unilever had been one of the most committed proponents of GM foods - and even in defeat it insisted that its announcement did not "change our long-held belief in the potential of modern technology, including the genetic modification of food ingredients." It went on:

"This technology offers huge future benefit to customers, but the realisation of this depends on winning full consumer trust and confidence."

It's right, at least, about the last part - as it knows only too well. For the giant company was forced into its reluctant volte-face by an unprecedented onslaught from its own customers. Bemused executives describe helplines swamped by worried and angry consumers since early this year. Worse, sales of its GM soya product, Beanfeast, have slumped precipitously.

Some industry sources calculate they have fallen by 80 per cent; Unilever privately says it is "nearer 50 per cent". (The company has now promised to make it GM-free within two months.)

It is not suffering alone. Sainsbury will withdraw its GM tomato puree - the first genetically modified product to be introduced in Britain - from its shelves by June. Made from tomatoes modified to rot more slowly, it used to outsell its GM-free rival by two to one: now, says the company, "our customers do not want it".

No wonder Unilever's surprise announcement opened the floodgates. The next day Nestle, another of the world's biggest food companies, announced that it was phasing out GM products as fast as possible. The day after, Cadbury followed suit. Meanwhile Tesco, Britain's largest supermarket chain, said it would remove GM ingredients from its own-brand foods, joining Sainsbury, Safeway, Asda and Somerfield. And the Co-op will tomorrow announce changes that will make its products GM free as well.

When these phase-outs are complete, no major supermarket brands will continue to contain GM ingredients and - after last week's Unilever, Nestle and Cadbury announcements - many other foods will be free of them too.

It's an extraordinary reversal from the rapid, silent, expansion of GM foods - from nothing to 60 per cent of the products on supermarket shelves in less than three years. And it has put environmental activists into the unfamiliar position of extolling market forces.

Those same forces will spread the effects of last week's events worldwide.

For these enormously wealthy companies (Unilever's turnover alone is more than #35bn) will now start scouring the world for GM-free soya and maize, raising their prices and providing a powerful incentive to farmers to plant them. This could tip the balance in the many countries that have been facing a close-fought decision on whether to introduce GM crops: some analysts expect that many farmers will now abandon them even in the United States, their greatest stronghold.

The speed of the reversal has taken everyone by surprise - even the pressure groups which campaigned for many months before the issue caught fire early this year. What made the difference, both they and the industry say, was press coverage, including the Independent on Sunday's campaign.

And no one has been more surprised by the Government, which is now left - together with Monsanto and other bioscience companies - as just about the only supporter of GM foods. Last week's events are a major blow to its credibility, and to the personal authority of the Prime Minister who went out of his way, at the height of the controversy earlier this year, to stress his confidence in them.

This is the Government's greatest failure yet to read the public mood. Right up until last week - and in some cases even now - senior ministers were convinced that the GM foods controversy was, as Mr Blair privately told Labour MPs, just "a flash in the pan". How could an administration which is usually so successful at catching the tides of public opinion, have got so out of step?

The answer lies in Mr Blair's similarity to Tony Benn. In the 1960s Mr Benn embodied the Wilson government's faith that the "white-heat of technology" was the answer to Britain's economic problems. Mr Blair and other modernisers, like Peter Mandelson, enthusiastically adopted this Old Labour belief. They became convinced that the country's future depended on knowledge-based industries, and equated biotechnology with them.

Thus GM foods became integrated into the Blairite "project": to express concerns about them was to doubt New Labour. Blinkered by this conviction, the Government failed to spot the many early signs of impending public revolt .

It has been a damaging failure, for the episode has crystallised some of the strongest popular concerns about the Government - that it is arrogant, overinfluenced by big business and oversubservient to the United States. Ministers (with one or two honourable exceptions) have haughtily dismissed concerns about the effects of the crops on health and on the environment, parroting the reassurances of official scientific committees who have a majority of members with links to the food and biotechnology industries.

And growing anti-Americanism and hostility to multinational companies has been stoked by the US decision to mix GM and ordinary soya (so that they could not be distinguished or separated) before shipping them to Europe; by Monsanto's heavy-handedness; and by the evangelical zeal with which the Clinton administration has been pushing GM foods. But even within the White House there are signs of concern, if not change.

A few days before the Unilever announcement, at the start of an official lunch in New York, my neighbour - one of the Clinton administration's most senior environmental policymakers - turned to me and opened the conversation; "Tell me. How do we get out from under this GM mess?"

INDEPENDENT (London) May 2

Ministers told to study GM food cancer risks

By MARIE WOOLF

THE COUNTRY'S most senior doctor has told ministers to set up a special panel to examine whether eating genetically modified food could cause birth defects, cancer or damage to the human immune system.

In a confidential report to the Government, the Chief Medical Officer and the Chief Scientific Adviser have recommended that ministers set up a GM health monitoring unit, similar to the body of experts which discovered a link between eating beef from BSE infected cows and human CJD.

They believe not enough research has been done to determine whether eating GM food could cause serious health problems in humans.

The report, seen last month by the ministerial committee on genetic modification, proposes "the creation of a new unit to monitor the health effects of GMOs, similar to the unit monitoring CJD". It should examine "potential health effects" including "foetal abnormalities, new cancers, and effects on the human immune system".

Professor Liam Donaldson, the Chief Medical Officer, and Sir Robert May, the Government's Chief Scientific Adviser, concluded that "our understanding [of the effect of GMOs on human health] is still developing".

While there is no conclusive evidence, their findings will renew public concern that GM food could lead to unknown health consequences.

Scientists, including Dr Michael Antoniou of Guy's Hospital in London, have warned that genetic engineering could lead to the creation of new allergies, cancers and other illnesses in human beings because of "the disruption of our natural genetic order".

"The reasons why we can't be specific about the health consequences of GM food is that we don't know enough," said Dr Antoniou. "Each genetic engineering event holds its own dangers. You could have acute toxicity or something that sneaks up over many years. Any of these things are possible."

