Effects of pesticides on humans and the environment: Why are the British Government and the BBC protecting industry?

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On 9th August 2015 the Scottish Rural Affairs Minister announced that GM crops would not be grown: 1 29 groups signed a letter of protest led by the pro-GM organisation Sense About Science: 2 this was countered by Prof Peter Saunders Co-Director of the Institute of Science in Society 3 We presume that Prime Minister Cameron didn’t share with Scotland the ‘Open Letter from America’. 4 A letter with signatures and endorsements from nearly 60 million US citizens was delivered to Downing Street on 11 November 2014. The Prime Minister was quick to forward it to Defra. An anonymous Civil Servant presumably drafted the reply for Lord de Mauley to sign. 5 There seems to be some ‘disconnect’ because at the end of the 2-page letter the Under Secretary of State for Defra said: “The UK Government regards safety as paramount and will only agree to the planting of GM crops or the marketing of GM foods if it is clear that people and the environment will not be harmed.”

An Open Letter from the citizens of America to the citizens of Britain about the hazards of GMOs that the Government concealed from the Public

An Open Letter from America was written to citizens, politicians, and regulators in the UK and the rest of the EU about the warning them not to authorise genetically modified crops

“Individuals and organisations representing nearly 60 million US citizens – just under 25% of the total adult population – have signed and endorsed the Letter from America which sets out the US experience of GMO food and farming, and warns us not to follow this example.

Extracts: We are writing as concerned American citizens to share with you our experience of genetically modified (GM) crops and the resulting damage to our agricultural system and adulteration of our food supply. As you consider your options, we’d like to share with you what nearly two decades of GM crops in the United States has brought us. We believe our experience serves as a warning for what will happen in your countries should you follow us down this road.

Promises broken: GM crops were released onto the market with a promise that they would consistently increase yields and decrease pesticide use. They have done neither. In fact, according to a recent US government report yields from GM crops can be lower than their non-GM equivalents… GM seeds cannot legally be saved for replanting, which means farmers must buy new seeds each year. Biotech companies control the price of seeds, which cost farmers 3-6 times more than conventional seeds. This, combined with the huge chemical inputs they require, means GM crops have proved more costly to grow than conventional crops. Because of the disproportionate emphasis on GM crops, conventional seed varieties are no longer widely available leaving farmers with less choice and control over what they plant…

The most widely grown types of GM crops are known as “Roundup® Ready” crops. These crops, mostly corn and soy, have been genetically engineered so that when they are sprayed with the herbicide Roundup® – the active ingredient of which is glyphosate – the weeds die but the crop continues to grow…

This has created a vicious circle. Weeds have become resistant to the herbicide, causing farmers to spray even more. Heavier use of herbicides creates ever more ‘superweeds’ and even higher herbicide use. A recent review found that between 1996 and 2011, farmers who planted Roundup® Ready crops used 24% more herbicide than non-GMO farmers planting the same crops. If we remain on this trajectory with Roundup® Ready crops we can expect to see herbicide rates increase by 25% each year for the foreseeable future…

1 http://www.bbc.co.uk/news/uk-scotland-scotland-politics-33833958
3 http://www.i-sis.org.uk/index.php
4 http://www.theletterfromamerica.org/
This pesticide treadmill means that in the last decade in the US at least 14 new glyphosate-resistant weed species have emerged, and over half of US farms are plagued with herbicide-resistant weeds. Biotech companies, which sell both the GM seeds and the herbicides, have proposed to address this problem with the creation of new crop varieties that will be able to withstand even stronger and more toxic herbicides such as 2,4-D and dicamba. However it is estimated that if these new varieties are approved, this could drive herbicide use up by as much as 50%...

Environmental harm: Studies have shown that the increased herbicide use on Roundup® Ready crops is highly destructive to the natural environment. For example, Roundup® kills milkweeds, which are the key food source for the iconic Monarch butterfly and poses a threat to other important insects such as bees. It is also damaging to soil, killing beneficial organisms that keep it healthy and productive and making essential micronutrients unavailable to the plant.

Without healthy soil, we cannot grow healthy plants.

Human Health: GM ingredients are everywhere in our food chain. It is estimated that 70% of processed foods consumed in the US have been produced using GM ingredients. If products from animals fed GM feed are included, the percentage is significantly higher.

Research shows that Roundup® Ready crops contain many times more glyphosate, and its toxic breakdown product AMPA, than normal crops. Likewise, traces of the Bt toxin have been found in the blood of mothers and their babies.

GM foods were not subjected to human trials before being released into the food chain and the health impacts of having these substances circulating and accumulating in our bodies are not being studied by any government agency, nor by the companies that produce them. Studies of animals fed GM foods and/or glyphosate, however, show worrying trends including damage to vital organs like the liver and kidneys, damage to gut tissues and gut flora, immune system disruption, reproductive abnormalities, and even tumors.

These scientific studies point to potentially serious human health problems that could not have been anticipated when our country first embraced GMOs, and yet they continue to be ignored by those who should be protecting us. Instead our regulators rely on outdated studies and other information funded and supplied by biotech companies that, not surprisingly, dismiss all health concerns.

Through our experience we have come to understand that the genetic engineering of food has never really been about public good, or feeding the hungry, or supporting our farmers. Nor is it about consumer choice. Instead it is about private, corporate control of the food system.

Americans are reaping the detrimental impacts of this risky and unproven agricultural technology. EU countries should take note: there are no benefits from GM crops great enough to offset these impacts. Officials who continue to ignore this fact are guilty of a gross dereliction of duty.”

Dr Adam Rutherford and former Chief Scientific Adviser for Scotland challenged Scotland’s ban

Adam Rutherford Inside Science on BBC Radio 4 on 13 August 2015 interviewed Professor Muffy Calder, the ex-Chief Scientific Adviser for Scotland. The discussion occupies about 10 minutes at the beginning of the programme. Professor Muffy Calder said when she heard that GM crops would not be grown in Scotland she was disappointed, but then her “disappointment turned to anger.” She said it was not a decision ‘based on science.’ How does she know? Later in the interview she said: “This subject (GMOs) is really beyond my area of expertise”.

There is evidence of harm to the environment associated with GMO agriculture from around the world

Dr Rutherford doubts that Richard Lochhead has proof that GM causes environmental damage

http://www.bbc.co.uk/programmes/b064zp7p
Dr Rutherford has a PhD in Genetics and a degree in evolutionary biology, but now earns his living as a broadcaster, journalist, author and ‘a communicator of science matters to the public’. It is curious that, as a promoter of GM technology, he hasn’t studied what is happening around the world where GM crops are grown. He is unlikely to have read the ‘Open Letter from America’, but there is plenty of evidence from the US and Latin America that sowing of GM crops has largely destroyed the environment in farming areas.

Monarch Butterfly destroyed by glyphosate and a systemic neonicotinoid insecticide clothianidin
In the last 20 years, the populations of Monarch Butterflies in the eastern US have declined by 90 percent ⁷ associated with the introduction of genetically-modified crops like Roundup® Ready Corn and Soy, (most of which are coated with clothianidin, a long-acting systemic neonicotinoid insecticide).
In February 2015 the US Center for Food Safety produced an 88-page Report: Monarchs in peril; Herbicide-Resistant Crops and the decline of Monarch Butterflies in North America ⁸ “Unlike many other weed killers, once absorbed it (glyphosate) is translocated (moved internally) to root tissue, where it kills milkweed at the root and so prevents regeneration. The increasingly common practice of growing Roundup® Ready crops continuously on the same fields means that milkweed is exposed to glyphosate every year, with no opportunity to recover. In 1999, common milkweed was found in half of corn and soybean fields, but only 8% of them a decade later.”

A biological desert: Correlation of loss of biodiversity with glyphosate levels on an Iowa Farm
Iowa was just one state in which the US Geological Survey reported widespread contamination with glyphosate on farmland. Grundy County, Iowa was where Craig Childs spent a long weekend in a monoculture of GM-Roundup® Ready Corn looking for wildlife.⁹ “In this cornfield, I had come to a different kind of planetary evolution. I listened and heard nothing, no bird, no click of an insect ... Mr Owen was the farmer who had given us permission to backpack across his cornfields. He grew a combination of DuPont and Monsanto stock. We were in DuPont now. It didn’t look any different to me.”

Robert Krulwich’s blog commented on Craig Child’s description:¹⁰ “Yet, 100 years ago, these same fields, these prairies, were home to 300 species of plants, 60 mammals, 300 birds, hundreds and hundreds of insects. This soil was the richest, the loamiest in the state. And now, in these patches, there is almost literally nothing but one kind of living thing. We’ve erased everything else. There’s something strange about a farm that intentionally creates a biological desert to produce food for one species: us. It’s efficient, yes. But it’s so efficient that the ants are missing, the bees are missing, and even the birds stay away. Something’s not right here. Our cornfields are too quiet.”

Loss of biodiversity was also correlated with systemic neonicotinoids in streams in the US
Widespread occurrence of neonicotinoid insecticides in streams in a high corn and soybean producing region in the USA was reported and chemicals were persistent.¹¹ Pulses of elevated neonicotinoid insecticide concentrations were associated with rainfall events during and shortly after crop planting, which is consistent with the spring flushing of herbicides that has been documented in Midwestern U.S. streams. The insecticides also were detected prior to their first use during the growing season, persisting from use during previous growing seasons.

Based on correlations between loss of butterflies and moths and increases in agricultural pesticides over the same years, the Chief, National Wildlife Refuge System issued a memorandum with regard

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⁷ http://www.newsweek.com/monarch-butterflies-have-declined-90-conservationists-seek-extra-protection-267094
⁹ http://www.houseofrain.com/bookdetail.cfm?id=1344621970977 Chapter 6 Species Vanish p 187
Evidence of harm to human health from Glyphosate with GMO agriculture

Rural communities in Argentina and Paraguay forced to grow GM Soya and Corn are sick
Lopez et al. in a chapter in Advances in Molecular Toxicology No 6 reported that “in the province of Córdoba, which represents the geographic region with the most intensive practice of GMO crop-based agriculture in Argentina, revealed one of the largest spectrums of birth defects with a frequency significantly higher than in the other regions. This spectrum consisted of spina bifida, microtia, cleft lip with cleft palate, polycystic kidney, postaxial polydactyly, and Downs syndrome.”

Argentinian Lawyer Dr Graciela Gomez gained small victories on behalf of the rural communities “On 21/08/2012, judgement was announced in a court case in Argentina against GM soy producers and glyphosate. Sofica Gatica, who initiated her complaints in 2001, had two children with birth defects (one of whom died at birth without kidneys) and she made the first health survey in the neighbourhood of Ituzaingo, near Cordoba. Five hours after the initial time of the announcement, the verdict was in: one farmer was absolved due to lack of evidence, but the other farmer and the aviator were found guilty and sentenced to jail. Well, actually, conditional jail. This means they can very much get out of doing any time, although they will be obliged to do social work.” The Argentine Government continues to allow GM Soya to be grown.

A baby with a neural tube defect; this is a meningo-myelomeloele. More extensive defects can occur. Hospital de Posadas, Misiones, Argentina. Photograph by kind permission of Dr Graciela Gomez.

13 http://urantiagaia.org/eng/vital/agrotoxico/agrotoxico_sul_americapdf
Rutherford challenged the statement that there was no significant demand for GM Products from Scottish Consumers

The move has been welcomed by an organic farmer Chris Walton:¹⁴ “There is growing demand around the world to source food that is not contaminated with GM, which is part of this element of distrust - and there is uncertainty of the food safety of GM crops. With GM crops there is no going back...” His farm has seen a growing demand for its produce, which he believes is down to a growing ‘sense of distrust’ in the food system and a growing desire around the world to source food that is not ‘contaminated’ by genetic modification or pesticides.

Scottish civil society supports Scottish Government’s decision to ban the growing of GM crops in Scotland. “We are aware that many of our major export customers have concerns about GM, while many EU member states including Germany and France are likely to join Scotland in opting out of GM food growing.”¹⁵

Another survey in Farmer’s Weekly 12/06/2013 showed “that only 21% of the UK public support genetically engineered food.”¹⁶ The results revealed a large gap between what farmers were willing to plant and what they would choose to eat. Some 61% farmers would grow a GM crop, but only 15% would eat it.

Q & A session with an independent GM scientist about the artificial technology of GM

In April 2004 Dr Mae-wan Ho, a geneticist and winner of the 2014 Prigogine Medal for her pioneering work in the physics of organisms and sustainable systems, was interviewed by Anastasia Stephens of the Evening Standard.¹⁷

AS “Doesn’t genetic modification follow what nature does already - the evolutionary principle of genetic selection?”

MWH “No, GM breaks all the rules of evolution, it short circuits evolution altogether. It bypasses reproduction, creates new genes and gene combinations that have never existed, and is not restricted by the usual barriers between species.”

¹⁷ http://www.i-sis.org.uk/GMmyths.php
No scientific consensus on GMO safety

The joint statement developed and signed by over 300 independent researchers, and reproduced and published below, does not assert that GMOs are unsafe or safe. Rather, the statement concludes that the scarcity and contradictory nature of the scientific evidence published to date prevents conclusive claims of safety, or of lack of safety, of GMOs.

Monsanto’s push for GMOs in Latin America in 1996 and violent suppression of anyone who revealed the serious health effects on the rural communities

Monsanto’s Mission Statement for its projects in Latin America (2012 website)

“Monsanto is committed to helping improve lives – especially the lives of farmers in small rural communities around the world.” Pablo Vaquero, Monsanto Latin America South corporate affairs director, said: “Today, we are helping to change the lives of many individuals in remote and forgotten communities where opportunities are scarce. We are convinced that by helping with training and education, as a company, we are able to add value to people and their communities. Projects have been implemented in 14 provinces in Argentina (Buenos Aires, Santa Fe, Córdoba, La Pampa, San Luis, Santiago del Estero, Entre Ríos, Corrientes, Formosa, Misiones, Salta, Tucumán, Jujuy and Chaco) and one in the Republic of Paraguay. Many farmers and people know about Monsanto Company because of the Roundup® Ready trait, which is a trait that gives in-plant tolerance to Roundup® agricultural herbicides. The trait was introduced to the market in 1996 and brought a whole new element to farmers. In 1996, farmers could now plant soybeans, spray the soybeans with Roundup®, and poof– the weeds were gone and the soybeans were still as healthy as they were before they sprayed the field”.

The above-mentioned rural communities in which glyphosate and other biocides were regularly sprayed on Roundup® Ready Soya had increased incidence of birth defects, miscarriages, infertility, cancers, DNA damage, neurological development problems in children and allergies

“For nearly 10 years, the residents of rural and periurban areas, where agricultural activities are carried out based on the current model of agro-industrial production, have been demanding to the political authorities, the courts of justice, and also protesting before the general public, because they feel that the health of their communities is being environmentally affected, mainly through sprayings of agrochemicals used for different types of agricultural crops, but also for the handling and storage of these chemicals in populated areas, the waste disposal, as well as the collection of grains soaked with chemicals within the towns.” The towns specified in the Monsanto Latin America website above: “are only some of the places where the increased number of cancer cases, birth defects, reproductive and endocrine disorders, have been suffered and detected ever since systematic pesticide spraying has become commonplace”...

In these towns GM corn and Roundup® Ready Soy required increasing amounts of glyphosate to be sprayed because of glyphosate-resistant weeds.

- In 1996, the sprayings started at less than 2 liters/hectare
- By 2010 some areas are sprayed with 10 liters/hectare, and almost 20 liters/hectare in other areas (five to 10 times the amount of glyphosate over 14 years).

Prof Andrès Carrasco and his team in Buenos Aires showed that glyphosate caused malformations in amphibian and chicken embryos, confirming the effects on humans

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18 http://www.enveurope.com/content/pdf/s12302-014-0034-1.pdf
19 INGLES-Report-from-the-1st-National-Meeting-Of-Physicians-In-The-Crop-Sprayed-Towns.pdf: Faculty of Medical Sciences, National University of Cordoba, Argentina, August 27th & 28th 2010
Glyphosate-Based Herbicides Produce Teratogenic Effects on Vertebrates by Impairing Retinoic Acid Signaling

“Reports of neural defects and craniofacial malformations from regions where glyphosate-based herbicides (GBH) are used led the team to undertake an embryological approach to explore the effects of low doses of glyphosate in development. Treated embryos were highly abnormal with marked alterations in cephalic and neural crest development and shortening of the anterior-posterior (A-P) axis. It was shown that the effects were due to the glyphosate itself, rather than the additive.”

On 7th August 2010 Professor Andrés Carrasco, lead embryologist at the University, Buenos Aires Medical School and the Argentinean National Research Council, came to give a talk about his research to community activists and residents gathered in La Leonesa. His research showed that glyphosate, an agrochemical used on genetically modified soy and rice in Argentina, causes birth defects in animal embryos at levels far below those frequently used in agricultural spraying. A delegation of public officials and residents from the nearby community of Resistencia also came to La Leonesa to hear the talk.21 “But it never took place. As the delegation walked towards the school where the talk was to be held, it was attacked by a violent mob of approximately 100 people. Three people were seriously injured. Carrasco and a colleague shut themselves in a car and were surrounded by people beating the vehicle for two hours. Witnesses believe that a local rice producer and officials had organised the attack to protect agribusiness interests. As the police seemed reluctant to intervene, Amnesty International 22 subsequently called for an investigation.”

The Amnesty International investigation established that: “One person has since suffered from lower body paralysis after being hit on his spine, and another is undergoing neurological examinations after receiving blows to the head. The former provincial Sub-Secretary of Human Rights, Marcelo Salgado, was struck in the face and left unconscious. Dr Carrasco and his colleague shut themselves in a car, and were surrounded by people making violent threats and beating the car for two hours. Members of the community were injured and a journalist’s camera equipment was damaged.”