World Scientists Statement

Calling for a Moratorium on GM Crops and Ban on Patents

We the undersigned scientists call upon our Governments to:

Impose an immediate moratorium on further environmental releases of transgenic crops, food and animal-feed products for at least 5 years.

Ban patents on living organisms, cell lines and genes.

Support a comprehensive, independent public enquiry into the future of agriculture and food security for all, taking account of the full range of scientific findings as well as socioeconomic and ethical implications.

1. We are extremely concerned over the continued release and commercialization of transgenic crops, food and animal-feed products in the face of growing scientific evidence of hazards to biodiversity, food safety, human and animal health, while neither the need nor the benefits of genetic engineering agriculture are yet proven.

1.1 New scientific evidence have convinced us of the need for an immediate moratorium on releases.

1.1.1. Herbicide resistant transgenes have spread to wild relatives by cross-pollination in both oilseed rape and sugar beet,1 creating many species of potential superweeds. One study shows that transgenes may be up to 30 times more likely to escape than the plant's own genes2

1.1.2. Bt-toxins engineered into a wide range of transgenic plants already released into the environment may build up in the soil and have devastating impacts on pollinators and other beneficial insects³

1.1.3. Serious doubts over the safety of transgenic foods are raised by new revelations on the results of animal feeding experiments. Potatoes engineered with snowdrop lectin fed to rats caused highly significant reduction in weight of many organs, impairment of immunological responsiveness and signs suggestive of viral infection.⁴

1.1.4. Research from the Netherlands show that antibiotic resistant marker genes from genetically engineered bacteria can be transferred horizontally to indigenous bacteria at a substantial frequency of 10^{-7} in an artificial gut⁵

1.1.5. Researchers in the US found widespread horizontal transfer of a yeast genetic parasite to the mitochondrial genome of higher plants⁶, raising serious concerns over the uncontrollable horizontal spread of transgenes and marker genes from transgenic plants released into the environment.

2. The patenting of living organisms, cell lines and genes under the Trade

Related Intellectual Property Rights agreement are sanctioning acts of piracy of intellectual and genetic resources from Third World nations⁷, and at the same time, increasing corporate monopoly on food production and distribution. Small farmers all over the world are being marginalized, threatening long term food security for all⁸.

3. The Governments of industrialized nations, by voting for patents on organisms, cell lines and genes, including human genes, are in danger of allowing corporations unrestricted exploitation of their citizens and natural resources through the treaties being negotiated in the WTO and other fora. Environmental standards, food safety standards and even basic human rights will be sacrificed to corporate financial imperatives⁹.

4. Governmental advisory committees lack sufficient representation from independent scientists not linked to the industry. The result is that an untried, inadequately researched technology has been rushed prematurely to the market, while existing scientific evidence of hazards are being downplayed, ignored, and even suppressed¹⁰, and little independent research on risks are being carried out.

5. The technology is driven by an outmoded, genetic determinist science that supposes organisms are determined simply by constant, unchanging genes that can be arbitrarily manipulated to serve our needs; whereas scientific findings accumulated over the past twenty years have invalidated every assumption of genetic determinism¹¹. The new genetics is compelling us to an ecological, holistic perspective, especially where genes are concerned. The genes are not constant and unchanging, but fluid and dynamic, responding to the physiology of the organism and the external environment, and require a stable, balanced ecology to maintain stability.

Endnotes:

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2. Bergelson, J., Purrington, c.B. and Wichmann, G. (1998). Promiscuity in transgenic plants. *Nature* 395, 25.

3. Crecchio, C. and Stotzky, G. (1998). Insecticidal activity and biodegradation of the toxin from *B. acillus thuringiensis* subsp. *kurstaki* bound to humic, acids from soil, "Soil Biology and Biochemistry 30", 463-70, and references therein.

4. Leake, C. and Fraser, L. (1999). Scientist in Frankenstein food alert is proved right. *UK Mail on Sunday*, 31 Jan.; Goodwin, B.C. (1999). Report on SOAEFD Flexible Fund Project RO818, Jan. 23, 1999.

5. MacKenzie, D. (1999). Gut reaction. *New Scientist* 30 Jan., p.4.
6. Cho, Y., Qui, Y.L., Kuhlman, P. and Palmer, J.D. (1998). Explosive invasion of plant mitochondria by a group I intron. *Proc. Natl Acad. Sci. USA* 95, 14244-9.
7. See Shiva, V. (1998). *Biopiracy: The Plunder of Nature and Knowledge*, Green Books, London; also *Latin American Declaration on Transgenic Organisms*, Quito, 22 Jan. 1999.
8. The Corner House (1998), *Food? Health? Hope? Genetic Engineering and World Hunger*, Briefing 10.
9. See Mander, J. and Goldsmith, E. eds. (1996). *The Case against the Global Economy and for a Turn toward the Local*, Sierra Club Books, San Francisco.
10. See note 4.
11. See Ho, M. W. (1998, 1999). *Genetic Engineering Dream or Nightmare? The Brave New World of Bad Science and Big Business*, Gateways Books and Third World Network, Bath and Penang.

Subject: World Scientists' Statement[2]: Supplementary Information on the Hazards of Genetic Engineering Biotechnology

1. Genetic engineering is a new departure from conventional breeding and introduces significant differences.
 - 1.1. Conventional breeding involves crossing related species, and plants with the desired characteristics are selected from among the progeny for reproducing, and the selection is repeated over many generations. Genetic engineering bypasses reproduction altogether. It transfers genes horizontally from one individual to another (as opposed to vertically, from parent to offspring), often making use of infectious agents as vectors or carriers of genes so that genes can be transferred between distant species that would never interbreed in nature. For example, human genes are transferred into pig, sheep, fish and bacteria. Toad genes are transferred into tomatoes. Completely new, exotic genes, are being introduced into food crops.
 - 1.2. Natural infectious agents exist which can transfer genes horizontally between individuals. These are viruses and other pieces of parasitic genetic material, called plasmids and transposons, which are able to get into cells and then make use of the cell's resources to multiply many copies of themselves or to jump into (as well as out of) the cell's genome. While the natural agents are limited by species barriers, genetic engineers make artificial vectors by combining parts of the most infectious natural agents, and design them to overcome species barriers, so the same vector may now transfer, say, human genes, which are spliced into the vector, into the cells of all other mammals, or cells of plants. Once inside the cell, the artificial vector carrying the foreign gene(s) can then insert into the cell's genome, and give rise to a genetically engineered organism.
 - 1.3. Typically, foreign genes are introduced with strong genetic signals - called promoters or enhancers, most often from viruses - to boost the expression of the genes to well above the normal level that most of the cell's own genes are expressed. Such viral promoters are used even in cases of so-called "vectorless" transfers, where gene expression "cassettes" are introduced by injection, biolistic bombardment and other physical means. There will also be selectable "marker genes" introduced along with the gene(s) of interest, so that those cells that have successfully integrated the foreign genes into their genome can be selected. The most commonly used marker genes are antibiotic resistant genes, which enable the cells to be selected with antibiotics. These marker genes often remain in the genetically engineered organisms.
2. Genetic engineering introduces new dangers and problems to health and biodiversity. There are four main sources of hazards and problems: those due to the new genes and gene products introduced; unintended effects inherent to the technology; interactions between

foreign genes and host genes; and those arising from the spread of the introduced genes by ordinary cross-pollination as well as by horizontal gene transfer.

3. Hazards may come from new genes and gene products.

New genes and gene products are introduced into our food, often from bacteria and viruses and other non-food species that we have never eaten before, and certainly not in the quantities produced in the genetically engineered crops, where they are typically expressed at high levels. The long term impacts of these genes and gene products on human health will be impossible to predict, particularly as the products are not segregated and there is no post-market monitoring.

3.1. Bt-toxins may have major impacts on biodiversity.

There is evidence that one class of gene products most commonly introduced, the bt-toxins, from the soil bacterium, *Bacillus thuringiensis*, targeted against insect pests, are harmful to beneficial species such as bees. 2 That is because they are introduced in a truncated, preactivated, non-selective form. Harmful effects can even go up the food-chain. Lacewings fed on pests that have eaten genetically engineered bt-maize took longer to develop and were two to three times more likely to die. 3 Purified bt-toxins, similar to ones found in some lines of transgenic bt-crops, do not disappear when added to soil but instead become rapidly bound to clay and humic acid soil particles. The bound bt-toxins, unlike free toxins, are not degraded by soil microbes, nor do they lose their capacity to kill soil insects. 4 Unlike suspensions of the bacteria which have been used as sprays by organic farmers, in which the toxins are inactivated by uv light, the engineered toxins are released directly into the soil, thereby escaping degradation. The buildup of bt-toxins in the soil will have devastating impacts on pollinators and other beneficial insects.

At the same time, it will accelerate the evolution of bt-resistance among pest, rendering the toxin ineffective as a pesticide. Bt-resistance is already a major problem only years after the first release, and scientists are recommending 20 to 40% of non-transgenic crop to be simultaneously planted as "refugia" to slow down the evolution of resistance. 5

3.2. Transgenic snow-drop lectin is harmful to beneficial insects.

Yet another transgenic plant has been shown to harm beneficial insects up the food-chain. Ladybirds fed on aphids that have eaten transgenic potato with snow-drop lectin lived half as long, laid 38% fewer eggs that were 4 times more likely to be unfertilized and 3 times less likely to hatch. 6 This transgenic potato has now been revealed to be highly toxic to rats (see below), and is most probably harmful to small mammals in the wild.

3.3 Hazards arise from transgenic plants engineered to be resistant to broad-spectrum herbicides.

By far the major category of transgenic plants are engineered to be resistant to broad-spectrum herbicides such as glyphosate.

3.3.1. The toxicity of glyphosate is well-documented. 7 Acute toxicity of some glyphosate products include eye and skin irritation, cardiac depression and vomiting. In California, glyphosate is found to be the third most commonly-reported cause of pesticide-related illness among agricultural workers. The toxicities are often associated with supposedly inert solvents and detergents in some formulations which greatly increase the harmful effects of glyphosate. These synergistic interactions are now widely recognized. 8 Chronic toxicity of glyphosate include testicular cancer, reduced sperm counts and other negative reproductive impacts in rats. 9 There are also indications that at least some glyphosate formulations cause mutations in genes. 10

3.3.2. Broad-spectrum herbicides will have major impacts on biodiversity.

11 They kill all other plants indiscriminately. This will destroy wild plants as well as insects, birds, mammals and other animals that depend on the plants for food and shelter. In addition, Roundup (Monsanto's formulation of glyphosate) can be highly toxic to fish. Glyphosate also harms earthworms and many beneficial mycorrhizal fungi and other

microorganisms that are involved in nutrient recycling in the soil. It is so generally toxic that researchers are even investigating its potential as an antimicrobial. 12

3.3.3. Herbicide resistant transgenic plants may lead to increased use of herbicides, contrary to what is being claimed. The transgenic plants themselves are already turning up as volunteer plants after the harvest, and have to be controlled by additional sprays of other herbicides. 13 The use of glyphosate with genetically engineered resistant plants will encourage the evolution of glyphosate resistance in weeds and other species, even without cross-pollination. A ryegrass highly resistant to glyphosate has already been found in Australia. 14 Resistance evolves extremely rapidly because all cells have the capability of mutating their genes at high rates to resistance if they are exposed continuously to sub-lethal levels of toxic substances including herbicides, pesticides and antibiotics. This is inherent to the “fluidity” of genes and genomes that has been documented within the past 20 years. 15 It will render resistant plants useless after several generations, as the herbicide is widely applied. At the same time, resistant weeds and pathogens may become increasingly abundant. Additional herbicides will then have to be used to control the resistant weeds.