Monsanto employed Total Intelligence Solutions to protect the Corporation’s name23

Spooky Business: Corporate Espionage Against Nonprofit Organizations Published on 20/11/2013. Page 33 gives information about the biotech giant, Monsanto: The following information came from Jeremy Scahill reported in the Nation magazine that the security firm “Blackwater, through Total Intelligence, sought to become the ‘intel arm’ of Monsanto, offering to provide operatives to infiltrate activist groups organizing against the multinational biotech firm.”24 In recent years, Blackwater has twice been re-named: first as XE Services and again as Academi.25 According to documents he obtained, Scahill reported in the Nation that: Through Total Intelligence and the Terrorism Research Center, Blackwater also did business with a range of multinational corporations. According to internal Total Intelligence communications, biotech giant Monsanto—the world’s largest supplier of genetically modified seeds—hired the firm in 2008–09. The relationship between the two companies appears to have been solidified in January 2008 when Total Intelligence chair Cofer Black traveled to Zurich to meet with Kevin Wilson, Monsanto’s security manager for global issues. After the meeting in Zurich, Black sent an e-mail to other Blackwater executives, including to [Blackwater owner and founder Erik] Prince and [coordinator of

21 http://www.theecologist.org/blogs_and_comments/commentators/other_comments/686959/revealed_the_glyphosate_research_the_gm_soy_lobby_doesnt_want_you_to_read.html
23 http://www.corporatepolicy.org/spookybusiness.pdf
25 Academi has received $2.1 billion in federal contracts, including $1.5 billion with the State Department and $607 million with the Defense Department, according to USASpending.gov (accessed October 28, 2013).
Blackwater’s CIA business Enrique ‘Ric’ Prado at their Blackwater e-mail addresses. Black wrote that Wilson “understands that we can span collection from internet, to reach out, to boots on the ground on legit basis protecting the Monsanto [brand] name… Ahead of the curve info and insight/heads up is what he is looking for.” Black added that Total Intelligence “would develop into acting as intel arm of Monsanto.” Black also noted that Monsanto was concerned about animal rights activists and that they discussed how Blackwater “could have our person(s) actually join [activist] group(s) legally.” Black wrote that initial payments to Total Intelligence would be paid out of Monsanto’s “generous protection budget” but would eventually become a line item in the company’s annual budget. He estimated the potential payments to Total Intelligence at between $100,000 and $500,000. According to documents, Monsanto paid Total Intelligence $127,000 in 2008 and $105,000 in 2009.”

The techniques used in corporate espionage against non-profits are outlined on page 47.

“Computer hacking. There are many different techniques available to corporate spies who wish to hack a computer or a computer network. Some of the more obvious ones include vulnerability scanning (checking computers and networks for known security flaws), persistent software scanning implants and creation of custom malware, password cracking, phishing (obtaining passwords by posing as a trustworthy entity), Trojan horses (establishing a back door into a computer or network that can be exploited later and key loggers (recording of all keystrokes on a computer for later retrieval).”

There was further discussion about the Report Spooky Business by Dr Nafeez Ahmed (Executive Director of the Institute for Policy Research and Development) The War on Democracy: How corporations and spy agencies use ‘security’ to defend profiteering and crush activism.26

Why were the US and the UK Governments so anxious about the Wikileaks’ exposures?

The Cables were not just about security. When France made moves to ban Monsanto’s GM corn in 2007, a US Embassy cable recommended drawing up list of countries for retaliation over opposition to genetic modification.27 Ambassador Craig Stapleton wrote on 14/12/2007:28 “Country team Paris recommends that we calibrate a target retaliation list that causes some pain across the EU since this is a collective responsibility, but that also focuses in part on the worst culprits… The list should be measured rather than vicious and must be sustainable over the long term, since we should not expect an early victory. Moving to retaliation will make clear that the current path has real costs to EU interests and could help strengthen European pro-biotech voices,” said Stapleton, who with Bush co-owned the Dallas/Fort Worth-based Texas Rangers baseball team in the 1990s. The cables show that US diplomats were working directly for GM companies such as Monsanto.

Prof Andrès Carrasco’s death occurred on May 10th 2014

A Medical Enquiry had been announced in Argentina into the effects on human health of glyphosate in GMO systems of agriculture in 2014. The problems were investigated on BBC Radio 4.29 Prof Andrès Carrasco, who had been a member of Conicet, the National Scientific and Technical Research Council – Argentina, had continually challenged Monsanto and the pesticide regulators. He would have been a key witness. However, he died on May 1026 2014 at the age of 67, in the period between his giving evidence to Linda Pressly and when the BBC Radio 4 programme was broadcast on May 1429. These are the Roundup® Ready GMO crops that the British Government is trying to force upon an unwilling British public.

26 http://www.theguardian.com/environment/earth-insight/2013/nov/28/war-on-democracy-corporations-spy-profit-activism
27 http://www.theguardian.com/world/2011/jan/03/wikileaks-us-eu-gm-crops/print
28 http://wikileaks.org/cable/2007/12/07PARIS4723.htm It appears that the site has been blocked in the US, so if you fail, please try http://www.bibliotecapleyades.net/ciencia/ciencia_monsanto81.htm
29 http://www.bbc.co.uk/programmes/b042ldz0
Dr Medardo Ávila Vasquez is a neonatal specialist at the Children’s Hospital in Cordoba: "I see newborn infants, many of who are malformed. I have to tell parents that their children are dying because of these agricultural methods. In some areas in Argentina the primary cause of death for children less than one year old are malformations. Fritz Kreiss: News Report Sunday 17 March 2013. He has written a paper for the Institute of Science in Society: Devastating Impacts of Glyphosate Use with GMO Seeds in Argentina “Over the last 20 years, industrial agriculture in Argentina has expanded by almost 50 %, taking over regions intended for other productions, for family farming, and most of all, forests. More and more children are born with defects in these areas, especially if the first months of pregnancy coincide with the time of spraying. Down’s syndrome, spina bifida, myelomeningocele (neural tube defect), congenital heart disease, etc. are diagnosed more frequently in those areas; in some towns and during some years, at triple the normal rates, and directly linked to increased pesticide applications around the towns... Neural tube defects are among the most common developmental birth defects observed, which is consistent with lab studies and farm observations... “

The National University of Cordoba must have rejected the 27- page analysis of collected data (with eight other authors) from one municipality: ‘Evaluación de la SALUD COLECTIVA SOCIO-AMBIENTAL de Monte Maíz data.’ The Institute of Science in Society published a ‘Letter of support and recognition of the work of Doctor Medardo Ávila Vazquez and his team’ April 24, 2015. “We express our concern at the rejection by any academic authority currently called into question by the National University of Córdoba in Argentina. As academics, our work and our institutions must, more than ever, be linked to the right to inform, to investigate and to create new collective responsibilities.” This letter of support was signed by leading scientists from around the world.

Personal attacks on those who exposed the science of GM as being dangerous to human health Dr Brian John of GM-Free Cymru wrote: “For more than a decade now, scientists working in the GM field have mounted vicious personal attacks (sometimes politically rather than scientifically motivated) upon serious scientists who have had the temerity to discover ‘uncomfortable things about GM crops and foods.’ This trend started with the vitriolic treatment meted out (with the Royal Society in the vanguard) on Arpad Pusztai and Stanley Ewen a decade ago, and continued with the crucifixion of Ignacio Chapela and David Quist, Angelika Hilbeck, Mae-wan Ho, Judy Carman, Gilles-Eric Séralini, Andrès Carrasco, Manuela Malatesta, Christian Velot, Irina Ermakova and many others.”

The WHO IARC revelation that glyphosate is genotoxic and a carcinogen

In March 2015 the World Health Organisation’s International Agency for Research on Cancer (IARC) has declared glyphosate as a 2A carcinogen (probably carcinogenic in humans)
The IARC reached its decision based on the view of 17 experts from 11 countries, who met in Lyon, France, to assess the carcinogenicity of 5 organophosphate pesticides. The Working Group classified glyphosate as “probably carcinogenic to humans” (Group 2A).” This is the first influential institute that has taken into account independent science as opposed to industry data. However, in the IARC Monograph Volume 112 20/03/2015 the authors say that IARC

30 http://www.nationofchange.org/argentina-s-bad-seeds-1363532747
35 http://www.thelancet.com/pdfs/journals/lanonc/PiIS1470-2045(15)70134-8.pdf Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate.
has no legal power to ban glyphosate. “The Monographs Programme provides scientific evaluations based on a comprehensive review of the scientific literature, but it remains the responsibility of individual governments and other international organizations to recommend regulations, legislation, or public health intervention.”

Monsanto demanded that the WHO withdraw the paper.

Evidence that the UK Government, the Department of Health and National Farmers Union Executives have been secretly colluding with the Agrochemical, Food and Alcohol Industries

On 26/06/2012, a secret meeting was held between the Agricultural Biotechnology Council (ABC), representing industry, two UK Ministers, two MPs, Civil Servants, Scientists and NFU to discuss the barriers to introducing Genetically Modified Crops (GM) into Britain and how to overcome them. On 25th October 2012 Dr Helen Wallace Director of Genewatch and Pete Riley Campaign Manager GM Freeze published a Press Release: 37 Monsanto meets Ministers to push return of GM crops to Britain. On 26 June 2012, Roundtable discussion on ‘Going for Growth’: Realising the potential of agricultural technologies in the UK. Attendees 38 included Government Ministers, MPs, Civil Servants from Defra, the Department of Business, Innovations and Skills, Office of Life Sciences, Director of the Centre for Food Security, John Innes Centre, Rothamsted Research, James Hutton Institute, the National Farmers Union and the Agricultural and Horticultural Development Board and representatives from Bayer (Chair) Monsanto (Deputy Chair), Syngenta and BASF. Here are the links to the Agenda 39 and a summary of the meeting which was written by Dr Julian Little of Bayer CropScience. 40 The ABC had also communicated with the Food Standards Agency (FSA). These organisations have colluded with industry.

Britain joins forces with Monsanto (September 2013)

On 23/09/2013 the British Government 41 joined forces with Monsanto, EFSA and the EU Commission to fight civil society in the EU Court to defend the right to import Monsanto’s transgenic soybean Intacta® which produces an insecticide and is resistant to glyphosate herbicides such as Roundup®.

Monsanto has been given special treatment by the Whitehall Government, against Wales 42

“In 2003, the residents of Groesfaen began to complain about vile smells emanating from the Brofiscin quarry, a 36-meter deep quarry located at the edge of the village. More alarming still, the waters of the stream that flowed around the quarry began to turn vivid orange...The investigation revealed that a Monsanto-owned plant in Newport (a city near Groesfaen) had paid contractors to illegally dump thousands of tons of cancer-causing chemicals - among them PCBs, dioxins and Agent Orange derivatives - into the Brofiscin quarry between 1965 and 1972. These chemicals, which had corroded their containers and were leaching into the soil, not only endangered the lives of the local villagers but also those of the more than 350,000 residents of Cardiff, since the chemicals were coming into contact with a major underground aquifer that was (and still is) destined to be the city’s main water supply.”

The Environment Agency was hired to clean-up the site in 2005. “Firstly, the Agency repeatedly failed to hold Monsanto accountable for its role in the pollution (a role that Monsanto denied from the outset). Secondly, the Agency consistently downplayed the dangers of the chemicals themselves,

37 http://www.genewatch.org/article.shtml?als%5Bcid%5D=569457&als%5Bitemid%5D=571449
38 http://tinyurl.com/9bce4g
39 http://tinyurl.com/8ahylza
40 http://tinyurl.com/92rrajn
41 http://www.testbiotech.de/en/node/898
42 http://www.naturalnews.com/044009_Monsanto_Brofiscin_environmental_damage.html
even claiming that they offered no identifiable harm or immediate danger to human health in their official report.”

In 2007, a previously unseen government report read by the Guardian shows that 67 chemicals, including Agent Orange derivatives, dioxins and PCBs which could have been made only by Monsanto, are leaking from one unlined porous quarry that was not authorised to take chemical wastes.43

Douglas Gowan, a pollution consultant who produced the first official report into the Brofiscin quarry in 1972 after nine cows on a local farm died of poisoning, said: “The authorities have known about the situation for years, but have done nothing. There is evidence of not only negligence and utter incompetence, but cover-up, and the problem has grown unchecked.

The documents show that in 1953, company chemists tested the PCB chemicals on rats and found that they killed more than 50% with medium-level doses. However, it continued to manufacture PCBs and dispose of the wastes in South Wales until 1977, more than a decade after evidence of widespread contamination of humans and the environment was beyond doubt.”

In 2011, officials at the Environment Agency in Wales said that Monsanto, BP and Veolia were liable for the contamination and should pay the cost of cleaning up the site. All three companies refused to accept liability for the pollution, forcing the authorities, who feared an expensive legal battle, to foot the £1.25m bill for the works, completed in 2012. Officials said at the time they would continue to attempt to recover the costs.44

In 2015 the three companies still refused to accept liability, but came to an agreement with Natural Resources Wales... A spokesperson for BP said: “BP did not directly use the Brofiscin quarry”...

A spokesperson for Veolia said: “The case of the Brofiscin Landfill relates to activities carried out by a company that had ceased to operate” before they bought it. A spokesperson for Monsanto said: “We have reached an agreement with the Environment Agency Wales resolving our alleged liability associated with the quarry.”

The UK Government and the GM Industry: colluding to promote GM crops and foods, undermine consumer choice and ignore environmental harm (published by GeneWatch UK, May 2014)46

“This briefing summarises information collected by GeneWatch UK using requests under the Freedom of Information Act and the Environmental Information Regulations (known as FoIs). It demonstrates close co-operation between the GM industry and the UK Government, including a joint strategy to promote GM crops and foods in the press and media.

The documents:

Reveal how foreign multinational GM companies are running the Government’s PR strategy on GM crops by controlling how public and private money will be invested in research;

Show that taxpayers’ money is being spent on PR for the GM industry rather than delivering better food and farming;

Suggest close co-operation with GM soya importers to pressure retailers to allow meat and dairy suppliers to use Monsanto’s RoundUp® Ready GM soya for animal feed and prevent consumers from accessing GM-free fed meat and dairy products;

Highlight the extent to which the GM industry’s role in Government policy is being kept hidden from the public.”

In May 2013, three more supermarkets (Sainsbury’s, Marks and Spencer and the Co-op) have reversed their GM free policy. “The move came following fierce lobbying from groups such as the

43 http://www.theguardian.com/guardian/2007/feb/12/frontpagenews.uknews
44 http://www.theguardian.com/environment/2011/feb/21/monsanto-brofiscin-pollution
45 http://www.theguardian.com/environment/2015/jul/14/monsanto-bp-veolia-agree-to-pay-for-clean-up-contaminated-welsh-quarry-site
National Farmers Union and the British Poultry Council. The supermarket giants said suppliers had told them that non-GM feed for poultry is now too difficult and too expensive to obtain.”

Corporate lobbyists find it easier to access the Prime Minister than his own MPs
An Editorial in the British Medical Journal on 11/01/2014 was entitled: A shameful episode.

The UK government did a sudden U-turn from its agreement that a minimum price on a unit of alcohol would be introduced across the United Kingdom. “The evidence for substantial health savings and cost savings was clear. Scotland had introduced a minimum price (though now under legal challenge by the drinks industry) and the UK Prime Minister had given his personal commitment that England and Wales would follow suit.” Jeremy Browne the Home Office Minister said that the government didn’t have “enough concrete evidence.” However, Jonathan Gornall, in a BMJ investigation, discovered: “the extent and effects of contact between ministers and interest groups lobbying against the minimum unit price.”

Gornall concluded that the consultation itself was a sham. “While MPs struggled to gain access to ministers, representatives of alcohol companies and major supermarkets had easy access – made easier by the well-oiled revolving doors between industry and special advisory posts.” Academics quoted by Gornall express concern about the misuse of the scientific process by the alcohol industry and its mouthpiece. Alcohol companies were using tactics reminiscent of the tobacco industry.

Documents released under a freedom of information request showed that between the coalition taking power in May 2010 and the end of 2013 the Department of Health alone had 130 meetings with representatives of the industry.

The extensive investigation shows “beyond doubt that commercial interests are currently in control of key decisions about the public’s health.

David Cameron met 26 times with officials of Murdoch’s News Corporation in the first 14 months of office, more than twice the number of visits he has had with any other media organization.

Why is the pesticides industry investing so much money in human health?
Syngenta’s parent company is AstraZeneca. AstraZeneca manufactures six different anti-cancer drugs mainly aimed at breast and prostate cancer. The Corporation has links in Asia, including Hospitals in China, Japan, Korea, and collaborators in Russia. AstraZeneca’s Oncology Website has the following portentous prediction: “Cancer claims over 7 million lives every year and the number continues to rise. Deaths are estimated to reach 12 million by 2030.”

Michael Pragnell MA MBA was the founder of Syngenta and CEO of Syngenta AG based in Switzerland (from its public listing in 2000 to the end of 2007). He was appointed a Trustee of Cancer Research UK (CRUK) in March 2010 and Chairman in November 2010. CRUK is donating money (£450 million/year) to the Government’s Strategy for UK Life Sciences and AstraZeneca is providing 22 compounds to academic research to develop medicines.

The CRUK website on ‘Pesticides and Cancer’ denies links to pesticides: “For now, the evidence is not strong enough to give us any clear answers. But for individual pesticides, the evidence was either too weak to come to a conclusion, or only strong enough to suggest a ‘possible’ effect. The scientific evidence on pesticides and cancer is still uncertain and more research is needed in this area.”