3.3.4 Herbicide resistant transgenic crops are incompatible with sustainable agriculture. Many studies within the past 10 to 15 years have shown that sustainable organic agriculture can improve yields and regenerate agricultural land degraded by the intensive agriculture of the green revolution. 16 Sustainable organic agriculture depends on maintaining natural soil fertility as well as on mixed cropping and crop rotation. This has been reversing the destructive effects of intensive agriculture that have led to falling productivity since that 1980s. Glyphosate resistant plants requires application of glyphosate which not only kills other species of plants but harms mycorrhizal fungi symbiotically associated with the roots of plants, which are now found to be crucial for maintaining both species diversity and productivity of ecosystems. 17 The depletion of mycorrhizal fungi in intensive agriculture could therefore decrease both plant biodiversity and ecosystem productivity, while increasing ecosystem instability. “The present reduction in biodiversity on Earth and its potential threat to ecosystem stability and sustainability can only be reversed or stopped if whole ecosystems, including ecosystem components other than plants are protected and conserved.” 18

4. Problems due to unintended effects inherent to the technology.

Genetic engineering organisms is hit or miss, and not at all precise, contrary to misleading accounts intended for the public, as it depends on the random insertion of the artificial vector carrying the foreign genes into the genome. This random insertion is well-known to have many unexpected and unintended effects including cancer, in the case of mammalian cells. 19 Furthermore, the effects can spread very far into the host genome from the site of insertion. 20

4.1. This is attested to by the high failure rates in making transgenic animals, and gross deformities among the “successes”, 21 which are unacceptable in terms of animal welfare.

4.2. There have also been many failures among crops that have been commercialized and widely planted. 22 The Flavr Savr tomato was a commercial disaster and has disappeared. Monsanto’s bt-cotton failed to perform in the field in both US and Australia in 1996, and suffered excessive damages from bt-resistant pests. Monsanto’s 1997 Roundup resistant cotton crops fared no better. The cotton balls drop off when sprayed with Roundup and farmers in seven states in the US have sought compensation for losses. The transgenic “Innovator” herbicide tolerant canola failed to perform consistently in Canada. This has led the Saskatchewan Canola Growers Association to call for an official seed vigor test.

4.3. There is widespread instability of transgenic lines, they generally do not breed true. 23 One of the main problems is gene silencing - cellular processes that prevent foreign genes from being expressed. 24 The instability of transgenic lines are inherent to the hit or miss technology, untried technology 25 which may ruin our agricultural base and severely compromise world food security.

5. Unexpected and unintended effects will also arise from interactions between foreign genes and genes of the host organism.

No gene functions in isolation. Among the unintended effects relevant to food safety are new toxins and allergens, or changes in concentrations of existing toxins and allergens.

5.1. In 1989, a genetically engineered batch of tryptophan killed 37 and made 1500 ill, some seriously to this day, the suspected culprit was a trace contaminant which may have arisen from the genetic engineering. 26

5.2. A Brazil nut allergen was identified in soya bean genetically engineered with a brazil nut gene. 27

5.3. Soya beans are known to have at least 16 proteins that can cause allergic reactions, which differ for different ethnic groups. A major allergen, trypsin-inhibitor which also has antinutritional effects, was found to be 26.7% higher in Monsanto's transgenic soya beans approved for market on the basis of "substantial equivalence", 28 and hence safe for human consumption. 29 The same transgenic soya reduced growth rate of male rats and increased milk fat in cows. 30 It is also suspected that the transgenic soya may have higher levels of phytoestrogens linked to reproductive abnormalities in mice, rats and ewes as well as humans. 31 Women with oestrogen-induced breast cancer, pregnant women and children may be particularly susceptible to phytoestrogens. 32

5.4. Serious doubts have been raised over the safety of transgenic foods by recent revelations on the results of animal feeding experiments. Potatoes engineered with snowdrop lectin fed to rats caused highly significant reduction in both dry and wet weights of many essential organs: intestine, liver, spleen, thymus, pancreas and brain. In addition, it resulted in impairment of immunological responsiveness and signs suggestive of viral infection. 33 The two transgenic lines were substantially different from each other and from the unengineered (unmodified) parent with respect to potato-lectin content, protease inhibitor, gross composition and amino acid content, yet the official audit concludes that they were "substantially equivalent".

6. Hazards arise from the uncontrollable spread of transgenes and antibiotic resistance marker genes.

Genetic pollution, as opposed to chemical pollution cannot be recalled. Genes, once released, have the potential to multiply and recombine out of control.

6.1. Transgenes and marker genes have spread to wild relatives by cross-pollination, creating superweeds.

This has occurred in oilseed rape 34 and sugar beet, 35 creating potential superweeds. Spread of genes by cross-pollination is to be expected, whether the plants are transgenic or not. However, a recent report suggests that transgenes may be up to 30 times more likely to escape than the plant's own genes. 36 This raises the question as to whether other mechanisms for the spread of the transgenes (and marker genes) are present in transgenic plants, the most obvious being horizontal gene transfer to unrelated species.

6.2. Transgenes and marker genes may also spread by horizontal gene transfer.

The same cellular mechanisms that enable the artificial vector carrying the foreign genes to insert into the genome can also mobilize the vector to jump out again to reinsert at another site or to infect other cells. For example, the enzyme, integrase, which catalyzes the integration of viral DNA into the host genome, also functions as a disintegrase catalyzing the reverse reaction. These integrases belong to a superfamily of similar enzymes present in all genomes from viruses and bacteria to higher

organisms. 37

6.2.1 Secondary horizontal transfer of transgenes and antibiotic resistant marker genes from genetically engineered crop plants into soil bacteria and fungi have been documented in the laboratory. 38 Despite the misleading title in one of the publications, 39 a high "optimal" gene transfer frequency of 6.2×10^{-2} was found in the laboratory, from which the authors "calculated" a frequency of 2.0×10^{-17} under extrapolated "natural conditions". The natural conditions, are of course, largely unknown.