47 http://www.theguardian.com/environment/2013/may/11/supermarkets-chickens-gm-soya
48 http://www.bmj.com/content/348/bmj.g110
49 jgornall@mac.com BMJ 2014;348:f7646
51 http://www.astrazeneca.co.uk/medicines/oncology
53 http://www.cancerresearchuk.org/cancer-info/healthyliving/cancercontroversies/pesticides/
An entire department in Monsanto is devoted to discrediting science against GMOs
"For the first time, a Monsanto employee admits that there is an entire department within the
corporation with the simple task of 'discrediting' and 'debunking' scientists who speak out against
GMOs. The Discredit Bureau will not be found on their official website."

Where has scientific integrity in Universities gone? There are institutions in Britain and around the
world that are corrupting science
Prof Jeremy Ramsden, Editor-in-Chief of The Journal of Biological Physics and Chemistry laments the
loss of distinction between University Research and Commissioned Research (either from industry or
from Government Departments). “This renunciation of unimpeachable scientific integrity could not
have come at a worse time for humanity. Our technical capabilities for manipulating nature have
reached unprecedented heights.”

Re-approval of aspartame by Committee on Toxicity of Chemicals in Food, Consumer Products and
the Environment (CoT) and the Foods Standards Agency (FSA)
Britain is the Rapporteur Member State (RMS) for aspartame. In December 2013 CoT re-approved
Monsanto’s chemical sweetener aspartame. As a result of unpublished British research (Hull
University), CoT had decided there is no need to ban or control the sale or consumption of the
sweetener, aspartame, to protect the health of the public. On December 10th 2013 EFSA completed
“full risk assessment on aspartame and concludes it is safe at current levels of exposure.”

Prof Erik Millstone of Sussex University had written on multiple occasions to EFSA about the toxicity
of aspartame, beginning in June 2011. He wrote a 67-page document on 20th February 2013 in
response to the EFSA draft report: “The draft report on the safety of aspartame, issued by the
European Food Safety Authority’s ANS panel on 8 January 2013, is deeply flawed.” He detailed the
history of aspartame in the US and the fact that for 16 years it was considered too toxic to be
licenced because it was neurotoxic and carcinogenic. On page 15 is an indictment against GD Searle, the original owners, before Monsanto bought the company.

Ralph D Walton MD, Professor at the Center for Behavioural Medicine, North Eastern Ohio
University College of Medicine has published a review of studies. He did research for 60 minutes
on scientific peer-reviewed studies and funding; 92 per cent of the studies showed problems
with aspartame, but Walton said if you remove 6 studies because the FDA had something to do with
it and their controversy, and 1 pro-industry summary, one hundred per cent of independent
scientific peer-reviewed studies showed the toxicity of aspartame. Aspartame is an addictive, excite-
neurotoxic, carcinogenic, genetically engineered drug and adjuvant that damages the mitochondria
and interacts with drugs and vaccines.

In the UK some farmers have been spraying glyphosate on crops before
harvest since 1980 and on grasslands since 1985 (at the suggestion of
scientists working for Monsanto)

55 http://www.colbas.org/ntp/opnAxs/N06RA12E.pdf
59 In his role as FDA Chief Counsel, Richard Merrill was therefore satisfied that the FDA had gathered sufficient evidence for
G D Searle to be indicted for: “...violations of the federal Food, Drugs and Cosmetics Act...and the False Reports to the
Government Act...and for concealing material facts and making false statements in reports of animal studies conducted to
establish the safety of...the food additive Aspartame.”
60 http://ww.dorway.com/peerrev.html
Defra Expert Committee on Pesticide Residues in Food

This is why we all have glyphosate residues in our bodies: it is in our staple foods

The results from monitoring of Pesticide Residues in food have been published quarterly since 2000. Bread and breakfast cereals are staple foods but there are no maximum residue limits (MRLs) for bread or cereals. Residues in bread are tested twice a year.

2002 3rd Quarter: Comments: “Residues of chlormequat, glyphosate and pirimiphos-methyl were found (in bread). These pesticides are commonly used on cereal crops, and residues have been found in other cereal products, therefore these findings are not unexpected. None of the residues found were of concern for consumer health.”

2006 3rd Quarter: Comments: “Eating more starchy foods, like bread, is an important part of the Food Standards Agency’s (FSA) advice on healthy eating. The incidence of pesticide residues in bread is relatively high, but our assessment of the risk indicates that the levels we have found in this survey would not be expected to have an effect on health.”

2007 3rd Quarter: Comments: “Eating more starchy foods, like bread, is an important part of the FSA’s advice on healthy eating. We often find pesticide residues in bread but our assessment of the risk indicates that the levels we have found in this survey would not be expected to have an effect on health. We have asked the Secretariat to write to the Home Grown Cereals Authority about the incidence of residues.” I couldn’t find a reply.

2011 3rd/4th Quarters for Lentils: Comments: “Sixteen samples of lentils contained glyphosate above the MRL. A new higher level of glyphosate is expected to come into force in summer 2012. None of the residues detected in this survey would be above the new proposed MRL.”

The use of glyphosate for desiccation on both barley and wheat was accepted by the brewing and distilling industries in 2007 therefore it is probable that men are more likely to be overweight because of the consumption of beer or whisky with glyphosate residues. Many foods imported from the US have GM ingredients and will contain glyphosate (or other herbicide residues). These include products which are made from corn or soya, such as energy bars, sugar drinks; and fruit or vegetables. The US still does not require labelling of GM. Animals in the UK are fed with imported GM soya and maize.

When the CRD Head of Regulatory Policy replied on 28/02/2014 to defend the authorisation of glyphosate, he told me that the capability to detect individual pesticides in food had increased from 150 in 2003 to 393 in 2012. He stated: “In the 2012 Report, although there were a large number of residues found in bread, none of these were at a level to suggest a risk to consumer health.”

However, he failed to reply to my question as to why EFSA was regularly increasing the Maximum Residue Limits (MRLs) of glyphosate in foods at the request of Monsanto to accommodate their practice of desiccation of crops and to protect their imports into Europe.

EFSA’s Reasoned Opinion Panel increases MRLs at the request of industry

Monsanto Europe asked EFSA to set the import tolerance for glyphosate in lentils “in order to accommodate the authorised desiccation use of glyphosate in lentils in the US and Canada” from 0.1 mg/kg to 10 mg/kg (i.e. 100 times: January 2012). EFSA had granted similarly elevated MRLs for glyphosate on wheat and GM soya.

References:

61 http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/about-PRiF
62 Chlormequat, a plant growth regulator was present consistently throughout.
63 Pirimiphos-methyl, is an organophosphate insecticide for use in storage. The approval was revoked on 24/03/2011, but it was only finally banned 31/03/2013, presumably to allow stocks to be used up.
Widespread use of glyphosate on amenity land - but the amounts are unknown


Article 11 Use of pesticides in specific areas

**EU Directive Advice:** Use of pesticides can be particularly dangerous in very sensitive areas such as Natura 2000 sites protected in accordance with Directives 79/409/EEC and 92/43/EEC. In other places such as public parks and gardens, sports and recreation grounds, school grounds and children’s play grounds, and in the close vicinity of healthcare facilities, the risks from exposure to pesticides is high. In these areas, the use of pesticides should be minimised or prohibited. When pesticides are used, appropriate risk management measures should be established and low-risk pesticides as well as biological control measures should be considered in the first place.

**Government Response:** We do not consider it necessary to prohibit the use of pesticides in public spaces or conservation areas or to impose new statutory controls on pesticide use in these areas. We believe that the UK can meet its obligations under the Directive through existing statutory and voluntary controls and develop additional voluntary measures.

Article 10 Protection of water

**EU Directive Advice:** The aquatic environment is especially sensitive to pesticides. It is very necessary for particular attention to be paid to avoiding pollution of surface water and groundwater by taking appropriate measures such as the establishment of buffer and safeguard zones, or planting hedges along surface water to reduce exposure of water bodies to spray drift, drain flow and run-off. The dimensions of buffer zones should depend in particular pesticide properties, as well as agricultural characteristics of the areas concerned.

**Government Response:** Current statutory and voluntary controls related to pesticides and the protection of water, if followed, afford a high degree of protection to water courses and cover specific measures detailed in the Directive. The Government will primarily seek to work with the pesticides industry to enhance voluntary measures.

Article 9 Aerial Spraying.

**EU Directive Advice:** Aerial spraying of pesticides has the potential to cause significant adverse impacts on human health and the environment, in particular from spray drift. Therefore aerial spraying should generally be prohibited with derogations possible where it represents clear advantages in terms of reduced impacts on human health and the environment in comparison with other spraying methods, or where there are no viable alternatives, provided that the best available technology to reduce drift is used.

**Government Response:** We do not consider that responsible application of pesticides by aerial spraying poses an unacceptable risk to human health and the environment, and consequently we will use the derogation. We believe that the existing legislation control regime provides a basis for meeting the Directive and this will be adapted to ensure the continuation of properly regulated aerial applications through a consent-based approach.

[New guidance for aerial spraying was published on the Defra website in July 2012].

**Glyphosate preparations authorised by Chemicals Regulation Directorate (CRD)**

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In 2012 the CRD listed on its approved pesticides database 187 different glyphosate products that are licenced to be sold as suitable for the amateur gardener.\(^69\) Glyphosate preparations for professional use are even more: \(^211\).

**However, the extent of usage of glyphosate on ‘amenity’ land is ‘unknown’**

The CRD commissioned a Report *Determining the Usage and Usage Patterns of Amenity Pesticides Across the UK*, from Risk & Policy Analysts in association with Britt Vegetation Management.\(^70\) It was published in February 2011.

The customers for Contractors were: all local authorities across the UK; transport organisations (including the Highways Agency, Network Rail, British Waterways and airport management companies); Ministry of Defence; sports and leisure clubs and facilities (including golf clubs, football clubs, cricket clubs, rugby clubs, bowling greens, leisure centres); conservation bodies (including the National Trust, local Wildlife Trusts, the RSPB, Natural England, National Park Authorities, Countryside Council for Wales, Scottish Natural Heritage and the Environment and Heritage Service Northern Ireland); industrial premises, factories and utility companies; and contracted third parties.

The surface types considered were: amenity grass; sports turf; amenity woodland including tree and shrub beds; riparian and aquatic areas; roads; and other hard surfaces, including gravel/ballast surfaces, pavements and kerbs.

The Report failed to mention specifically invasive weeds that have become glyphosate-resistant super-weeds. For an unknown number of years (and in unknown quantities) Roundup\textsuperscript{®} Dakar Pro has been sprayed on Japanese knotweed in Swansea by the nationwide contractor Complete Weed Control. But it keeps on coming back.

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\(^69\) [https://secure.pesticides.gov.uk/pestreg/prodlist.asp?pageno=1\&origin=prodsearch](https://secure.pesticides.gov.uk/pestreg/prodlist.asp?pageno=1\&origin=prodsearch)

From the 240-page Report, of which more than half were questionnaires, it was apparent that:

- So few questionnaires had been returned that it wasn’t possible to apply statistics
- The authors had to extrapolate from the 2007 figures
- To supplement the absence of information they undertook detailed case reports
- The ban on diuron meant that Roundup® would be anticipated to take its place

“In 2007 it was estimated that for the 2006 calendar year, 747 tonnes of active ingredient were used in plant protection products by the amenity sector, 679 tonnes (91%) of which were herbicides and 68 tonnes (9%) were non-herbicides (algicides, fungicides, insecticides and moss-killers).”

“2012 Japanese knotweed invasion around a proposed building site in the Swansea Valley. "There are major problems and cost implications with moving the Knotweed from site so in co-operation with the Council’s Planning Department it was agreed to bury below the building using a membrane but with a spraying regime on the peripherals of the site. This has saved an enormous amount of money as the original cost of removal to a site in England of £3.6 million. The strands dominated extensive areas of the site, mainly around the perimeter. They were 2-3 metres in height and formed a closed canopy.”

Northern Indiana: Giant Ragweed (3m) resistant to glyphosate. Farm-workers have to weed by hand. There are now 22 different weeds that are glyphosate-resistant.

The rise of super-weeds resistant to glyphosate in the US. [72]

Repeated use of herbicides create super-weeds (in the US) or invasive weeds (in the UK)

The Pesticides Industry and the BBC found that it was convenient to perpetuate the myth that Japanese knotweed was brought into the UK by the Victorians. ‘Fallopia japonica was found in Japan by Phillipe von Siebold and brought back to Europe around 1829’. In fact Japanese knotweed Reynoutria japonica (syn. Polygonum cuspidatum) was introduced into Europe in the mid-16th Century by an amateur botanist from the Netherlands, Van Reynoutr (syn. Karel van Sint Omaars). For 500 years it caused no problems.

Historical and chronological evidence suggest that the herbicide glyphosate (or other herbicides that are used as alternatives) is responsible for the transformation of garden escapes into super-weeds (in the UK these are termed ‘invasive species’). Glyphosate was used repeatedly in the same areas and Japanese knotweed developed resistance to it. According to the author Richard Mabey in his book: Weeds: The Story of Outlaw Plants, “the rampaging spread across Britain in the late 1970s and 80s is regarded as a parable of the dangers of casually introducing alien species into the countryside.” However in 1969 in the UK it was still being promoted as a plant suitable for large gardens (as was a member of the Balsam species Impatiens glandulifera (royalei). Glyphosate was introduced in 1974 and by 1981 both plants were classified in the Wildlife and Countryside Act as invasive species. In the US, the first confirmed Glyphosate-Resistant weed, rigid ryegrass was reported in 1998 within two years of Genetically-Modified (GM) Roundup® Ready crops being grown. Super-weeds in the US in GM cropping systems are now a massive problem. Between 1996 and 2011, as a result of GM technology, twenty two Glyphosate-Resistant super-weeds had developed which required an additional 239 million kg of glyphosate. Some farmland has had to be abandoned in the US because weeds have to be removed by hand.

Guy Gagen, Chief Arable Adviser for the NFU, says increased glyphosate use (up one third since 2012, to an area the size of Wales) was probably due to treatment of ‘black grass’

Black grass is a glyphosate-resistant super-weed just like Japanese knotweed. Herbicide resistant black grass, first seen in 1982 (two years after farmers started spraying glyphosate pre-harvest) and is now found on 16,000 farms in 34 counties. Once resistance has occurred, there is no point in using chemical methods. All that happens is that the glyphosate builds up in ground water and the public and farmers are poisoned. But instead, the NFU has simply racked up the doses.

Urban and suburban populations are at greater risk of exposure to glyphosate

Urban populations are more at risk during heavy rainfall from run-off than are rural populations. All this suggests that the population of Swansea has been exposed massive amounts of glyphosate over the last 20 or so years without being made aware of it.

Rotterdam Council voted to ban Roundup® from the streets because of its toxicity

“Just a short while ago, on June 27th [2013] the Rotterdam city council voted to ban Monsanto’s controversial Roundup herbicide. The initiative was begun largely thanks to a citizen run petition

77 http://www.legislation.gov.uk/ukpga/1981/69
campaign appropriately named, “Non-toxic Sidewalks for Our Children”, along with a lot of support from the Green Party to get it passed.

While glyphosate (Roundup’s “active” ingredient) has long been believed to be quite non-toxic, recent studies have shown that to be very much untrue. The herbicide, currently the most used in the world by a large margin, has been found to be especially harmful when combined with the adjuvants labeled as “inert ingredients” which are designed to increase delivery of the pesticide to target plant”.

Wildlife Law: Control of Invasive Non-native Species from the Law Commission

This document states: “On 11 February 2014, we published our final report, Wildlife Law: Control of Invasive Non-native Species. This is the first item to be delivered from the full project. This element of the project was brought forward at the request of Defra and the Welsh Government to enable them to consider whether to introduce early legislation.”

If landowners do not comply, this new law will give the relevant body (Defra, the Welsh Government and statutory bodies such as the Environment Agency, Forestry Commission, Natural England and Natural Resources Wales) the power to enter land for the purposes of species control. Japanese knotweed is among the plant species specified. But the law appears reluctant to specify the method of eradication.

The reassessment of glyphosate in Europe is fraudulent. The Glyphosate Task Force provided the data; that is why they eliminated certain studies

Samsel and Seneff published Glyphosate’s suppression of Cytochrome P450 enzymes and amino acid biosynthesis by the gut microbiome: Pathways to Modern Diseases (2013)

In this Review, Samsel & Seneff argue that Glyphosate, a widely used herbicide, is associated with most of the diseases and conditions associated with those on a Western diet, including Gastrointestinal Disorders, Obesity, Depression, Autism, Infertility, Cancer and Alzheimer’s disease. I sent this paper to the CRD and the Under Secretary of State for Defra.

Chemicals Regulation Directorate and Defra Minister rejected the evidence about glyphosate

In response to an enquiry from Lord Hylton on behalf of our campaign, Lord de Mauley, the Defra Minister and CRD (31/08/2013) (at Lord Hylton’s request) sent a copy of their 9-page reply to me: Glyphosate: “The review paper by Samsel and Seneff referred to by Dr Mason suggests possible links between exposure to glyphosate and a wide range of human diseases. CRD notes that many of the proposed associations between glyphosate and human disease seem hypothetical rather than being based on convincing evidence to support cause and effect.”

Nevertheless the CRD agreed to submit this paper to Germany, the Rapporteur Member State for glyphosate, for its review of the chemical.

In a Press Release in March 2014, The President of the German Federal Institute of Risk Assessment (BfR), Prof Dr Dr Andreas Hensel, on the basis of evaluation of 150 new studies and an additional 900 studies from the scientific journals, was quoted as having said on behalf of BfR: These new studies do not suggest that glyphosate has carcinogenic or embryo-damaging properties or that it is toxic to reproduction in test animals. The data do not warrant any significant changes in the limit values of the active ingredient...