6.2.2 Plants engineered with genes from viruses to resist virus attack actually showed increased propensity to generate new, often super-infectious viruses by horizontal gene transfer and recombination with infecting viruses. 40

6.2.3 A genetic parasite belonging to yeast, a group I intron, was found to have jumped into many unrelated species of higher plants recently. 41 Until 1995, this parasite was thought to be largely confined to yeast and only one genus of higher plants out of the 25 surveyed had the parasite. But in a new survey of species from 335 genera of higher plants, 48 were found to have the parasite. These 48 genera were in five different families: Asterids, Rosids, Monocots, Piperales, and Magnoliales. Sequence analyses indicate that the same group I intron is present in all the higher plants and that almost all of them represent independent horizontal gene transfer events. The researchers themselves raise serious concerns about releasing transgenic crops into the environment, given that horizontal gene transfer is now found to be so widespread.

6.2.4. Thus, genetically engineered crops, many of which still carry antibiotic resistant marker genes may spread these genes to pathogenic bacteria in the environment, as there is now evidence that DNA released from dead and live cells are not readily broken down, but are rapidly adsorbed onto clay, sand and humic acid particles where they retain the ability to infect (transform) other organisms. They may also contribute to generating new viral pathogens. This is particularly relevant in the light of the current world health crisis in drug and antibiotic resistant infectious diseases, and evidence indicating that horizontal gene transfer has been responsible for spreading drug and antibiotic resistance genes as well as creating new pathogens. 42

6.2.5. There is also evidence that DNA is not broken down rapidly in the gut as previously supposed. Thus, transgenes and antibiotic resistance marker genes may spread to bacteria in the gut. 43 New research from the Netherlands show that antibiotic resistant marker genes from genetically engineered bacteria can be transferred to indigenous bacteria at a substantial frequency of 10^{-7} in an artificial gut. 44

6.2.6. Viral DNA fed to mice has been found to resist digestion in the gut. Large fragments passed into the bloodstream and into white blood cells, spleen and liver cells. In some instances, the viral DNA may integrate into the mouse cell genome. 45 Viral DNA is now known to be more infectious than the intact virus, which has a protein coat wrapped around the DNA. For example, intact human polyoma virus injected into rabbits had no effect, whereas, injection of the naked viral DNA gave a full-blown infection. 46 Many kinds of artificially constructed vectors are found to infect mammalian cells. 47 Thus, the foreign DNA introduced by artificial vectors into genetically engineered plants and animals may constitute a health hazard by itself. As mentioned above, integration of foreign DNA into cells are well-known to have many adverse effects including cancer.

7. Existing scientific evidence indicates that genetic engineering agriculture is an dangerous diversion.

Genetic engineering agriculture not only obstructs the implementation of real solutions to the problems of food security for all, but also poses unprecedented risks to health and biodiversity. Far from feeding the world, it will intensify corporate control on food production and distribution which created poverty and hunger in the first place. It will also reinforce existing social structures and intensive agricultural practices that have led to widespread environmental destruction and falling yields since the

1980s. 48

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The Case for a Moratorium.

Scientists involved in the launch of the Statement:

1. Prof. Arpad Pusztai, Biochemical Immunologist, formerly Rowett Institute, UK

2. Dr. Susan Bardocz, Geneticist, Rowett Institute, UK

3. Prof. Joe Cummins, Geneticist, University of Western Ontario, Canada 4. Prof. Martha Crouch, Biologist, Indiana University, USA 5. Prof. Terje Traavik, Virologist, University of Tromso, Norway 6. Prof. Brian Goodwin, Biologist, Schumacher College, UK 7. Prof. Martha R. Herbert, Pediatric Neurology, Massachusetts Gen. Hospital, USA

8. Dr. Mae-Wan Ho, Geneticist and Biophysicist, Open University, UK 9. Dr. Vyvyan Howard, Toxipathologist, Liverpool University, UK 10. Dr. Vandana Shiva, Research Institute for Science and Ecology, India 11. Prof. Peter Saunders, Biomathematician, King's

College, London, UK 12. Dr. Christine von Weisaeker, Ecoropa, Germany 13. Dr. Tewolde Egziabher, Agronomist, Environmental Protection Authority, Ethiopia

14. Prof. Phil Bereano, Engineering, University of Washington, USA

Lancet Vol. 353, No 9167, 29 May 1999

Editorial:

Health risks of genetically modified foods

Crops genetically modified to have reduced susceptibility to pests are promoted as a solution to low food yields in developing countries. The motive of these promoters is profit, not altruism. Monsanto, one of the largest developers of genetically modified crops, has developed a grain that gives an improved crop and is sterile, so instead of keeping back some seeds for the next year's sowing, farmers must return to the supplier for more.

In view of this unbridled commercial approach to genetic modification, it is perhaps not surprising that companies have paid little evident attention to the potential hazards to health of genetically modified foods. But it is astounding that the US Food and Drug Administration has not changed their stance on genetically modified food adopted in 1992

(<http://vm.cfsan.fda.gov/~lrd/fr92529b.html>). They announced in January this year, "FDA has not found it necessary to conduct comprehensive scientific reviews of foods derived from bioengineered plants . . . consistent with its 1992 policy". The policy is that genetically modified crops will receive the same consideration for potential health risks as any other new crop plant. This stance is taken despite good reasons to believe that specific risks may exist.

For instance, antibiotic-resistance genes are used in some genetically modified plants as a marker of genetic transformation. Despite repeated assurances that the resistance genes cannot spread from the plant, many commentators believe this could happen. Of greater concern is the effect of the genetic modification itself on the food. Potatoes have been engineered with a gene from the snowdrop to produce an agglutinin which may reduce susceptibility to insects. In April last year, a scientist, Arpad Pusztai, from the Rowett Research Institute in Aberdeen, UK, unwisely announced on television that experiments had shown intestinal changes in rats caused by eating genetically engineered potatoes. He said he would not eat such modified foods himself and that it was "very, very unfair to use our fellow citizens as guinea pigs".