83 http://lawcommission.justice.gov.uk/publications/2612.htm
84 http://www.mdpi.com/1099-4300/15/4/1416
85 http://www.bfr.bund.de/en/press_information/2014/03/glyphosate__no_more_poisonous_than_previously_assumed__although_a_critical_view_should_be_taken_of_certain_co_formulants-188898.html
The BfR legal department claimed that the reassessment was solely done by BfR staff members. On 15/07/2014 Herr König, on behalf of the BfR Justiziariat (Legal Department), wrote to Dr Nancy Swanson with regard to her request for information (06/04/2014) about the Renewal Assessment Report (RAR) on glyphosate. Herr König said that the work on the RAR on glyphosate was “solely done by the BfR staff members of department no. 6, who are civil servant employees.”

This was not what independent scientists from the Institute of Science in Society discovered. This seems to contradict the findings of Dr Nancy Swanson and Dr Mae Wan Ho of the Institute of Science in Society (I-SIS) after detailed examination of the 15-volume, 3,744-page RAR. “But BfR and its federal agency partners did not actually review the published toxicology studies. Instead they relied on a summary provided to them by the Glyphosate Task Force (GTF). And the GTF consists of Monsanto and a consortium of chemical companies all over Europe, including Syngenta UK and Dow Italy, with an odd one from Taiwan thrown in for good measure (see pp. 9-13 of Vol. 1 of the RAR). Although the BfR added comments here and there, all the assessments of the toxicological studies were from the GTF. Hence Monsanto and other companies who stood to gain from selling glyphosate herbicides were given free rein to pronounce glyphosate effectively even safer than before, hence the increase in ADI…

Consequently, the rapporteur member state (RMS) has accepted, without question, virtually all of the unpublished reports given to them by the chemical companies. Much of the information is blacked out (author, report title, laboratory) but the sponsoring company is named (Monsanto, Syngenta etc.) and the reports are referred to by a number…

Conclusion: The entire process of risk assessment for re-approval was flawed and corrupt to the core. It is rife with conflict of interest, non-transparent and heavily biased towards unpublished, non-peer reviewed studies from industry. The RAR is worse than useless, and should be rejected outright. All available evidence including studies on commercial formulations of glyphosate herbicides should be seriously considered in any risk assessment, and by a truly independent, unbiased panel free from any conflict of interest.

The President of the BfR said that glyphosate did not affect humans and animals. In the second part of the Press Release the President went on to say: Worldwide, glyphosate is one of the most common active ingredients in pesticides used to prevent unwanted plant growth in plant cultivation or to accelerate the ripening process of crops (desiccation). Glyphosate inhibits an enzyme which is essential for the biosynthesis of certain amino acids. This enzyme is not found in animals and humans. The statement by BfR is incorrect: glyphosate poisons humans in the same way as it poisons plants. Humans and animals have exactly the same pathway as in plants; mammals can only absorb nutrients via the bacteria in their gut; the gut microbiome. The gut microbiome is the collective genome of organisms inhabiting our body.

The European Commission and EFSA appear to have delayed the verdict on glyphosate. I complained to the European Ombudsman (who can only deal with administrative matters) that the Chief Attorney to EFSA, Mr Dirk Detken, had failed to reply to my email of December 13 2013. In an apology dated 24/07/2014 the Chief Attorney stated that: “The publication of the EFSA conclusion completing this procedure is anticipated to take place by May-June 2015.” On July 30 2015 EFSA put out a press release to say they were studying the IARC full paper on the carcinogenicity of Glyphosate before they made a recommendation to the European Commission.

87 http://www.nature.com/nature/journal/v500/n7464/abs/nature12506.html
The Soil Association’s campaign NOT IN OUR BREAD and the Class Action Lawsuits against Monsanto for claiming it didn’t affect humans and animals

The Soil Association’s campaign against Glyphosate residues in our bread
On finding that there are glyphosate residues in our bread and the WHO International Agency for Research into Cancer has found out that glyphosate is probably carcinogenic to humans the Soil Association has launched a campaign NOT IN OUR BREAD.  

A Class Action Lawsuit is taken out by Los Angeles County against Monsanto for false advertising
Monsanto has misled everyone, including the German Rapporteur Member State, the European Food Safety Authority and the UK Chemicals Regulation Directorate.

The Class Action Lawsuit taken out by Los Angeles County against Monsanto is for false advertising. Monsanto, on its label, claims that Roundup® doesn’t affect humans and pets because they don’t have the shikimate (EPSP) pathway which plants have.

It is a false statement. Glyphosate not only affect plants, but humans/animals as well. The pesticides industry and its regulators are ignorant of human physiology. Humans (and animals) absorb nutrients through trillions of microbes in their gut, the human microbiome. These microbes do possess the enzyme pathway that is targeted by Roundup®. It is further stated in the lawsuit that there are many human and animal health problems associated with the disruption of our intestinal microbes.

“Because it kills-off our gut bacteria, glyphosate is linked to stomach and bowel problems, indigestion, ulcers, colitis, gluten intolerance, sleeplessness, lethargy, depression, Crohn’s Disease, Celiac Disease, allergies, obesity, diabetes, infertility, liver disease, renal failure, autism, Alzheimer’s, endocrine disruption, and the W.H.O. recently announced glyphosate is ‘probably carcinogenic’.”

The lawsuit was due to be heard on July 10th 2015, but the judge has delayed it until August. A similar lawsuit has been announced by lawyers in New York.

On July 30 2015 EFSA put out a press release: EFSA assesses IARC findings
‘EFSA’s finalised conclusion will be sent to the European Commission and published later this year.’ Presumably, EFSA and the German Rapporteur Member State BfR have ignored my emails saying that their statement Glyphosate inhibits an enzyme (5-enolpyruvylshikimate- 3-phosphate synthase) which is essential for the biosynthesis of certain amino acids. This enzyme is not found in animals and humans was wrong. It appears to be business as usual in the European Commission

Will the Glyphosate Task Force persuade EFSA and the European Commission to re-register glyphosate? As the Letter from America which was also sent to the EU; “Officials who continue to ignore this fact are guilty of a gross dereliction of duty.”

When did the Advisory Committee on Pesticides become the Expert Committee on Pesticides?

90 http://www.soilassociation.org/notinourbread
91 http://www.monsantoclassaction.org/
92 http://www.examiner.com/article/monsanto-sued-los-angeles-county-for-false-advertising
93 http://www.nature.com/nature/journal/v500/n7464/abs/nature12506.html
94 http://www.aboutlawsuits.com/roundup-class-action-lawsuit-85070/
96 http://www.bfr.bund.de/en/press_information/2014/03/glyphosate_no_more_poisonous_than_previously_assumed_although_a_critical_view_should_be_taken_of_certain_co_formulants-188898.html
On 08/03/2012 Defra launched a consultation seeking views on the future of the ACP and the sister body covering Northern Ireland, the ACPNI. One of the considerations was to abolish the ACP “and to reconstitute it as a new expert scientific committee.” The Expert CP was launched on 27 March 2015...just in time for the May 2015 meeting when they intended inviting Syngenta and Bayer to provide input to the NFU’s request to discuss the “emergency lifting of the EU moratorium on systemic neonicotinoid insecticides for oil seed rape.” There was a delay on publication of these minutes. 97 Industry representatives explained to the ECP meeting “that 79% of the oilseed rape crop was under threat or severe risk from cabbage steam flea beetle and aphids. They explained that failure to control these pests could result in significant impacts on yields. For example a significant presence of Turnip Yellow Virus could reduce yields by 6-12%. ‘High levels’ of infestation were being reported. They also outlined how the difficulty of bringing new products to the EU market meant it was unlikely that alternative pesticides would be available.”

In contrast, Italy’s partial ban on systemic neonicotinoid insecticides in 2008 was successful
At a Beekeeping Conference held in Guelph University, Ontario on 12 August 2015, 98 Prof Franco Mutinelli said Italy instituted a partial ban on neonicotinoids in 2008 and it has been extended each year since. No active substances are allowed in seed coatings and the use of neonicotinoids is restricted to specific cases. “It's been effective”, he said. "After the ban there has been strong improvement. The effect of the ban was immediate." He said corn producers were worried about losing crop yield to disease, "but that didn’t happen," he said. "The ban has been now seven years and crop yield is within the expected range."
Christian Krupke’s (University of Purdue) research indicates that the benefit of neonicotinoid treatment to corn seeds only lasts two weeks. Then it washes away with the water and seeps into the soil. Further, he said the pests the neonicotinoids are supposed to fend off are not present in the majority of farms. But they are really toxic to honey bees, he said. "The benefit of the seed treatments is hard to justify," he said. "We know the status quo just doesn't work."

Pan-European epidemiological study on honey bee colony losses EPILOBEE 2012-201499
The second and final report on the recently finished pan-European epidemiological study on honey bee colony losses EPILOBEE 2012-2014 has been prepared by the EU reference laboratory for bee health. The objective of the two-year programme was to get a state of play of honey bee colony losses on a harmonised basis in each of the participating Member States. This landmark study has revealed the UK is suffering one of the worst rates of honeybee colony deaths in Europe. 100 In the cold winter of 2012-13, 29% of honeybee colonies in the UK died, with only Belgium suffering a higher rate of losses (34%) of the 17 countries surveyed. By contrast, only 5% of colonies in Italy were lost. Not satisfied with this as proof that neonicotinoids are harmful to bees, Defra, Bayer and Syngenta insisted that a prospective study must be done.

Syngenta and Bayer are part funding, and inevitably have control, over the design of the Pan-European Pollinator Study by the Centre for Ecology and Hydrology (CEH) in 2015
Syngenta and Bayer consistently deny that neonicotinoid insecticides are harming bees. Joan Walley MP, former Chair of the Environmental Audit Committee (EAC), wrote to Professor Bailey CEH to ask to be sent the correspondence with industry. The EAC wished to be reassured that CEH had control over the Study. 101
In fact, Syngenta and Bayer are controlling the study. According to experts, the study will not meet the protection goals defined by the European Food Standards Agency (EFSA).

97 http://www.theguardian.com/environment/2015/jul/29/bee-harming-pesticide-firms-took-part-key-meeting-ban
99 http://ec.europa.eu/food/animals/live_animals/bees/study_on_mortality/index_en.htm
100 http://www.theguardian.com/environment/2014/apr/07/britain-honey-bee-colony-deaths-worst-europe-study
• Firstly, bumblebees and solitary bees are not included in the study (wild pollinators are more important for pollination of crops than managed honey bees. Bumblebees are more sensitive to imidacloprid than honey bees.)\(^{102,103}\)
• Secondly, the CEH study is designed to detect a 20% detrimental effect on bee colony sizes, while EFSA requires 7%.
• Finally, although it was recommended by the CEH that the experiment should run for at least three years, to allow for inter-annual variability due to weather and other factors, Syngenta and Bayer have said that they will only fund one year. Meanwhile, the Government has privatised Fera, the Food and Environment Research Agency.\(^{104}\)

**The BBC’s support for the Agrochemical Industry**

Open letter to the Director General of the BBC 10/12/2012
(Written on behalf of a global campaign by beekeepers, scientists, toxicologists and farmers)

Extracts

On 06/08/2012 I wrote to the BBC Complaints Unit. “Under the BBC’s charter, it is committed to achieving accuracy of reporting, impartiality and to declare conflicts of interest. The Countryfile investigation of GM crops on 15/07/2012 was inaccurate, lacked impartiality and failed to declare conflicts of interest of some of the people interviewed. The whole presentation was an outrageous travesty of the truth, presumably fed to your journalist by the government and the agrochemical industry. Thus began a three month correspondence with the BBC Complaints Unit. BBC complaints are dealt with in three stages. At each stage, my complaints yielded different explanations. The correspondence was finally terminated by Tim Davie (BBC Marketing Manager and Acting Director General) on 15/11/2012. He rejected my claim, but said: “If you are able to provide clear and specific examples when you believe a journalist has inappropriately conveyed messages from the pesticides industry...”

BBC Radio 4’s Farming Today 03/12/2012

The presenter said: “Today it is all about bees. There is a row over neonicotinoids; scientists say they interfere with navigation and want them banned. Let’s hear from all those involved in this.”

Syngenta’s Mike Bushell said there was a huge weight of evidence from the industry to show that they are safe (which no-one is allowed to see since it is ‘commercially sensitive’). He spoke in apocalyptic terms of what would happen if they were banned, in terms of yields, pest resistance and increased spraying of other ‘more dangerous’ pesticides. (In terms of toxicity to bees, if DDT equals one; thiamethoxam and clothianidin are respectively 5,400 and 6,750 times more toxic). Bushell said: “our sales in the UK are modest; farmers would be the real losers.” Caroline Drummond, the Chief Executive of LEAF, vigorously supported Bushell’s claims. LEAF is an organisation which is supported by pesticides companies. The statements were never challenged. The presenter said: “Defra are not convinced” and: “Environment Secretary Owen Paterson for the time being has ruled out a ban.” I rest my case...

BBC Panorama: GM Food – Cultivating Fear\(^{105}\)

Description in the Radio Times: “A new generation of GM foods is winning over governments and former critics of the technology, and scientists say the crops could help feed people in the developing world. So are those who oppose GM doing more harm than good? And is their opposition based on genuine safety concerns, or is it just feeding fear?”

Cultivating Myths – The Pro-GMO Bias of the BBC

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\(^{102}\) [http://www.sciencemag.org/content/336/6079/351](http://www.sciencemag.org/content/336/6079/351) Treated colonies had a significantly reduced growth rate and suffered an 85% reduction in production of new queens compared with control colonies.

\(^{103}\) [http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0079872](http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0079872)


\(^{105}\) [https://www.youtube.com/watch?v=6KruFQ2uCqk](https://www.youtube.com/watch?v=6KruFQ2uCqk)
June 9, 2015 by Lawrence Woodward and Pat Thomas:

“The pro-GM bias of the BBC was plain to see during Monday’s (8 June 2015) Panorama programme. Blinkered and narrow rather than panoramic, selective and prejudicial rather than investigative, this sorry display set a new low for a programme which was once a flagship of investigative journalism. It had no more veracity and insight than the most clichéd corporate press release and the result was that a mix of myths, deceptive assertions and inaccurate statements by pro-GM lobbyists – including those masquerading as independent scientists – were given a free ride and promotional slot on prime time television.

It’s tempting to say that you couldn’t make this stuff up – except Panorama has proven with its latest fiction that actually you can – and that you can even get the BBC (and thus the licence fee payer) to pay for it.”

Mark Lynas interviews Bangladeshi farmers and he claims a 90% success for Bt Brinjal

The following are extracts from the account by Clare Robinson of GM Watch:

107 The BBC’s claim of 90% success for Bt brinjal in Bangladesh has been challenged by a journalist. Faisal Rahman, staff correspondent for the United News of Bangladesh (UNB), contacted GMWatch after watching the programme, which he felt “denied the reality of losses the farmers of Bangladesh incurred by cultivating Bt brinjal”. Out of concern for the farmers, Rahman wanted to set the record straight. His evidence, together with subsequent investigations by GMWatch, casts serious doubt on the credibility of the BBC Panorama programme.

In the BBC Panorama programme, the narrator and frontman Tom Heap said, “After a false start last year, this season more than 90% of the GM trial plots have been successful.”

This remarkable claim is at odds with the finding of Faisal Rahman that 32 out of 40 farmers interviewed by the end of March this year complained of Bt brinjal crop failure. That’s 80% of the sample interviewed and 30% of the total of 108 farmers growing Bt brinjal. As Rahman points out, the real figure could be much higher, as he did not interview the remaining 68 farmers.

So where did Panorama’s 90% success claim come from? The source was briefly flashed up on the screen as “Cornell University”. Cornell and the Bangladesh Agricultural Research Institute (BARI) are “partner” organisations of the Agricultural Biotechnology Support Project II (ABSPII), which is promoting the Bt brinjal project in Bangladesh and the rest of South Asia.

Cornell University is home to the controversial Cornell Alliance for Science, which is publicizing the Bangladesh Bt brinjal project. The Alliance was launched last year with a $5.6 million grant from the Gates Foundation to “depolarize the charged debate around agricultural biotechnology and genetically modified organisms (GMOs).” Its partners include the GMO industry group ISAAA, which is funded by Monsanto, CropLife, and Bayer. Cornell gave Mark Lynas a Visiting Fellowship and a platform to voice his pro-GMO views. Lynas now promotes GMOs "to the exclusion of almost everything else". Cornell paid his travel expenses to the Philippines to write a pro-GMO article.

Joseph McCauley, the producer of the Panorama programme, said (to GM Watch): “As I mentioned in my email of 28th June, if you have any further comments to make or concerns about the programme, the BBC has an official complaints process. The website is www.bbc.co.uk/complaints. That is the best way to ensure your concerns are dealt with properly and formally. I am happy, however, that the programme was accurate with the information we were given.”

What happened next to Bt Brinjal? After Panorama had left, on 20 June, Faisal Rahman visited some Bt brinjal fields in Tangail with fellow journalist Delowar Jahan, staff correspondent of the daily newspaper Sokaler Khobor. BBC Panorama’s visit to Tangail had made them curious about the performance of Bt brinjal there. They called in on Hafizur Rahman, the farmer who was featured in the Panorama programme to show Bt brinjal was a success. Tellingly, Hafizur Rahman said he had “stopped taking care of his Bt brinjal field about one and a half to two months ago” because the

106 http://beyond-gm.org/cultivating-myths-the-bbc-pro-gmo-bias/
plants had been slowly dying out, from just three months after planting. His brother Alhaj had also cultivated Bt brinjal on another plot nearby, and the condition of his crop was worse. The two journalists found a significant number of the plants dead in both the fields. Many plants were bearing fruits that were unnaturally hard and some of the fruits had rotted before being fully ripe.

**Prof Jonathan Jones and the BBC fail to reveal his close ties to Monsanto**

The BBC has continually ignored the fact that there is (1) no consensus on GMO safety and (2) has deceived the public by presenting it as accepted technology. (3) Almost all of the programmes on GM feature Prof Jonathan Jones. (4) However, none of the BBC presenters declare the conflicts of interest (which have been posted on the BBC website since 2010.)

Scientist leading GM crop test defends links to US biotech giant Monsanto by Jamie Doward. 108 Research professor Jonathan Jones says his verdict on a potato trial in Norfolk “will not be influenced by his past commercial ties to Monsanto.” In a statement to the Observer, Jones insisted: “It is not true to suggest I have attempted to hide my role as co-founder and science advisory board member of Mendel Biotechnology, which has contracts with Monsanto, Bayer and BP. The information that I am co-founder... of Mendel has been in the public domain on the Mendel website for at least 10 years.”

Mendel's website states: "Mendel's most important customer and collaborator for our technology business is Monsanto, the leading agricultural biotechnology company in the world.”

Jonathan Matthews, spokesman for GM Watch, which campaigns against the technology, said: "The frontman for the latest GM push in the UK is being portrayed as a dedicated public servant doing science in the public interest, but it now appears he not only has vested interests in the success of GM but even commercial connections to Monsanto.”

It has been claimed that the first GM potatoes could be available to commercial UK growers within five years, if the Norfolk trial is successful.

Rothamsted Research’s 3-year trial of GM wheat has failed. GM wheat designed to repel aphids is no more effective at repelling the bugs than standard varieties a major field trial has revealed. 109 “The research cost of the trial was £730,000, but that figure is dwarfed by a further £400,000 spent on fencing to protect this and future trials, and an extra £1.8m used to combat threats of criminal damage and vandalism.”

**TRUST ME I’M A DOCTOR BBC2: Two Doctors pronounce on organic food and your health**

This very popular programme on BBC 2 is presented by Dr Michael Mosley and Dr Chris van Tulleken. In Series 3 Episode 3, they ask the question: *Is organic food better for your health?* 110 Twenty-nine minutes into the programme, they take 3 vegetables: carrots, apples and tomatoes. They send them to be analysed for pesticides (which?) by Professor Graham Bonwick. On his website it states: *In addition to teaching in the Departments of Biological and Clinical Sciences, I am involved in research and knowledge transfer in the food chain sciences, as well as the development of industry responsive blended learning programmes for workforce up-skilling. I am Project Director for the ERDF NowFood Project which is creating a centre of excellence (North West Food Research Development Centre) and lead the Food Growth Team in the Faculty of Life Sciences. Bonwick returns and says there are no pesticides in the organic samples and only a ‘trace’ in the non-organic which makes them ‘safe for human consumption’. They conclude therefore that it is not worth paying for organic. I sent Dr Mosley’s agent an email with the details from the Expert Committee about glyphosate (and other pesticide) residues in bread, cereals etc., the information that some farmers have been spraying glyphosate pre-harvest since 1980 together with the Soil Association Campaign and Peter*
Melchett’s information about the IARC declaration that glyphosate is a Grade 2A (probable carcinogen in humans and ‘definitely genotoxic’): www.soilassociation.org.uk/notinourbread

A DEAFENING SILENCE (apologies Dr Mosley if you haven’t replied because you are on holiday).

His agent Sophie Laurimore says the unit is very busy. Sophie launched Factual Management in 2009 ‘enabling her to focus on the representation of exceptionally talented factual television Presenters’. Coincidentally she is also the agent for Adam Rutherford of Inside Science.

**Does anyone know what is in (or not in) GM Soya or Corn?**
The US Food & Drug Administration, the UK Food Standards Agency and the European Food Standards Authority have NO IDEA. They just keep on registering them. Why?

**Because the FDA said that GMOs were ‘substantially equivalent’ to non-GMOs**
In 1992, the United States Food and Drug administration (FDA) declared GMOs to be ‘substantially equivalent’ to non-GMOs.\(^{111}\) It means that GMOs do not have to be tested at all.

**Independent Scientists have been investigating and here is what they have found**

Thomas Bøhn analysed 31 GM soy bean batches from Iowa, USA for chemical and nutrients\(^ {112}\)

- High residues of glyphosate and aminomethylphosphonic acid (AMPA) (mean 3.3 and 5.7 mg/kg) in samples of GM soya
- Low protein
- Low levels of zinc
- Higher total higher total saturated fat and total omega-6 fatty acids

![Graph showing glyphosate and AMPA levels in GM soy beans](image)

From: Compositional differences in soybeans (Organic, Conventional and GM.) from Iowa, USA. Reproduced by kind permission of Prof Thomas Bøhn, Genøk, Centre for Biosafety, Norway.

**Systems biology:** Dr. V.A. Shiva Ayyadurai Ph.D. a MIT-trained systems biologist designed ‘Cytosolve’ a new systems biology method to integrate 6,497 *in vitro* and *in vivo* laboratory experiments from 184 scientific institutions across 23 countries.\(^ {113}\) He added the following information:

- Accumulation of formaldehyde (a known Class 1 carcinogen)
- Dramatic depletion of glutathione, an antioxidant necessary for cellular detoxification


Studies in Danish Dairy cattle

- Glyphosate in the urine
- Blood parameter indicative of cytotoxicity (Increased alkaline phosphatase (AP), glutamate dehydrogenase (GLDH), glutamate oxaloacetate transaminase (GOT), creatinine kinase CK)
- Signs of nephrotoxicity (raised urea and creatine)
- Increased serum cholesterol
- Trace elements: very low levels of manganese and cobalt

Detection of Glyphosate in 38 malformed Piglets

Glyphosate residues in different organs and tissues as lungs, liver, kidney, brain, gut wall and heart of malformed euthanized one-day-old Danish piglets (N= 38) were tested using an enzyme-linked immunosorbent assay (ELISA).

- The highest concentrations were seen in the lungs (Range 0.4-80 µg/ml) and hearts (Range 0.15-80 µg/ml)
- the lowest concentrations were detected in muscles (4.4- 6.4 µg/g).

The authors gave an overview of reports of malformations in children of families living a few meters from where this herbicide was sprayed. The risk of malformation in human embryos is very high when their mothers are contaminated at 2 to 8 weeks of pregnancy.

Detection of glyphosate residues in human breast milk in the US

The levels found in the breast milk testing of 76 µg/l – 166 µg/l are 760 to 1600 times higher than the European Drinking Water Directive allows for individual pesticides (Glyphosate is both a pesticide and herbicide). They are however less than the 700 µg/l maximum contaminant level (MCL) for glyphosate in the U.S., which was decided upon by the U.S. Environmental Protection Agency (EPA) based on the now seemingly false premise that glyphosate was not bio-accumulative. The glyphosate testing commissioned by Moms Across America and Sustainable Pulse, with support from Environmental Arts & Research, also analyzed 35 urine samples and 21 drinking water samples from across the US and found levels in urine that were over 10 times higher than those found in a similar survey done in the EU by Friends of the Earth Europe in 2013.

A deformed piglet; Siamese twins. Photograph by kind permission of Ib Borup Pedersen, Denmark.

114 http://dx.doi.org/10.4172/2161-0525.1000186
116 http://www.momsacrossamerica.com/glyphosate_testing_results
Glyphosate associated with diseases in animals

- Botulism

Krüger et al., who have studied the damaging effects of glyphosate on the beneficial gut biota of poultry,117 in a paper: *Visceral botulism at dairy farms in Schleswig Holstein, Germany* the authors show that the farmers who look after sick cattle with botulism often have botulism too. *C. botulinum* occurs in cows’ and farmers’ faeces and in cattle feeds.118 The researchers show that the humans are most likely contracting their infections, not from the cattle but from the feeds, because the same type of botulinum is present in both humans and feeds, but the type of botulinum in the cattle is different. There is now a strong probability that glyphosate residues in animal feeds result in botulism in the cattle and also in related ailments in poultry.

In a mega dairy in Wales 160 cows died from an outbreak of botulism in May 2014. About 20 incidents of botulism in the UK are recorded each year, the Agency added, “but because botulism is not a notifiable disease, this figure is unlikely to be truly representative of the disease’s incidence.”

**Glyphosate in other species:** “In the present study”119 glyphosate residues were tested in urine and different organs of dairy cows as well as in urine of hares, rabbits and humans using ELISA and Gas Chromatography-Mass Spectroscopy (GC-MS). The correlation coefficients between ELISA and GC-MS were 0.96, 0.87, 0.97 and 0.96 for cattle, human, and rabbit urine and organs, respectively. Glyphosate excretion in German dairy cows was significantly lower than Danish cows. Cows kept in genetically modified free area had significantly lower glyphosate concentrations in urine than conventional husbandry cows. Also glyphosate was detected in different organs of slaughtered cows as intestine, liver, muscles, spleen and kidney. Fattening rabbits showed significantly higher glyphosate residues in urine than hares. Moreover, glyphosate was significantly higher in urine of humans with conventional feeding. Furthermore, chronically ill humans showed significantly higher glyphosate residues in urine than healthy population. The presence of glyphosate residues in both humans and animals could haul the entire population towards numerous health hazards, studying the impact of glyphosate residues on health is warranted and the global regulations for the use of glyphosate may have to be re-evaluated.”

**A Special Report on Deformities, Sickness and Livestock Deaths**

The real cost of GM and animal feed appeared on 28/11/2013.120 As well as the above pig study, several papers have demonstrated the effects of glyphosate on pathogens in farm animals: it destroys beneficial bacteria and allows harmful ones, such as *salmonella*, and *clostridium*, to flourish. The action of glyphosate as a biocide on normal gut flora could be a significant predisposing factor to the increases in *Clostridium botulinum*-associated diseases121 in cattle which have occurred in Germany over the last 10-15 years.122 Similar effects have been shown gut bacteria in poultry123 and on microorganisms in milk.124

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121 http://www.sciencedirect.com/science/article/pii/S1075996411002344
122 https://www.ncbi.nlm.nih.gov/m/pubmed/23396248/?i=4&from=/15071029/related
Glyphosate has been found in the urine of urban populations and farmers. “In the search for the causes of serious diseases of entire herds of animals in Northern Germany especially cattle, glyphosate has repeatedly been detected in the urine, faeces, milk and feed of the animals.”

Evidence of GMO harm in pig study

This was a combined study between the US and Australia. GM-fed females had on average a 25% heavier uterus than non-GM-fed females, a possible indicator of disease that requires further investigation. Also, the level of severe inflammation in stomachs was markedly higher in pigs fed on the GM diet. The research results were striking and statistically significant. Lead researcher Dr Judy Carman, adjunct associate professor at Flinders University, Adelaide, Australia, said: “Our findings are noteworthy for several reasons.

- First, we found these results in real on-farm conditions, not in a laboratory, but with the added benefit of strict scientific controls that are not normally present on farms.
- Second, we used pigs. Pigs with these health problems end up in our food supply. We eat them.
- Third, pigs have a similar digestive system to people, so we need to investigate if people are also getting digestive problems from eating GM crops.
- Fourth, we found these adverse effects when we fed the animals a mixture of crops containing three GM genes and the GM proteins that these genes produce. Yet no food regulator anywhere in the world requires a safety assessment for the possible toxic effects of mixtures. Regulators simply assume that they can’t happen.

Our results provide clear evidence that regulators need to safety assess GM crops containing mixtures of GM genes, regardless of whether those genes occur in the one GM plant or in a mixture of GM plants eaten in the same meal, even if regulators have already assessed GM plants containing single GM genes in the mixture.” Iowa-based farmer and crop and livestock advisor Howard Vlieger, one of the coordinators of the study, said: “For as long as GM crops have been in the feed supply, we have seen increasing digestive and reproductive problems in animals. Now it is scientifically documented. In my experience, farmers have found increased production costs and escalating antibiotic use when feeding GM crops. In some operations, the livestock death loss is high, and there are unexplained problems including spontaneous abortions, deformities of new-born animals, and an overall listlessness and lack of contentment in the animals.”

Plant immune systems are similar to those of animals. Is that why we are plagued with diseases of trees?

Prof Jeff L Dangl of North Carolina, Chapel Hill is an expert on the plant immune systems. “Many of these proteins (in plants) fall into a class of proteins that has related members which function in innate animal immunity...Thus activation of plant immune systems is akin to that of animal immune systems where ‘modified self’ can be recognised to trigger an appropriate response...”

Farmers use more carcinogenic weed killer

According to Ben Webster, the Times Environment Correspondent: “Farmers have sharply increased their use of a weed killer that has been classified as ‘probably carcinogenic in humans.’ More than 1,700 tonnes of glyphosate were sprayed on crops last year, up a third on 2012, according to the Department for Environment, Food and Rural Affairs (Defra). The total area sprayed with the weed killer grew by almost 500,000 hectares to 2.1 million hectares, an area the size of Wales.” Guy Gagen, chief arable adviser for the National Farmers’ Union, said that glyphosate usage had probably increased to control black-grass*, a weed that is resistant to weaker herbicides. He said: “No farmer would be wanting to put a chemical on a crop when he doesn’t need to.” He added that

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125 http://www.ithaka-journal.net/druckversionen/e052012-herbicides-urine.pdf
126 http://www.organic-systems.org/journal/81/B106.pdf
127 http://www.thetimes.co.uk/tto/environment/article4528297.ece
spraying wheat could result in traces of glyphosate ending up in bread sold in supermarkets but the amount was well below the maximum residue level set by the EU.

A Defra spokesman said: “There are extensive regulations in place so that people and the environment are protected from pesticides. The approval of glyphosate for use across Europe is being reviewed by the EU Commission.”

*HERBICIDE RESISTANT BLACKGRASS, FIRST SEEN IN 1982 IS NOW FOUND ON 16,000 FARMS IN 34 COUNTIES.* This is a glyphosate-resistant super weed, the same as in GM in the US and Japanese Knotweed in the UK. Does the NFU really want GMO technology?

Defra and CRD in denial: Pesticides Forum Annual Report 2011 Executive Summary

Pesticides Forum Annual Report in 2011 stated that: “the use of pesticides is not adversely impacting on the health of UK citizens or the environment. This is testimony to the effectiveness of both statutory and voluntary controls.”

Monsanto’s document: The agronomic benefits of glyphosate in Europe [2010]

Page 3: “Since its discovery in the early 1970’s the unique herbicidal active ingredient glyphosate ‘has become the world’s most widely used herbicide because it is efficacious, economical and environmentally benign.’ These properties have enabled a plethora of uses which continue to expand to this day providing excellent weed control both in agricultural and non-crop uses to benefit mankind and the environment.” Glyphosate has an “excellent safety profile to operators, the public and the environment”. The document outlined at least 16 use areas (p3) from vegetation control on land throughout agricultural production, on GM Roundup® Ready Crops and on non-agricultural land “around structures on farms, amenity and industrial areas and on railways” (p 4).

Has the NFU considered that the application of glyphosate to crops and grassland of the use of GM soya feed may have predisposed herds to Mad Cow Disease, New Variant CJD and/or TB?

Have they measured glyphosate in dairy cows as has been done in Europe?

Does anyone know how many patents Monsanto has filed on glyphosate? The answer is four

Four different patents have been filed for glyphosate in the US by Monsanto (and granted)

- As a chelator of heavy metals (used to clean boilers) and a wetting agent in 1961
- As a herbicide in 1968
- As an antibiotic in 2002
- As an anti-protozoal agent in 2003

“Antibiotic-resistant diseases pose an ‘apocalyptic’ threat to humans.” Vets, farmers and GPs were blamed for overuse of antibiotics. In 2013, the Chief Medical Officer told MPs that this issue should be added to the national risk register of civil emergencies. In March 2014 I wrote to inform her that glyphosate had been patented as an antibiotic. I finally had a reply: “Given the detailed

130 http://www.google.com/patents/US3160632
131 http://www.google.com/patents/US3455675
132 http://www.google.com/patents/US7771736
regulatory regime for plant protection products, this is the most appropriate place for these issues to be considered.”

When Prof Mark Woolhouse, Professor of Infectious Disease Epidemiology at the University of Edinburgh, and Dr Jeremy Farrar, Director of the Wellcome Trust, published an article in *Nature* on 29/04/2014 about the Intergovernmental Panel on Antimicrobial Resistance I wrote to inform them that glyphosate had been patented as an antibiotic. I received no reply.

There is a recent scientific paper that confirms it. *Sublethal Exposure to Commercial Formulations of the Herbicides Dicamba, 2,4-Dichloro- phenoxyacetic Acid, and Glyphosate Cause Changes in Antibiotic Susceptibility in Escherichia coli and Salmonella enterica serovar Typhimurium.* Note that all three herbicides alter the antibiotic susceptibility of various microbes. The authors discuss the importance of this discovery.

**IMPORTANCE** Increasingly common chemicals used in agriculture, domestic gardens, and public places can induce a multiple antibiotic resistance phenotype in potential pathogens. The effect occurs upon simultaneous exposure to antibiotics and is faster than the lethal effect of antibiotics. The magnitude of the induced response may undermine antibiotic therapy and substantially increase the probability of spontaneous mutation to higher levels of resistance. The combination of high use of both herbicides and antibiotics in proximity to farm animals and important insects, such as honeybees, might also compromise their therapeutic effects and drive greater use of antibiotics. To address the crisis of antibiotic resistance requires broadening our view of environmental contributors to the evolution of resistance.

**Why are the US EPA, the European Union and the UK Environment Agency not measuring glyphosate in water?**

After all, globally it is the most widespread herbicide in use. Why aren’t our governments protecting us by measuring it? The Chairman of the UK Environment refused to measure it. Dr Jo Kennedy replied on Lord Smith’s behalf on 1st May 2013. With regard to glyphosate, she replied: “The GCMS scan is not able to measure glyphosate, and glyphosate is not part of the routine suite of substances monitored for nationally across our network. The main reason for this is that glyphosate analysis is relatively costly and it was felt that the additional costs of analysis could not be justified. If local glyphosate problems have been identified in groundwater the Environment Agency can carry out operational monitoring at a local level.”