A storm of publicity overtook Pusztai. He was removed from his job, a sacrifice that did not quell public alarm in the UK or in Europe. Last week (May 22, p1769) we reported that the Royal Society had reviewed what it could of Pusztai and colleagues' evidence and found it flawed, a gesture of breathtaking impertinence to the Rowett Institute scientists who should be judged only on the full and final publication of their work. The British Medical Association called for a moratorium on planting genetically modified crops. The UK Government, in accordance with national tradition, vacillated. Finally, on May 21 the Government came out with proposals for research into possible health risks of genetically modified foods.

Shoppers across Europe had already voted with their feet. By the end of the first week in May, seven European supermarket chains had announced they would not sell genetically modified foods. Three large food multinationals, Unilever, Nestle, and Cadburys-Schwepes followed suit. The Supreme Court in India has upheld a ban on testing genetically modified crops. Activists in India have set fire to fields of crops suspected of being used for testing. The population of the USA, where up to 60% of processed foods have genetically modified ingredients, seem, as yet, unconcerned.

The issue of genetically modified foods has been badly mishandled by everyone involved. Governments should never have allowed these products into the food chain without insisting on rigorous testing for effects on health. The companies should have paid greater attention to the possible risks to health and of the public's perception of this risk; they are now paying the price of this neglect. And scientists involved in research into the risks of genetically modified foods should have published the results in the scientific press, not through the popular media; their colleagues, meanwhile, should also have avoided passing judgements on the issue without the full facts before the.

The Lancet

Conclusion

We strongly urge the Committee to very seriously examine the issue of demand for GMO versus non-GMO foods and thus the real or imagined markets for Australian farmers of GM commodities.

The compelling evidence right now is that there is no longer a market in Britain or Europe that could remotely be considered commercially viable for GM agricultural commodities. Communications with large Japanese consumer groups and commodity trading houses strongly suggests that the Japanese position is going to follow that of Britain and Europe very soon.

It is a fact that right now food processors under instructions from food retailers are sourcing non-GMO agricultural commodities from Australia and other countries. Whilst the export of GM soybeans from the US to Europe dropped last year because the US will not segregate its GM beans from non-GM beans, that drop was taken up by Australian farmers who could guarantee non-GM beans. Also, processed organic soybean products from the US to Europe last year were destroyed when European inspectors found the products were contaminated with GM material. It is believed this occurred because of cross-pollination from GM crops near the organic crops. For Australia to benefit from this demand for pure foods, the fastest growing food market in the world today, we must ensure that there are no GM crops in our country.

British, European and Japanese consumers have clearly indicated the global trend in resistance to GM foods. Australian consumers will be no different. In a democratic country such as ours, it is difficult to conceive of our government denying Australian citizens the right to choose what they eat by deleting important information from food labelling.

Australian farmers will actually lose an opportunity of gigantic proportions to be the global storehouse provider of non-GMO foodstuffs if they are induced to grow GM crops by vested or ill-informed government interests, by the non-scientific preoccupation of the CSIRO with GM at any cost, and by the intense misinformation activities of the biotech/chemical companies.

Consumer position shows that for Australian farmers not only will there be no significant market for GM commodities, but if there is one it will be tiny and short-lived, and they will have to face the implications of contaminating cross-pollination, and litigation from their very own farmer neighbours, food processors, consumers and consumer bodies. Ultimately, this litigation will fall at the feet of Government. Insurability and insurance issues arising from these concerns are yet to be addressed. Early indications are however that insurers will not be prepared to take any exposure in this area. Will Government cover the risks?

The introduction and growing of GM crops in the US has resulted in bitter social disruption and division of many farming communities over issues of cross pollination, soil and water contamination. The likes of Monsanto now employ private detective agencies to spy on farmers and encourage farmers to spy on each other. Monsanto, one of the biggest biotech companies in the world, has sued farmers who save seed for sowing which is claimed by the biotech companies to have become GM seed by virtue of cross pollination and therefore now legally belongs to the seed company.

Is this what we need in rural Australia now?

Recent information made available to us but kept secret by authorities and vested interests state that many US farmers have been destroying their GM crops, and becoming militant in opposing the growing of such crops in their locality. See Note 2, USDA –USTR World Trade Organization Listening Sessions in St. Paul, Minnesota on Farmers’ Concern About GMO’s.

This is not new of course, having occurred in a number of countries recently (Colombia, India, to name two).

Why? The Committee should seek to inform itself of these developments.

Our view is that farmers are realising that GM crops are a threat to their livelihood, not a boon. When the whole Canadian transgenic Canola crop is banned by Europe, farmers suddenly begin to see the actuality of no market for their produce.

Imagine if the entire Australian wheat crop copped the same imposition.

Our research shows clearly that the demand for non-GM commodities is going to be the driving market force and that the market for GM farm commodities will ultimately be minimal – if even that.

Should any resources at all be applied to the establishment of a GM agriculture industry?
We strongly believe the global evidence is NO.

NOTE 1

RAFI News Release
20 March 1998

<http://www.rafi.ca>

*** Terminating Food Security? ***

The Terminator technology that sterilizes seed also threatens the food security of 1.4 billion people and must be terminated. Advocates for the newly patented "terminator technology" developed jointly by the US Department of Agriculture and Mississippi-based Delta and Pine Land seed company claim that it will not only be an incentive to plant breeding investment but also a boon to food production in the South. This is "nonsense" according to RAFI Research Director, Hope Shand. The new technology (see RAFI News Release "Biotech Activists Oppose the Terminator Technology" 13 March 1998, (<http://www.rafi.ca/pr/release14.html>)) switches a plant's reproductive processes on and off so that harvested seed will be sterile if farmers attempt to replant it, as they have for the past 12 thousand years. The patent's implications are causing a furor among farmers and breeders around the world.

Poor Customers: "It's terribly dangerous," says Hope Shand, "half the world's farmers are poor and can't afford to buy seed every growing season, yet poor farmers grow 15 to 20% of the world's food and they directly feed at least 1.4 billion people - 100 million in Latin America, 300 million in Africa, and 1 billion in Asia. These farmers depend upon saved seed and their own breeding skills in adapting other varieties for use on their (often marginal) lands."