However, authors of the British Geological Survey (BGS) Report: *Emerging Contaminants in Groundwater* said: Glyphosate degradation product AMPA is four times the parent and may be problematic. Analysis of both is difficult.

According to the (BGS) Report on Emerging Contaminants in Groundwater (2011) page 35: “Glyphosate is now the most widely used herbicide in the world, with dramatic increases in agricultural use since the introduction of glyphosate resistant crops. Microbial degradation produces aminomethyl phosphonic acid (AMPA) (Kolpin et al., 2000) and it has been anticipated that AMPA may be problematic. The high water solubility of both the parent and the metabolite has meant that their analysis has been difficult. Although AMPA has a DT50 of about 151 days and is therefore persistent it also has a relatively high Koc of 8087 and would not be classified as vulnerable to leaching by the simple method described above. Similarly for parent compounds which have non-agricultural applications, there will be routes to groundwater which would not be identified, such as

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136 [http://mbio.asm.org/content/6/2/e00009-15.full.pdf+html](http://mbio.asm.org/content/6/2/e00009-15.full.pdf+html)

137 [http://nora.nerc.ac.uk/14557/1/OR11013.pdf](http://nora.nerc.ac.uk/14557/1/OR11013.pdf)
routes which do not pass through the soil zone. Kolpin (2006) showed AMPA to be detected in wastewater-impacted surface waters about four times as frequently as the parent.”

Was the BGS Report not published because it revealed some Environment Agency data for atrazine that the Government wanted to conceal?
Syngenta’s triazine herbicides, atrazine and simazine, are prime examples of how the control by industry in the UK has been exerted for many years. Both these chemical were banned in Europe in 2004 (2004/248/EC) with exceptions for a few countries, but for not more than one year. Defra figures show that atrazine continued to be used until 2008. The BGS Report revealed that the Environment Agency Groundwater Database had recorded a maximum concentration of atrazine of 13.04µg/l. That is 130 times the EU legal limit for groundwater (2004/248/EC).

First national-scale reconnaissance of neonicotinoid insecticides in streams across the USA
This paper presents a summary of concentrations of six neonicotinoids in streams from across the United States in both urban and agricultural areas. These environmental data are important in determining the potential risk of neonicotinoids to non-target aquatic and terrestrial organisms. In a nationwide study, at least one neonicotinoid was detected in 53 % of the samples collected, with imidacloprid detected most frequently (37 %), followed by clothianidin (24 %), thiamethoxam (21 %), dinofeturan (13 %), acetamiprid (3 %) and thiacloprid (0 %). Clothianidin and thiamethoxam concentrations were positively related to the percentage of the land use in cultivated crop production and imidacloprid concentrations were positively related to the percentage of urban area within the basin.

Glyphosate and its degradation product AMPA occur frequently and widely in U.S. soils, surface water, groundwater, and precipitation.
This is the conclusion of the latest independent survey from the US Geological Survey (USGS) in 2014. "The most comprehensive research to date on environmental glyphosate levels exposes the widespread contamination of soil and water in the US, as well as its water treatment system. Looking at a wide range of geographical locations, researchers from the USGS analysed 3,732 water and sediment samples and 1,081 quality assurance samples collected between 2001 and 2010 from 38 states in the US and the district of Colombia. They found glyphosate in 39.4% of samples (1,470 out of 3,732) and its metabolite aminomethylphosphonic acid (AMPA) in 55% of samples.

In the US, Benton County’s 3-year control of river weeds; is it linked to the fatal birth defect anencephaly?
Washington State has a Noxious Weed Control Board and glyphosate is the main herbicide recommended for noxious weed eradication. Benton County Herbicide treatment started in the Yakima River in 2010 and continued for 3 years without monitoring glyphosate levels in water. Three Washington Counties (Yakima, Benton and Franklin) sharing the same irrigation water for agriculture, reported a high number of pregnancies resulting in a fatal birth defect, anencephaly. The cause was ‘a mystery’ to state health officials.

139 https://secure.fera.defra.gov.uk/pusstats/myresults.cfm
143 http://farmwars.info/?p=11137
Many diseases in the UK and the US are spiralling out of control; obesity, diabetes, congenital anomalies, cancers, etc. The Government and the NHS blame the people, but chemicals and corporations are to blame.

Deaths from the under 5s in the UK are twice those of Sweden and the three main causes are prematurity, congenital malformations and infections.

The mortality rates for the three main causes of death in the UK (prematurity, congenital malformations and infections) were 138.5, 112.1 and 63.9, respectively, per 100,000 children for the three years 2006-2008. The mortality rates for the same three conditions in Sweden were 10.1, 88.6 and 34.8, respectively.

Congenital anomalies were mentioned as having increased in the Global burden of Disease study 1990-2010. Between 1990 and 2010, Britain and the US have slipped down the scale of health compared with other wealthy nations and the patterns of disease are remarkably similar.

In the US: “However, morbidity and chronic disability now account for nearly half of the US health burden, and improvements in population health in the United States have not kept pace with advances in population health in other wealthy nations”.

In the UK: “The performance of the UK in terms of premature mortality is persistently and significantly below the mean of EU15+ and requires additional concerted action... premature mortality from several major causes such as cardiovascular disease and cancers... In terms of premature mortality worsening ranks are most notable for men and women aged 20-54 years. Increases in Alzheimer’s disease, breast cancer, oesophageal cancer, congenital anomalies “and a growing burden of disability, particularly from mental disorders” are all acknowledged.

145 http://adc.bmj.com/content/early/2015/07/15/archdischild-2014-308059
Overweight and obesity in mid-life: Evidence from the 1970 British Cohort Study

The Centre for Longitudinal Studies based at the Institute of Education University of London published their latest report on 9 November 2013. Their key findings of the cohort at age 42 were that:

- The generation born in 1970 is considerably more likely to be overweight or obese than those born 12 years earlier were at the same age.
- Men born in 1970 are far more likely to be overweight than women.

Historical and projected overweight rates in OECD countries

UK farmers have been spraying glyphosate on crops pre-harvest since 1980. Countries with the biggest obesity problem are the US and the UK. The ministerial meeting in Paris in 2010 shows England’s projected obesity rates rising in parallel with the US. It is predicted that by 2020, 75% of the US population, 69% of the population in England and 65% of the Australian population will be overweight (Page 6, Healthy Choices). Australia is now growing commercial GM Roundup® Ready crops and is not far behind. In 1992, Australia “got into bed with global corporations.”

Obesity levels in England are second only to the US and are running a parallel course to the US

Children: Almost one in four Australian children (23%) are overweight or obese and one in three expected to be by 2025 (AIHW 2012). Children who are obese are more likely than other children to develop asthma, type 2 diabetes, cardiovascular conditions and some cancers.

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148 Overweight and obesity in mid-life: Evidence from the 1970 British Cohort Study at age 42
149 The use of glyphosate for desiccation on both barley and wheat was accepted by the brewing and distilling industries in 2007 therefore it is probable that men are more likely to be overweight because of the consumption of beer or whisky with glyphosate residues
150 http://www.grainfarmers.co.uk/seeddownloads/Roundup%20on%20seed%20milling%20and%20malting.pdf
151 Healthy Choices OECD Health Ministerial Meeting, Paris, 7-8 October 2010
153 Healthy Choices OECD Health Ministerial Meeting, Paris, 7-8 October 2010
The British Prime Minister’s warning to obese people about depriving them of sickness benefits

“People who cannot work because they are overweight or suffering addiction problems could be threatened with losing their sickness benefits if they do not accept treatment under plans due to be outlined by David Cameron on Saturday.” 155

Glyphosate, pathways to modern diseases II: Celiac sprue and gluten intolerance. 156
Samsel, A. and Seneff, S. Glyphosate, pathways to modern diseases II: Celiac sprue and gluten intolerance

Abstract Celiac disease, and, more generally, gluten intolerance is a growing problem worldwide, but especially in North America and Europe, where an estimated 5% of the population now suffers from it. Symptoms include nausea, diarrhea, skin rashes, macrocytic anemia and depression. It is a multifactorial disease associated with numerous nutritional deficiencies as well as reproductive issues and increased risk to thyroid disease, kidney failure and cancer. Here, we propose that glyphosate, the active ingredient in the herbicide, Roundup®, is the most important causal factor in this epidemic. Fish exposed to glyphosate develop digestive problems that are reminiscent of celiac disease. Celiac disease is associated with imbalances in gut bacteria that can be fully explained by the known effects of glyphosate on gut bacteria. Characteristics of celiac disease point to impairment in many cytochrome P450 enzymes, which are involved with detoxifying environmental toxins, activating vitamin D3, catabolizing vitamin A, and maintaining bile acid production and sulfate supplies to the gut. Glyphosate is known to inhibit cytochrome P450 enzymes. Deficiencies in iron, cobalt, molybdenum, copper and other rare metals associated with celiac disease can be attributed to glyphosate’s strong ability to chelate these elements. Deficiencies in tryptophan, tyrosine, methionine and selenomethionine associated with celiac disease match glyphosate’s known depletion of these amino acids. Celiac disease patients have an increased risk to non-Hodgkin’s lymphoma, which has also been implicated in glyphosate exposure. Reproductive issues associated with celiac disease, such as infertility, miscarriages, and birth defects, can also be explained by glyphosate. Glyphosate residues in wheat and other crops are likely increasing recently due to the growing practice of crop desiccation just prior to the harvest. We argue that the practice of “ripening” sugar cane with glyphosate may explain the recent surge in kidney failure among agricultural workers in Central America. We conclude with a plea to governments to reconsider policies regarding the safety of glyphosate residues in foods.

Glyphosate, pathways to modern diseases III: Manganese, neurological diseases, and associated pathologies 157
Samsel A, Senef S. Glyphosate, pathways to modern diseases III: Manganese, neurological diseases, and associated pathologies.

Abstract Manganese (Mn) is an often overlooked but important nutrient, required in small amounts for multiple essential functions in the body. A recent study on cows fed genetically modified Roundup®-Ready feed revealed a severe depletion of serum Mn. Glyphosate, the active ingredient in Roundup®, has also been shown to severely deplete Mn levels in plants. Here, we investigate the impact of Mn on physiology, and its association with gut dysbiosis as well as neuropathologies such as autism, Alzheimer’s disease (AD), depression, anxiety syndrome, Parkinson’s disease (PD), and prion diseases. Glutamate overexpression in the brain in association with autism, AD, and other neurological diseases can be explained by Mn deficiency. Mn superoxide dismutase protects mitochondria from oxidative damage, and mitochondrial dysfunction is a key feature of autism and Alzheimer’s. Chondroitin sulfate synthesis depends on Mn, and its deficiency leads to osteoporosis and osteomalacia. Lactobacillus, depleted in autism, depend critically on Mn for antioxidant protection. Lactobacillus probiotics can treat anxiety, which is a comorbidity of autism and chronic

156 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3945755/
fatigue syndrome. Reduced gut Lactobacillus leads to overgrowth of the pathogen, Salmonella, which is resistant to glyphosate toxicity, and Mn plays a role here as well. Sperm motility depends on Mn, and this may partially explain increased rates of infertility and birth defects. We further reason that, under conditions of adequate Mn in the diet, glyphosate, through its disruption of bile acid homeostasis, ironically promotes toxic accumulation of Mn in the brainstem, leading to conditions such as PD and prion diseases.

UK cancer survival rates trail 10 years behind other European countries

Cancer survival rates in the UK are still lagging more than two decades behind those achieved in many European countries, according to new analysis by campaigners on 25th March 2015. The Concord-2 global study looked at survival rates in 67 countries for patients diagnosed with lung, breast, colon and stomach cancers in 1995 to 1999, compared with levels in 2005 to 2009.

Genetically-engineered crops, glyphosate and the deterioration of health in the United States of America. Swanson et al.

Abstract: A huge increase in the incidence and prevalence of chronic diseases has been reported in the United States (US) over the last 20 years. Similar increases have been seen globally. The herbicide glyphosate was introduced in 1974 and its use is accelerating with the advent of herbicide-tolerant genetically engineered (GE) crops. Evidence is mounting that glyphosate interferes with many metabolic processes in plants and animals and glyphosate residues have been detected in both. Glyphosate disrupts the endocrine system and the balance of gut bacteria, it damages DNA and is a driver of mutations that lead to cancer.

In the present study, US government databases were searched for GE crop data, glyphosate application data and disease epidemiological data. Correlation analyses were then performed on a total of 22 diseases in these time-series data sets. The Pearson correlation coefficients are highly significant (< 10^-5) between glyphosate applications and hypertension (R = 0.923), stroke (R = 0.925), diabetes prevalence (R = 0.971), diabetes incidence (R = 0.935), obesity (R = 0.962), lipoprotein metabolism disorder (R = 0.973), Alzheimer’s (R = 0.917), senile dementia (R = 0.994), Parkinson’s (R = 0.875), multiple sclerosis (R = 0.828), autism (R = 0.989), inflammatory bowel disease (R = 0.938), intestinal infections (R = 0.974), end stage renal disease (R = 0.975), acute kidney failure (R = 0.978) cancers of the thyroid (R = 0.988), liver (R = 0.960), bladder (R = 0.981), pancreas (R = 0.918), kidney (R = 0.973) and myeloid leukaemia (R = 0.878). The Pearson correlation coefficients are highly significant (< 10^-4) between the percentage of GE corn and soy planted in the US and hypertension (R = 0.961), stroke (R = 0.983), diabetes prevalence (R = 0.983), diabetes incidence (R = 0.955), obesity (R = 0.962), lipoprotein metabolism disorder (R = 0.955), Alzheimer’s (R = 0.937), Parkinson’s (R = 0.952), multiple sclerosis (R = 0.876), hepatitis C (R = 0.946), end stage renal disease (R = 0.958), acute kidney failure (R = 0.967), cancers of the thyroid (R = 0.938), liver (R = 0.911), bladder (R = 0.945), pancreas (R = 0.841), kidney (R = 0.940) and myeloid leukaemia (R = 0.889). The significance and strength of the correlations show that the effects of glyphosate and GE crops on human health should be further investigated.

In the US glyphosate and GM crops have high correlations with human diseases, including cancers. Public Health England shares my concern about the prevalence of chronic diseases in the UK such as obesity, type 2 diabetes, cardiovascular disease and cancer.

Cancer Research UK website shows similar trends for certain cancers

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160 Personal communication: email January 2015.
The Cancer Research UK (CRUK) website shows similarly increasing trends over time in graphs from 1975 (when glyphosate was introduced) for thyroid cancer, breast cancer, prostate cancer, malignant melanoma, liver cancer, myeloma, and anal cancer. The CRUK website on Pesticides and Cancer denies any link: “For now, the evidence is not strong enough to give us any clear answers. But for individual pesticides, the evidence was either too weak to come to a conclusion, or only strong enough to suggest a ‘possible’ effect. The scientific evidence on pesticides and cancer is still uncertain and more research is needed in this area. (N.B. The current Chairman of CRUK was founder of Syngenta, whose parent company is the pharmaceutical firm AstraZeneca.)

Warnings about exposure to chemicals damaging the developing foetus/human brain

The Faroes Statement: Human Health Effects of Developmental Exposure to Chemicals in Our Environment

In 2007 twenty-five experts in environmental health from eleven countries (including from the UK) met on the Faroes and contributed to this statement. “The periods of embryonic, foetal and infant development are remarkably susceptible to environmental hazards. Toxic exposures to chemical pollutants during these windows of increased susceptibility can cause disease and disability in infants, children and across the entire span of human life. Among the effects of toxic exposures recognized in the past have been spontaneous abortion, congenital malformations, lowered birthweight and other adverse effects. These outcomes may be readily apparent. However, even subtle changes caused by chemical exposures during early development may lead to important functional deficits and increased risks of disease later in life. The timing of exposure during early life has therefore become a crucial factor to be considered in toxicological assessments.”

Prof Philippe Grandjean, Lead Author of the Faroes Statement is Professor of Environmental Health, Harvard University and University of Southern Denmark. He runs a website devoted to chemicals that damage foetal brains. He published a book in May 2013. Only One Chance: How Environmental Pollution Impairs Brain Development – and How to Protect the Brains of the Next Generation.


UK Ministers refused to acknowledge that exposure to pesticides during pregnancy is harmful

The Defra Minister, the Defra Chief Scientist and Dave Bench Chief Scientist CRD gave evidence to the Environmental Audit Committee Inquiry Insects and Insecticides. When questioned by Dr Matthew Offord MP (Q359) about removing amateur applications of pesticides, they all agreed that

http://www.cancerresearchuk.org/cancer-info/cancerstats/types/thyroid/incidence/
http://www.cancerresearchuk.org/cancer-info/cancerstats/types/breast/incidence/#trends
http://www.cancerresearchuk.org/cancer-info/cancerstats/types/liver/incidence/#trends
http://www.cancerresearchuk.org/cancer-info/cancerstats/types/myeloma/incidence/#trends
http://www.cancerresearchuk.org/cancer-info/healthyliving/cancercontroversies/pesticides/

www.chemicalbraindrain.info Today, one out of every six children suffers from some form of neurodevelopmental abnormality. The causes are mostly unknown. Some environmental chemicals are known to cause brain damage and many more are suspected of it, but few have been tested for such effects. The brain’s development is uniquely sensitive to toxic chemicals, and even small deficits may negatively impact our academic achievements, economic success, risk of delinquency, and quality of life. Chemicals such as lead, mercury, polychlorinated biphenyls (PCBs), arsenic, and certain solvents and pesticides pose an insidious threat to the development of the next generation’s brains.