"Private companies aren't interested in developing plant varieties for poor farmers because they know the farmers can't pay," Pat Mooney, RAFI's Executive Director, adds, "even national public breeding programmes tend to focus on high-yielding, irrigated lands leaving resource-poor farmers to fend for themselves. Despite this, patents are being sought everywhere from Madagascar to Mongolia and from Brazil to Vietnam." Proponents of the Terminator maintain that such farmers will be unaffected by the technology while more affluent farmers will have the choice of buying Terminator seed or sticking with standard varieties.

Less Plant Breeding: "That's not how it's going to work," replies Neth Daño of SEARICE in the Philippines. Daño's organization works with farmers throughout Southeast Asia. "Public breeders wanting access to patented genes and traits will be forced to adopt the Terminator as a licensing requirement," she insists, "The better-off farmers in the valleys will be forced to pay. Their poor neighbours on the hillsides will no longer be able to exchange breeding material with their counterparts in the valleys. Far from improving plant breeding, the Terminator could drive hundreds of millions of farmers out of plant breeding and, since no one else will breed for their needs, out of agriculture altogether."

Spreading Sterility: Camila Montecinos, an agronomist with the Chilean organization, CET, has another concern, "We've talked to a number of crop geneticists who have studied the patent," she says. "They're telling us that it's likely that pollen from crops carrying the Terminator trait will infect the fields of farmers who either reject or can't afford the technology. Their crop won't be affected that season but when farmers reach into their bins to sow seed the following season they could discover - too late - that some of their seed is sterile. This could lead to very high yield losses. If the technology is transmitted through recessive genes, we could see several years of irregular harvests and a general - even dramatic - decline in food security for the poorest farm communities."

BioSafety vs. Food Security? "The corporate strategy will be to argue that the Terminator increases the safety of using genetically-engineered organisms," Hope Shand returns, "They'll claim that since the seed is sterile it is less likely that transgenic material will spread from one crop into related species and wild crop relatives. They'll be trying to get environmental organizations to back the Terminator." "Biosafety at the expense of food

security is no solution,” RAFI’s Pat Mooney agrees. “First, as geneticists are telling us, there is a real danger that the Terminator will bleed into neighbouring fields anyway, and second, human safety through food security has to be our primary concern.”

Terminate the Terminator: “We believe there is a need for a global campaign to prevent the use of Terminator technology,” Camila Montecinos says. CET is a highly-respected civil society organization linked to a strong Latin American network of farm and rural development organizations. “Farmers and governments everywhere should declare use of the technology as contrary to public order and national security. This is the neutron bomb of agriculture.”

**** Terminator Technology ****

**** Untangling the Debate ****

1. “More Investment”

“Good News”: Terminator will encourage previously-reluctant companies to invest in traditionally open-pollinated crops and so-called “forgotten” crops.

Bad News: Investment in stage one will focus on ways to circumvent the patent. In stage two, firms will invest to load already-developed proprietary traits into Terminator varieties. Stage three investment will be to hype markets to convince farmers Terminator is the wave of the future. By the time stage four rolls around, the commercial seed industry oligopoly will have little relevant competition from open-pollinated varieties.

2. “More Choice”

“Good News” Farmers will still be able to choose between terminator seed and open-pollinated varieties developed by the public sector.

Bad News No they won’t. Even public breeders will be pressured by cash-starved institutes to adopt the profitable technique. Don’t forget, the USDA developed this anti-farmer technology. Look how public breeders are betraying farmers in Australia and New Zealand charging royalties for varieties in the public domain.

3. “More Varieties”

“Good News” More investment means more varieties for farmers to choose from. Terminator will stimulate a diverse and competitive marketplace of improved varieties.

Bad News There may be more brand names but there won’t necessarily be more genuinely-distinct varieties. Companies will pack Terminator seed with already-available proprietary traits like herbicide-tolerance.

4. “More Breeders”

“Good News” Terminator will draw more breeders to non-hybrid crops.

This has to be good for farmers and food security.

Bad News The sterility trait will take millions of farmers out of plant breeding, leaving no one to care for their specific agricultural eco-systems.

5. “More Value”

“Good News” Breeders won’t make sales unless they can offer superior seed with higher yields and other market traits.

Bad News It’s cheaper for the world’s ten dominant seed companies (with close to half the commercial market) to simply put pressure on seed regulatory systems and public breeders in order to eliminate competition from open-pollinated varieties. This is what happened in the EU in the 1980’s with their integrated Common Catalogue.

6. “More Safety”

“Good News” Because the second generation seed is sterile, it will be safer to introduce genetically-modified organisms into new varieties. This will speed up biotech advances in agriculture and increase productivity.

Bad News No way. The sterility trait from first generation seed will infect neighbouring fields of open-pollinated crops causing crop failures while creating additional markets.

7. “Maybe It’ll Fail”

So far, though the patent-holders claim all crops, the Terminator has only worked on cotton and tobacco. Maybe it won’t work on others or maybe it will perform inconsistently. Hoping for failure isn’t as useful as banning the use. First, it might still spread into other crops from cotton or tobacco. Second, even sporadic germination failures will be sufficient to scare farmers away from saving seed that might not grow. The patent holders don’t have to have a perfect technique in order to threaten farmers who can’t afford risk.

NOTE 2

The Fires Burn In Europe
Taking Stock of the World Trade Organization
An ACRES, USA Special Edition
7 June 1999

By Steve Sprinkel

St. Paul, Minnesota

The fires burn in Europe, as the public controversy continues over genetically modified agriculture, but the flames flicker along the Minnesota-South Dakota border. Farm leaders and state legislators attending the USDA-ustr World Trade Organization Listening Sessions in St. Paul came out smoking on 7 June in an event attended by both Minnesota Governor Jesse Ventura and North Dakota Governor Ed Schafer.

Afflicted by poor commodity prices, overseas disaffection for genetically modified crops and the un-abated trend towards corporate consolidation and the vertical control of agricultural products, northern farmers spoke openly of the pain and distrust they face every day.