Pediatrics 2012; e1757-e1763. http://pediatrics.aappublications.org/content/130/6/e1757
it wasn’t necessary to ban domestic use. Could it be because Bayer had just re-launched their garden products campaign? When the Royal College of Obstetricians and Gynaecologists published their advice to avoid chemical exposure during pregnancy, there was a barrage of press coverage quoting those who dismissed the advice as ridiculous. This included the CMO at the Department of Health and Tracey Brown, a pro-GM lobbyist from Sense About Science.

Academic performance of 15-year-olds has deteriorated since the 1990s says Gove; the UK ratings have declined significantly in the Programme for International Student Assessment (PISA) PISA is a worldwide study by the Organisation for Economic Co-operation and Development (OECD) in member and non-member nations of 15-year-old school pupils' scholastic performance on mathematics, science, and reading. It was first performed in 2000 and then repeated every three years. It is done with a view to improving education policies and outcomes. It measures problem solving and cognition in daily life.

The UK is falling behind global rivals in international tests taken by 15-year-olds, failing to make the top 20 in maths, reading and science (December 2013). Although not directly comparable, because there have been different numbers of countries taking part, this marks a sustained decline, with the UK having ranked 4th in the tests taken in 2000.

The UK has made little progress and remains among the average, middle-ranking countries, in 26th place for maths and 23rd for reading, broadly similar to three years ago. England’s Education Secretary Michael Gove said since the 1990s, test performances had been "at best stagnant, at worst declining.

Children in the UK have been exposed to toxic chemicals at home from the earliest stage of development in utero when their brain is only the size of an insect

Dr Henk Tennekes was the first independent researcher to recognise the extreme toxicity of low levels of systemic neonicotinoid insecticides, which have become widespread in the environment. They cause a virtually irreversible blockage of postsynaptic nicotinergic acetylcholine receptors (nAChRs) in the central nervous system of insects (to which the human foetus is also exposed). He said the damage is cumulative, and with more exposure more receptors are blocked. He predicted that there may be no safe level of exposure. Many independent scientists have demonstrated that the neonicotinoid insecticides have effects on the mammalian brain, particularly on the foetus. In 2000, Tomiwaza et al. showed that neonicotinoids acted on mammalian nicotinic acetylcholine receptors as well as those of insects, but considered that the selective nature of its binding (i.e. less affinity than in insects) made them safe

172 Lord de Mauley: The products for use in gardens have very clear instructions for use. No product is approved for garden use if the correct use would require either training or protective clothing. The levels of toxicity for products that are approved for garden use are generally considerably lower than for professional use. So we think that the level of control is appropriate. http://www.publications.parliament.uk/pa/cm201213/cmemselect/cmenvaud/668/668.pdf
173 http://www.gardenforum.co.uk/tradeforum/people/news?artid=2382
175 http://www.theguardian.com/lifeandstyle/2013/jun/07/pregnancy-advice-royal-college-health-chief
176 In 2009 this pro-GM registered Charity, Sense About Science, published a document to educate the general public called “Making sense of GM”. Eight of the 28 main authors were members of the John Innes Centre. Three were FRS and another two Fellows’ contributions were acknowledged. The author of the introduction was Prof Jonathan Jones FRS (The Sainsbury Laboratory, John Innes Centre). Other conflicts of interest of authors were also undeclared. Prof Vivian Moses was Chairman of CropGen. In addition, Private Eye (1232: 20/03–2/04/2009) had obtained a previous draft document in which a listed author was Andrew Cockburn, Monsanto’s former Director of Scientific Affairs. According to Making Sense of GM, the concept of super-weeds had been grossly exaggerated by the newspapers: “they already occur in conventional agriculture.”
177 http://www.cmec.ca/252/Programs-and-Initiatives/Assessment/Programme-for-International-Student-Assessment-(PISA)/PISA-2012/index.html
178 http://www.bbc.co.uk/news/education-25187997
179 http://farmlandbirds.net/sites/default/files/Tennekes_2010_2.pdf
for human exposure. However, they are long-acting and are now widespread in the environment. Clothianidin, for example, has a half-life in soil of up to 1386 days so it accumulates in the soil yet farmers apply neonicotinoids blindly the following year. There are several papers that have shown harmful effects of neonicotinoids on mammalian nicotinic acetylcholine receptors. (Li et al., Abou-Donia et al., and Kimura-Kuroda et al.)

The UK Government fights hard to oppose the neonicotinoid insecticide ban on behalf of industry
On January 16 2013 EFSA scientists identified a number of risks posed to bees by three neonicotinoid insecticides and in May 2013 the European Commission has decided to ban three neonicotinoid insecticides on crops attractive to bees; imidacloprid, clothianidin (both Bayer) and thiamethoxam (Syngenta). In a secret letter Owen Paterson told the chemical company Syngenta (in April 2013) that he was extremely disappointed by the European commission’s proposed ban. He said that ‘the UK has been very active’ in opposing it and ‘our efforts will continue and intensify in the coming days.’ The Government rejects the science behind neonicotinoid ban.

In the secret correspondence with Syngenta, Paterson indicated that they had been discussing Endocrine Disrupting Chemicals. Industry had been trying to delay the ban in Europe. “You raise the point that this issue is one of several that impact on the availability of pesticides in agriculture. We are well aware of this point and you will know that amongst other things, the UK has been arguing hard for a proportionate approach to regulating Endocrine Disrupting Chemicals.”

The herbicides glyphosate and atrazine have been shown to cause endocrine disruption.

Do Owen Paterson and the UK Government know what Endocrine Disrupting Chemicals are?

Endocrine Disrupting Chemicals (EDC) – 2012 Report Commissioned by WHO and UNEP
An assessment of the State of Science of Endocrine Disruptors was prepared for the United Nations Environment Program and the World Health Organization by a group of approximately 50 expert scientists led by Professor Åke Bergman, University of Stockholm. The authors outlined the current evidence of: 1) a high incidence, and increasing trends, of many endocrine-related disorders in humans; 2) observations of endocrine-related effects in wildlife populations; 3) identification of chemicals with endocrine disrupting properties linked to disease outcomes in laboratory studies.

“Endocrine-related disorders in humans are manifest by:

- Increases in low semen quality in young men (up to 40%)
- Incidence of genital malformations has increased over time
- Adverse pregnancy outcomes and birth defects has increased in many countries
- Neurobehavioural disorders related to thyroid dysfunction has increased
- Endocrine-related cancers (breast, endometrial, ovary, prostate, testicular and thyroid cancers) have been increasing over the past 40–50 years
- Earlier onset of breast development in young girls which leads to breast cancer

References:

180 http://pubs.acs.org/doi/abs/10.1021/jf000873c
181 http://www.tandfonline.com/doi/abs/10.1080/15287390701613140#.VdmL8flVhHw
182 http://www.tandfonline.com/doi/abs/10.1080/15287390701613140#.VmL8flVhHw
183 http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0032432
185 http://www.guardian.co.uk/environment/interactive/2013/apr/29/environment-secretary-letter-syngenta-insecticide-ban
189 http://unep.org/pdf/9789241505031_eng.pdf
• The prevalence of obesity and type 2 diabetes is increasing. The WHO estimates that 1.5 billion adults worldwide are overweight or obese and that the number with type 2 diabetes increased from 153 million to 347 million between 1980 and 2008.”

Bayer uses the action of neonicotinoid suppression of the immune system to kill colonial insects such as termites (Premise 200SC)\(^{190}\) and ants (Baythion I Myrelkeddaase Denmark)

“Premise 200SC plus Nature causes termites to succumb to disease and death by naturally occurring organisms”... “Imidacloprid binds to nicotinergic acetylcholine receptors at the nervous system...they stop feeding, grooming and become disorientated”...“Low doses of Premise 200SC such as the edge of the Treated Zone, disorientate the termites and cause them to cease their natural grooming behaviour. Grooming is important for termites to protect them against pathogenic soil fungi. When termites stop grooming, the naturally occurring fungi in the soil attack and kill the termites. Premise 200 SC makes fungi 10,000 times more dangerous to termites. Nature assists Premise in giving unsurpassed control. This control is Premise 200SC plus Nature.”

Honey bees groom each other. Buzz about Bees website states: A natural defence against Varroa mites for bees is grooming. Bees also groom in defence against diseases and fungi.\(^{191}\)

The Government’s cavalier attitude to the hazards of pesticides has been illustrated on numerous occasions in this document. It has ignored the UK Pesticides Campaign. Human health has always taken second place to economic growth.

**UK Pesticides Campaign founded by Georgina Downs in 2001**

“People move to the countryside thinking it will be a healthy environment to bring up their children and do not know about the dangers and risks inherent in the spraying of poisonous chemicals on surrounding fields, until they themselves suffer adverse effects on their health”

Georgina Downs

Georgina Downs’ (Founder of the UK Pesticides Campaign\(^{192}\)) summary of her written evidence to the Parliamentary Environmental Audit Committee on Insects and Insecticides (link to the full evidence number 28)\(^{193}\)

• All chemical pesticides are deliberately designed to be toxic, that is their purpose, and therefore all chemical pesticides have inherent hazards for human health.

• The dangers of pesticides can clearly be seen on the data sheet for each pesticide product that can carry various warnings such as “Very toxic by inhalation,” “Do not breathe spray; fumes; vapour,” “Risk of serious damage to eyes,” “Harmful, possible risk of irreversible effects through inhalation,” and even “May be fatal if inhaled.”

• It is now beyond dispute that pesticides can cause a wide range of both acute, and chronic, adverse effects on human health, including on the health of residents exposed to them. This includes irreversible and permanent chronic effects, illnesses and diseases.

• Approx. 80% of pesticides used in the UK each year are related to agricultural use.

\(^{190}\) [http://www.elitepest.com.sg/brochure/Premise_200SC.pdf](http://www.elitepest.com.sg/brochure/Premise_200SC.pdf)

\(^{191}\) [http://www.buzzaboutbees.net/honey-bee-health.html](http://www.buzzaboutbees.net/honey-bee-health.html)

\(^{192}\) [http://www.pesticidescampaign.co.uk/](http://www.pesticidescampaign.co.uk/)

• The majority of poisoning incidents and acute adverse health effects recorded annually in the Government’s own monitoring system are from agricultural pesticides used on crops.

• The Government has repeatedly failed to take action when faced with, including in its own monitoring system, evidence of actual harm, as well as the risk of harm, to human health from crop-spraying under the current policy and approvals regimen.

• Yet EU law requires that pesticides can only be authorised for use if it has been established that there will be no harmful effect on human health. It also requires a proactive approach to reviewing authorisations after approval, including that authorisations shall be cancelled and pesticides prohibited where there is a risk of harm.

• The Government’s monitoring system currently only considers the acute effects of individual pesticides and therefore does not, in general, monitor or deal with either (i) chronic ill-health effects caused by pesticides or (ii) the effects of mixtures of pesticides.

• The fact that there has been, to date, no specific monitoring or collection of data in the Government’s monitoring system in relation to the chronic effects, illnesses and diseases reported by people is a situation that has previously been criticized in a number of official reports dating back to 1987 and Government has still not changed its policy to rectify this.

• The reality of crop spraying in the countryside is not merely related to exposure to one individual pesticide or to one single group of pesticides, as agricultural pesticides are rarely used individually but commonly sprayed in mixtures (cocktails) -- quite often a mixture will consist of 4 or 5 different products. Each product formulation in itself can contain a number of different active ingredients, as well as other chemicals, such as solvents, surfactants and co-formulants (some of which can have adverse effects in their own right, before considering any potential synergistic effects in a mixture(s)). Studies have shown mixtures of pesticides (and/or other chemicals) can have synergistic effects.

• Scientific papers have concluded that “the total emissions of pesticides may range from several per cent up to almost all the applied quantities” and in relation to vapour that, “Volatilization may represent a major dissipation pathway for pesticides applied to soils or crops, accounting for up to 90% of the application dose in some cases”, and that “Volatilization may last for a period of several days to a few weeks (or sometimes even longer), and sometimes exhibits a diurnal cycle”.

• Scientific studies have found pesticides miles away from where they were applied and have calculated health risks for residents and communities living within those distances.

• The existing UK Government policy and approvals system fundamentally fails to protect people in the countryside from pesticides, particularly rural residents.

• There are serious flaws in the approach to exposure and risk assessment for public health.

• The fact that, to date, there has never been any assessment in the UK of the risks to health for the long term exposure for those who live in the locality of pesticide sprayed fields, and/or who go to school in the locality of sprayed fields, means that under EU law pesticides should never have been approved for use in the first place for spraying in the locality of residents’ homes, schools, children’s playgrounds, among other areas.
• Children are particularly vulnerable to the effects of pesticide exposure because their bodies cannot efficiently detoxify chemicals, as their organs are still growing and developing. Also when children are exposed at such a young age they will obviously have a longer lifetime to develop long-term chronic effects after any exposure.

• The Government previously **failed to act** on its own findings of 82 exceedances of the EU limits set for exposure (the AOEL), in some cases the AOEL **was exceeded up to 20 to 30 times over**, which is an order of magnitude higher, when any exceedance, on the Government’s own previously stated case, and most importantly **under EU law, would lead to immediate action of authorizations being refused (or trigger prohibition/revocation if the AOEL exceedance is discovered after approval)**.

• The Government’s previous estimated exceedances of the AOEL clearly demonstrated that products have been in use in the UK which resulted in residents (and others in the countryside) being exposed to levels greatly in excess of the AOEL, year after year.

• Yet the UK Government has **not, to date, taken any action** to prevent the exposure and risk of harm for residents in these circumstances, and has violated its obligation under EU law to prohibit the use of pesticides where the AOEL is known to be exceeded.

• The UK Government has continued to refuse to introduce any statutory conditions of use to protect residents and others from exposure. Such conditions of use would include, most importantly, the prohibition of the use of pesticides in the locality of residents’ homes, as well as schools, children’s playgrounds, nurseries, hospitals, amongst other areas. Yet such a measure is absolutely crucial for public health protection, especially those of vulnerable groups, including babies, children, pregnant women, and those already ill.

• Therefore, in relation to the health of rural residents and communities, the UK Government has, to date, knowingly failed to act, has continued to shift the goalposts, cherry picked the science to suit the desired outcome and has misled the public, especially residents, over the safety of agricultural pesticides sprayed on crop fields throughout the country. The Government’s continued line that there is no evidence of harm from pesticides, as well as no risk of harm, is just untenable and inexcusable. The evidence is there and has been there for a considerable time, the Government is just determined not to act on it. The Government’s response to this issue has been of the utmost complacency, is completely irresponsible and is definitely not “evidence-based policy-making.”

• The failings in the UK Government’s policy and approach to exposure and risk assessment regarding human health, and related and repeated inaction, is also comparable to the serious concerns that have been raised regarding the UK Government’s policy and approach to exposure and risk assessment in relation to other species, such as bees.

• Bees and other species, just like residents and other humans, could be exposed to innumerable mixtures of pesticides, repeatedly, throughout every year, and for years.

• In relation to the risk of harm to bees from pesticide mixtures, a US study in 2010 highlighted the potential synergistic effects on bee health from mixtures and combinations of different pesticides as the researchers found 121 different pesticides and metabolites within 887 wax, pollen, bee and associated hive samples. Therefore aside from the individual products that carry warnings of a risk to bees on the product label and safety data sheet information (such as ‘harmful’, ‘dangerous’, ‘extremely dangerous’ or ‘high risk’ to bees),
there will also be the risk of adverse impacts on bee health from the cumulative effects of multiple exposures to mixtures of different pesticides.

- The **reality of pesticide spraying in the countryside** is **not** reflected in any of the risk assessments under the UK Government’s existing approach, whether for humans or bees.

- The principal aim of pesticide policy and regulation is supposed to be the protection of public health and the environment. Yet the Government, DEFRA, PSD (now CRD), and ACP, have all continued to base decisions in relation to pesticides on the protection of industry and business interests as opposed to what is absolutely required as the number one priority of pesticide policy and regulation - **to protect public health**.

- Sales of pesticides in the UK alone for 2011/12 were £627 million, and reports have put the value of the world pesticides industry at around a staggering £52 billion.

- There are clear conflicts of interests in relation to those advising DEFRA Ministers over the pesticides policy agenda, especially regarding the Chemicals Regulation Directorate (CRD) that receives approx. 60% of its funding from the agrochemical industry. This is broken down into the fees charged to companies for applications, and a charge on the UK turnover of pesticides companies. For a number of years now this has resulted in the CRD receiving around £7 million or more per year from the agro-chemical industry.

- A number of ACP members have links to the pesticides industry. For e.g., some members may undertake consultancy work, have shares in and/or receive funding for research support. This has always been an inappropriate structure, as so-called “**independent**” advisors cannot possibly be classified as independent if they have financial or other links with the very industries they are overseeing in relation to the hazards to human health.

- Ministers have also been receiving advice from the Pesticides Forum for many years, and yet year after year the Forum has wrongly asserted in its annual reports that, “**the use of pesticides is not adversely impacting on the health of UK citizens or the environment.**” Considering the grossly inaccurate statements that the Pesticides Forum has continued to make, effectively denying the adverse health and environmental impacts of pesticide use, then it is also of serious concern that it is intended that the Forum be responsible for the monitoring and review of the UK’s Action Plan on pesticides after it has been adopted.

- The UK’s policy and approvals regimen is based on a wholly inappropriate structure and it goes some way to explaining why the pesticide industry has, for many years, had such control over successive Governments’ policy decisions on pesticides, particularly in relation to the use of pesticides in agriculture. Successive Governments’ have continued to reflect the position of the pesticides industry in **all policy decisions taken to date on pesticides**, (at least since the UK Pesticides Campaign has been in existence since 2001).