“I think that if we had been told five years ago that this new technology would bring us so much grief, we would never have supported it,” said one North Dakota grain producer.

“People call this another Farm Crisis, but I feel like I have been in the middle of a crisis for most of my farming career, and I don’t know how I can wish the present system on the next generation.”

Farmers, farm leaders, and agriculture sector representatives—from corn growers to barley malters to union leaders—met in Minnesota and told a tale of regional and international farm crisis woe to officials from the USDA, the US Department of State and the office of the US Trade Representative.

The event was hosted by Minnesota Department of Agriculture Commissioner Gene Hugoson. Neighboring state officials including South Dakota’s Darrel Cruea and North Dakota’s Roger Johnson were in attendance. The Iowa Department of Agriculture, host of the upcoming July 12th Listening Session, wisely sent an observer to help plan for the Des Moines Session.

After a day mostly spent listening to agricultural public and private sector representatives reading from the same script (“level the playing field, defend the GMOs with “sound science” and end-foreign- subsidies) the South Dakota contingent closed the meeting on a n entirely different note. Supported by fiery South Dakota State Senator Frank Kloucek and Minnesota State Representative Ted Winter, grain and livestock producers Bob Thullner and Mark Ukert underscored the affects and causes of the farm crisis, blaming the multinational corporate seed and chemical sector for betraying rural communities, and the US government for failing to diligently review the scientific, economic and sociological consequences of agricultural biotechnology.

Many afternoon presenters asked why the US government was so strenuously defending biotechnology policy when it has exposed farmers to much turmoil. Instead of questioning the affects the new crops have had on rural communities, officials continue to support the products manufactured by a few politically powerful corporations. Although biotechnology remains center-stage in this and other farm and food conferences, attendees also discussed trade policy affected by foreign currency valuations, foreign nation subsidies, and grain storage policy.

Jesting in an acerbic Midwestern manner, Larry Green, a Minnesota farmer, thanked the USDA Foreign Agricultural Service for defending his banana production— Mr. Green reported that he and his wife have four ornamental banana trees on their summer porch.

The US recently won a WTO test case against the United Kingdom and other countries over a US complaint that European policies were detrimental to fair trade- and the exports of US based companies operating in Central and South America. Many viewed the WTO banana case as a preamble to much larger issues, including the long-standing export impasse over hormone-grown beef and the much-to-be contested acceptance of genetically engineered agriculture.

In summarizing the WTO banana decision, Jodi Slocum, a Wisconsin organic grower representing Farmer to Farmer, an international rural communities-oriented non-governmental organization, reminded the audience that the US government is openly caught in an obviously defective compromise when it prohibits the domestic application of materials that are nonetheless manufactured in the US and exported for use overseas, on the very products that the EU community did not want on fruit imported to member countries.

South Dakota legislator Kloucek is calling for the USDA to appoint National Farmers Union President Leland Swenson to the US delegation attending the World Trade Organization Ministerial meetings in Seattle, Washington in November. Kloucek, aided by Dave Frederickson of the Minnesota Farmers

Union, farmers Thullner, Ukert and other upper Midwest region producers, said that farmers need to be represented at the highest level since the policies that are implemented affect farmers more fundamentally than the chemical and seed companies that they now view as monopolistic transnational entities responsible to no one.

However much the crisis confronting US family farms was described, Jim Schroeder, USDA Deputy Undersecretary for Farm and Foreign Agricultural Services, reminded farmers and their supporters that the World Trade Organization meetings this fall will most likely ignore “ag-sector consolidation, poor commodity prices, monetary policy, and GMO labeling.”

The discussions instead will be confined to the criteria and protocols laid out in the 1994 Uruguay Round that led to the formation of the 134 member World Trade Organization.

Responsible parties must therefore address their concerns according to the WTO agreement. Although limiting, the WTO agreement is not an entirely closed-loop endeavor. In order to reverse or amend WTO rules, current concepts within the Agricultural Provisions section need to be addressed. Among those Provisions, Most Favored Nation Status, which exempts the EU and the NAFTA under a special agreement, is potentially at risk since these continental treaties benefit traders and not producers. Dispute Settlement within the WTO also is one area that is much in need of clarification, particularly in the criteria used to empanel the three-member Dispute Settlement Body. Generally speaking, the public needs to go to school on the WTO and determine how it can be made more realistically democratic.

(<http://www.wto.org>) Internal Support may be the WTO Agricultural Provision that offers GE antagonists the best avenue to debate, define and confine the new technology..

According to the USDA Foreign Agricultural Service, Internal Support covers “Government policies (which) have significant consequences beyond a country's borders. Such policies can impose costs on other countries and world markets by encouraging overproduction or inducing production of specific commodities.”

The explosive market-share of GMO crops can here be cited as an example of “inducing production of specific commodities”. GMO technology has long been advertised for its now dubious yield potentials, and in particular, the planting of herbicide resistant crops has led to a swift increase in total world acreage planted to them, in areas where they were never grown before.

Overproduction is a result. Over supply and lower prices can in this context be addressed.

Internal Support is broken into two categories, named “amber” and “green”, ostensibly identifying them as “caution” and “permitted”. Amber policies include “price supports (and) input subsidies”. In this

category, one can more cogently argue that US government participation in the development and commercialization of genetically engineered crops and farm in-puts is at least questionable under WTO, and represents a conflict of interest that the developing world in particular must be wary of. The US government has invested many billions in the development of the technology, co-owns a number of patents approved for its protection, and has openly supported and defended biotechnology politically at the expense of less controversial agricultural production systems, both in terms of cash outlays and in public sector enterprise, i.e., the awesome efforts of the US State Department, US Trade Representative and USDA to assure an unobstructed market for products co-financed by government.

The St. Paul Listening Session was the second US event held in preparation to the Seattle WTO Ministerial. As you will note by referring the WTO website, the Ministerials are tantamount to the writing or adoption of state constitutions.