- The only real solution to **eliminate** the adverse health and environmental impacts of pesticides is to take a **preventative approach** and avoid exposure altogether with the widespread adoption of truly sustainable **non-chemical farming methods**. This would obviously be more in line with the objectives for sustainable crop production, as the reliance on complex chemicals designed to kill plants, insects or other forms of life, cannot be classified as sustainable. **Therefore it is a complete paradigm shift that is needed, as no toxic chemicals that have related risks and adverse effects for any species (whether humans, bees or other) should be used to grow food.**
Ms Downs has fought legal battles against Defra. She had a landmark victory in the High Court in November 2008 that ruled that the UK Government’s policy on pesticides was not in compliance with European legislation. It was the first known legal case of its kind to reach the High Court to directly challenge the Government’s pesticide policy and approach regarding crop-spraying in rural areas. However, the Court of Appeal overturned the High Court Judgment in May 2009. Chief Executive, Kerr Wilson’s Witness Statements cited various reasons for preserving the status quo. They were related to alleged financial and economic impacts on manufacturers, farmers and distributors, or the impact on agricultural productivity. On behalf of Defra he did not display any concern whatsoever in relation to the protection of public health. His main concern was with protection of industry and business interests. “The annual market value of pesticide sales is approximately £490m which delivers benefits to farmers, significantly improving agricultural productivity...If, as a result of the Declaration, new approvals could not be granted, there would be important ramifications.” Press reports at the time supported the Government’s stance. That if the High Court Judgment stood then the “Government’s pesticide policy would be fundamentally undermined” and that the policy and approvals system “might even grind to a halt.”

Read Georgina’s latest article in the Ecologist. It’s not just glyphosate and neonicotinoids – we need a pesticide-free future.

Why and when did Britain opt for a system of farming that was chemically-based?

“UK Rothamsted is the longest running agricultural research station in the world, providing cutting-edge science and innovation for nearly 170 years. Its foundation dates from 1843 when John Bennet Lawes, the owner of the Rothamsted Estate, appointed Joseph Henry Gilbert, a chemist, as his scientific collaborator”. The herbicide, 2,4-D was developed during World War II at British Rothamsted Experimental Station by Judah Hirsch Quastel and sold commercially in 1946. The low cost of 2,4-D’s has led to continued usage today and it remains one of the most commonly used herbicides in the world. However, on 23/06/2015, IARC “classified 2,4-D as a Group 2B carcinogen (possibly carcinogenic to humans).” There was strong evidence that 2,4-D induces oxidative stress that can operate in humans and moderate evidence the 2,4-D causes immunosuppression, based on in-vivo and in-vitro studies.”

Even in the 1970s the Agricultural Industry was given massive power by the UK Government

Robert van den Bosch, writing in 1978 in The Pesticide Conspiracy: “If one considers how dangerous these chemicals are, one would suppose that it would be Government policy to minimise their use by every possible means. However the Royal Commission on Environmental Pollution notes, ‘there is... no such policy in the UK, nor does the possible need for it appear to have been considered, notwithstanding the great increases in the use of these chemicals.’ The Agrochemical industry, on the contrary, seems to be under the impression it is Government policy to encourage the maximum use of pesticides. Thus according to the Agrochemical industry, of 367,000 acres of potatoes grown in this country in 1976, 310,000 acres are treated with herbicides, 114,000 acres with granular insecticides and nematocides, 218,000 acres with foliar insecticides and 265,000 acres with

http://www.theecologist.org/News/news_analysis/2848400/its_not_just_glyphosate_and_neonicotinoids_why_we_need_a_pesticidefree_future.html

http://www.rothamsted.ac.uk/about


fungicides. In this way one acre of potatoes, the industry boasts, can be treated from 2-11 times with different pesticides.” Van den Bosch also condemns the UK for aerial spraying. “What is particularly shameful in this country is the prevalence of aerial spraying. One million acres of agricultural land are sprayed each year, which involves 34,000 flights. Controls on this practice are practically non-existent...nor as the Royal Commission points out, does there appear to be any controls on the type of spraying equipment.”

Closure of the Wildlife Research sites in 2006

In December 2005, UK’s Natural Environment Research Council (NERC) in response to a budget deficit announced the closure of its wildlife research centres, with the loss of about 200 jobs. This decision was opposed by 99% of 1,327 stakeholders. In a leaked letter to Tony Blair, the junior Rural Affairs Minister said that closure of four eco-laboratories involved in Climate Change research “does not make sense either scientifically or economically.” In a debate forced in the House of Lords, Lord Sainsbury of Turville, at that time the Parliamentary Under-secretary of State with responsibility for Science and Innovation at the DTI, defended the closures. He claimed that the Government believed that “decisions about its scientific programme should be taken by NERC’s independent Council.”

Lord Sainsbury praised NERC for “grasping the nettle”. He said that NERC had seen a fall in contract research in recent years and the Wildlife stations were not making enough money from getting private research contracts. Closure took place in March 2006. Monks Wood Experimental Station hosted BBC’s Spring Watch, pioneered work on DDT and other pesticides in the 1960s, and more recently revealed how climate change is affecting wildlife, with spring arriving three weeks earlier. The research centres were also involved in assessing the impacts of GM (genetically modified) crops on wildlife, with findings contradicting industry claims that no harm would be caused.

Within a matter of months of closing the wildlife research centres, Lord Sainsbury resigned as Science Minister to focus on his business and charity work. However, he continued to influence education at all levels. Through the Gatsby Foundation, he founded the Sainsbury Laboratory, Cambridge University and funded many other institutions to perform research on his pet topic – Genetically Modified Organisms and Crops.

He funded STEMNET (Science, Technology, Engineering and Mathematics Network)

This creates opportunities to inspire young people in STEM via its 24,000+ STEM Ambassadors, the STEM Clubs network, and projects including brokering enhancement and enrichment activities between schools and business. STEMNET is a network, one part of which is to support the teaching of physical science in schools (11-19), which includes the science of GMOs. It concentrates on teaching technology but definitely not history. Canada also has branches of STEMNET and government approved textbooks promote the benefits of GM fruit and vegetables. “No scientific study has shown them to be harmful.” Yet a recent study from the eastern townships of Quebec has found genetically modified endotoxin in maternal and foetal blood.

Globolakes: Britain’s first satellite –based surveillance system

In 2012 NERC (the body that as the result of a budget deficit in 2006 closed the Wildlife Research Sites) proudly announced its GloboLakes project, the first satellite-based global lake surveillance system to determine ‘what controls the differential sensitivity of lakes to environmental perturbation’.

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200 The same organisation that had jointly published A Nature Conservation Review in 1977 with the NCC
201 “Anger as top wildlife research sites are axed”, Archived press release, Friends of the Earth, 13 March 2006, http://www.foe.co.uk/resource/press_releases/anger_as_top_wildlife_rese_13032006
202 Monks Wood had its own Toxic Chemicals and Wildlife Research Team
203 http://www.gatsby.org.uk/Plant-Science/Projects/Sainsbury-Laboratory-Cambridge-University.aspx
204 http://www.gatsby.org.uk/Education/Projects/STEMNET.aspx
206 http://www.globolakes.ac.uk/ GloboLakes will analyse 20 years of data from more than 1000 large lakes across the globe to determine ‘what controls the differential sensitivity of lakes to environmental perturbation’.
system, to monitor how lakes and reservoirs are being affected by environmental change.” How can one measure pesticide levels in aquatic systems, or biodiversity declines, from space?

Successive British Governments supported the pesticides industry against the public. Defra denied a link between organophosphate (OP) use as a sheep dip in the 1980s and neurological problems in farmers: OPs are still registered by Defra. Aviation Authorities and Physicians denied Pilots/Crew and Gulf War Veterans symptoms are connected with OP exposure.

In 2012, Mackenzie Ross, S.J. et al. reviewed 14 studies (looking at 1600 participants) and showed a relationship between low level exposure to organophosphates (OPs) and impaired neuro-behavioural functioning. OPs target memory, information processing speed, the ability to plan and have abstract thoughts.207 These findings have implications for working practice and for other occupational groups exposed to organophosphates such as Aviation Workers and Gulf War Veterans. When this paper was discussed on Radio 4 Farming Today in 2012, Defra denied a connection and said it continued to authorise the OP insecticides chlorpyrifos and dimethoate.

Chemical Concern published on 23/02/2015: Incriminating sheep dip poisoning: Health & Safety Executive Report (1990) – officially destroyed – but has now been revealed 208

Farmer Tom Rigby, Sheep Dip Sufferers’ Support Group, requested a FoI. He said: “The information I want is HSE advice given to the government minister just before he decided to abandon compulsory dipping and the science behind and date of a government order that Ministry of Agriculture, Fisheries and Food inspectors must not go within 14ft of a sheep dip.” The HSE responded to the FoI request by telling Mr Rigby: “The information you requested is no longer held by the Health & Safety Executive, having been destroyed in accordance with HSE’s corporate retention policy”. A ‘well-wisher’ sent a copy to Mr Rigby which can be read on the Chemical Concern link.

Mad Cow Disease 1980s-2000; how reassurances by Ministers undermined precaution


The first case of Bovine Spongiform Encephalopathy (BSE) in cows was officially recognised in November 1986. “The pathological characteristics of the new cattle disease closely resembled scrapie, a transmissible spongiform encephalopathy (TSE) that is endemic in the UK sheep population…Policy-makers were repeatedly told, both by the scientific experts on whom they claimed to rely, and by the wider scientific community, that it was impossible to be certain that consuming meat, milk and dairy products from animals with BSE posed no risk.

Ministers and senior policymakers insisted otherwise in public. On 7 June 1990, for example, the Agriculture Minister told the House of Commons that there was “… clear scientific evidence that British beef is perfectly safe” (Hansard, 1990, column 906).”

By 1995 there was evidence that BSE may cause Creutzfeldt-Jakob disease (CJD) in young people. In 1996 experiments started to see whether cattle fed on rations deliberately infected with scrapie would get BSE. The BSE crisis (1996) occurred after a new variant of CJD emerged in the United Kingdom, and consuming BSE contaminated food was considered the most probable cause.

“Most of the deceit about BSE was perpetrated by the UK government, and only a few other governments also employed deception to cloud its risks.” 210

207 http://oro.open.ac.uk/36218/1/Mackenzie%20Ross%20et%20al%202012a.pdf
210 Altered Genes, Twisted Truth Steven M Druker. How the Venture to Genetically Engineer Our Food Has Subverted Science, Corrupted Government and Systematically Deceived the Public. Page 385
Mark Purdey, an organic farmer who died from a brain tumour aged 52, had another theory. His obituary in the Guardian states: “His life changed one day in 1984 when a Ministry of Agriculture (MAFF, as it then was) official told him he had to comply with a warble fly eradication order and treat his herd of Jersey cows with an organophosphate (OP) pesticide. Purdey refused, arguing that the suggested dose was far too high and in any case his natural treatment for warble fly was perfectly effective. The battle lines with the agricultural bureaucracy were drawn; before they had a chance to prosecute him, Purdey took MAFF to court and shook administrative complacency by winning his case. Purdey also noted that no home-reared cattle on fully converted organic farms had contracted BSE. He believed that the onset of the disease was associated with the over-use of chemicals on the cattle.”

Samsel and Seneff, in their paper: “Glyphosate, pathways to modern diseases III: Manganese, neurological diseases, and associated pathologies”, agree that there may be link between glyphosate and prion diseases such as BSE. Monsanto scientists were recommending pre-harvest glyphosate use in 1980. By 1985 ADAS was promoting the use of glyphosate on grassland; they declared it to be good practice to graze the grass or preserve it as hay or silage after treatment. The compulsory treatment of warble fly with OP Pesticides was 1978-1981. The cattle that contracted BSE were born 1986-1988. Humans started to develop new variant CJD in 1995. It could have been a combination of chemicals.

The situation today in the US and the UK is unchanged: the industry self-regulates and farmers spray more on to crops in an industrial model of agriculture that they claim will ‘Feed the world’.

In the US Jeff Pettis and colleagues found 37 different pesticides in honey and Prof Dave Goulson studied one field in Sussex that in a single year was sprayed with various pesticides 22 times.

The Royal Commission on Environmental Pollution abolished

The Royal Commission on Environmental Pollution that had been created in 1970 under Royal Warrant to advise the Queen, Government, Parliament and the public on environmental issues was abolished on 1 April 2011, as part of the Coalition Government’s spending cuts.

In 1999 Marc Lappé and Britt Bailey published a book about the Genetic Transformation of Global Agriculture: Against the Grain which predicted the future remarkably accurately.

Professor of Food Policy at Thames Valley University Tim Lang provided the foreword. “Against the Grain challenges this abrupt transformation of food crops as an experiment inadequately designed and incompletely tested. The authors show these new methods to be far from fail-safe or risk-free. They raise disturbing issues of failed government oversight and an industry underestimating or ignoring potential dangers in its rush to exploit new technologies”. Chemical companies that make agricultural herbicides know that as transgenic plantings increase, so will the need for their herbicides... They predicted that massive use of herbicides may lead to major health or ecosystem changes.

214 http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0070182
215 http://www.theecologist.org/blogs_and_comments/commentators/2258103/revealed_the_chemical_blitz_of_pesticides_in_our_fields.html
Sixteen years later all their predictions have been shown to be more than justified. In the US the total herbicide volume applied to GM Corn, Cotton and Soybeans increased from 240,500,000 lbs/year in 1994 to 301,000,000 lbs/year in 2010. With regard to Roundup®/glyphosate being a ‘safe’ herbicide; Lappé & Bailey point out that the so-called ‘inerts’, polyethoxylated tallow amine (POEA) surfactants which spread the glyphosate evenly over the plant have a toxicity of their own. They ask the question: “Why engineer soybean? Given its remarkable nitrogen-fixing activity and its natural competitive advantage over weeds, why was it necessary to change its genetic capabilities so radically to tolerate herbicide application? The answer turns out to be “enormous profit margins.” “Monsanto’s conclusion that the enzyme glyphosate poisons, known as EPSPS for short, shikimate pathway means that glyphosate is only toxic to plants but not to other living species, including mammals is, in our opinion, simply wrong... Hence a genetically-engineered plant may have altered amounts of critical amino-acids in its edible portion.”

A Government that can conceal the warnings of the ‘Citizen to Citizen’ Open Letter from America from the British public about the dangers of GM crops is not a democracy but a dictatorship I quote from the end of the Letter from America: “Through our experience we have come to understand that the genetic engineering of food has never really been about public good, or feeding the hungry, or supporting our farmers. Nor is it about consumer choice. Instead it is about private, corporate control of the food system. Americans are reaping the detrimental impacts of this risky and unproven agricultural technology. EU countries should take note: there are no benefits from GM crops great enough to offset these impacts. Officials who continue to ignore this fact are guilty of a gross dereliction of duty.”

Accelerated modern human–induced species losses: Entering the sixth mass extinction Our environmental deficit is now beyond nature’s ability to regenerate

In a paper in Science Advances 19 June 2015 Ceballos and colleagues calculated the average rate of vertebrate losses over the last century and compared it with the background rate of losses. They estimated it to be up to 114 times the background rate. The authors said that this rate of losses of biodiversity indicated that a sixth extinction is already underway. Loss of biodiversity is the most urgent of the environmental problems. It is critical to ecosystem services and human health. The authors described themselves variously as ecologists, field biologists, paleo-biologists or population biologists. However, all had two common beliefs. That the conservation of natural ecosystems is essential to human health; but that the accelerated losses of biodiversity are as a result of human activity.

Humans need invertebrates; without them they cannot survive

Prof E.O. Wilson the eminent field entomologist from Harvard, who in his book Naturalist has documented massive global declines of ant colonies at the hand of man, said: “The one process now going on that will take millions of years to correct is the loss of genetic and species diversity by the destruction of natural habitats. This is the folly our descendants are least likely to forgive us.”

The human race has learned nothing since ‘Silent Spring’

The global pesticides industry has been allowed to dominate the regulatory agencies. They have created chemicals of mass destruction that can no longer be controlled. Furthermore, successive British governments have allowed themselves to be persuaded that only a chemical-based

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217 http://www.motherjones.com/tom-philpott/2014/01/usda-prepares-greenlight-chemical-war-weeds
218 http://www.letterfromamerica.org/
219 http://advances.sciencemag.org/content/advances/1/5/e1400253.full.pdf
agricultural system can feed the world. Fifty three years ago Rachel Carson’s description of systemic pesticides was correct; nothing has changed apart from the fact that the industry has devised many more potent and longer acting biocides and has now incorporated them into the global food supply.

Rachel Carson wrote in 1952:
“The world of systemic insecticides is a weird world, surpassing the imaginings of the brothers Grimm. It is a world where the enchanted forest of the fairy tales has become a poisonous forest. It is a world where a flea bites a dog and dies...where a bee may carry poisonous nectar back to its hive and presently produce poisonous honey”.

We are what we eat: the poisoning of our food supply
“We now live in a world where it is considered beneficial and necessary to spray poison over all our food and to add more poison (dye, preservatives, flavor enhancers, etc) in processing our food. Then we take more poison to counteract the poisons. Beam me up Scotty, the inmates are insane.”

Dr Nancy Swanson; on the history of how corporations have successfully changed the laws in the US to poison our food: 03/04/2014.\(^{222}\)

Written and compiled by Rosemary Mason MB ChB FRCA on behalf of the concerned Citizens of Britain.

With grateful acknowledgements and thanks for information provided by independent scientists, environmentalists, doctors, beekeepers, geneticists, governments, industry and regulators from around the world.

24\(^{th}\) August 2015

\(^{222}\) http://www.examiner.com/article/the-poisoning-of-our-food-supply