

Roundup and birth defects: the public has been kept in the dark

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Julieta, who died aged 7 months in 2010 from multiple abnormalities

Bandera Santiago del Estero, Argentina where in 1996 the rural communities were forced by Monsanto to grow genetically modified organisms (GMO) Roundup® Ready soybean and corn. In addition to birth defects there are many cancers in humans. Pesticide run-off from fields is highly toxic to aquatic invertebrates. The health of amphibians and caimans is destroyed because of multiple pesticide-induced effects on their reproduction.

Photograph by kind permission of Dr Graciela Gomez

Rosemary Mason MB ChB FRCA 03/01/2017

Compiled over six years with information from a Global Network of Beekeepers, Toxicologists, Independent Scientists, Doctors, Conservationists and Regulators

Roundup and birth defects: the British public has been kept in the dark and the effects of other chemicals on humans have been denied

Evidence of teratogenicity that the Glyphosate Task Force denied

Report by Earth Open Source in 2011: ¹ Roundup and Birth Defects: is the public being kept in the dark?

Introduction to Report: *“The pesticide industry and EU regulators knew as long ago as the 1980s-1990s that Roundup, the world’s best selling herbicide, causes birth defects – but they failed to inform the public.*

This report, co-authored by international scientists and researchers, reveals that industry’s own studies (including one commissioned by Monsanto) showed as long ago as the 1980s that Roundup’s active ingredient glyphosate causes birth defects in laboratory animals.

The facts are these:

- *Industry has known from its own studies since the 1980s that glyphosate causes malformations in experimental animals at high doses*
- *Industry has known since 1993 that these effects also occur at lower and mid doses*
- *The German government has known since at least 1998 that glyphosate causes malformations*
- *The EU Commission’s expert scientific review panel knew in 1999 that glyphosate causes malformations*

The EU Commission has known since 2002 that glyphosate causes malformations. This was the year it signed off on the previous approval of glyphosate.

But this information was not made public. On the contrary, the pesticide industry and Europe’s regulators have jointly misled the public with claims that glyphosate is safe. As a result, Roundup is used by home gardeners and local authorities on roadsides, in school grounds, and in other public areas, as well as in farmers’ fields.

As recently as 2010, the German Federal Office for Consumer Protection and Food Safety, BVL, told the Commission there was “no evidence of teratogenicity” (ability to cause birth defects) for glyphosate.”

The peer-reviewed version, published in 2012 by a multi-author global team, including two scientists from Brazil where GM Roundup Ready crops are grown and many birth defects are seen

Antoniou, M., *et al.* Teratogenic Effects of Glyphosate-Based Herbicides: Divergence of Regulatory Decisions from Scientific Evidence. *J Environ Anal Toxicol* 2012, S: 4 ²

Abstract: *“The publication of a study in 2010, showing that a glyphosate herbicide formulation and glyphosate alone caused malformations in the embryos of *Xenopus laevis* and chickens through disruption of the retinoic acid signalling pathway, caused scientific and regulatory controversy. Debate centred on the effects of the production and consumption of genetically modified Roundup Ready® soy, which is engineered to tolerate applications of glyphosate herbicide. The study, along with others indicating teratogenic and reproductive effects from glyphosate herbicide exposure, was rebutted by the German Federal Office for Consumer Protection and Food Safety, BVL, as well as in industry-sponsored papers. These rebuttals relied partly on unpublished industry-sponsored studies commissioned for regulatory purposes, which, it was claimed, showed that glyphosate is not a teratogen or reproductive toxin. However, examination of the German authorities’ draft assessment report on the industry studies, which underlies glyphosate’s EU authorisation, revealed*

¹ <http://earthopensource.org/earth-open-source-reports/roundup-and-birth-defects-is-the-public-being-kept-in-the-dark/>

² <http://omicsonline.org/2161-0525/2161-0525-S4-006.php?%2520aid=7453>

further evidence of glyphosate's teratogenicity. Many of the malformations found were of the type defined in the scientific literature as associated with retinoic acid teratogenesis. Nevertheless, the German and EU authorities minimized these findings in their assessment and set a potentially unsafe acceptable daily intake (ADI) level for glyphosate. This paper reviews the evidence on the teratogenicity and reproductive toxicity of glyphosate herbicides and concludes that a new and transparent risk assessment needs to be conducted. The new risk assessment must take into account all the data on the toxicity of glyphosate and its commercial formulations, including data generated by independent scientists and published in the peer-reviewed scientific literature, as well as the industry-sponsored studies."

UK Parliament Meeting Brings 'Dangers' of Roundup® into Public Focus. This meeting of world experts on glyphosate held on June 18 2014³ was not reported by the UK main stream Media

The All-Party Parliamentary Group (APPG) on Agro-ecology, Chaired by the [Countess of Mar](#), met in the Houses of Parliament in London on June 18, 2014 to discuss the possible harm caused by the world's most popular herbicide – Roundup®.

In what was one of the most comprehensive meetings ever held in Europe on Glyphosate and Roundup, experts from around the World gathered in London to share their expertise with the media, members of a number of UK political parties, NGO representatives and members of the public. Committee Room 10 of the Houses of Parliament was full to the rafters, with experts having travelled from as far away as Russia, China and the U.S., to listen to the four speakers give detailed presentations on how the unanswered questions surrounding the possible harm caused by Glyphosate and Roundup should be approached.

The full presentations from the APPG Agro-ecology meeting in London are on the following links: Dr Don Huber,⁴ Professor Malcolm Hooper,⁵ Dr John Peterson Myers,⁶ Dr Michael Antoniou⁷

The following two slides from the meeting in Parliament are shown by kind permission of Don Huber – Professor Emeritus of Plant Pathology at Purdue University

Four different patents have been filed and granted for glyphosate. As a chelator of heavy metals and a wetting agent in 1961;⁸ as a herbicide in 1968;⁹ as an antibiotic in 2002;¹⁰ and as an anti-protozoal agent in 2003.¹¹

In addition, Dr Huber shows that glyphosate is an organic phosphonate, a growth regulator, a toxicant, a virulence enhancer and is persistent in the soil. It chelates (captures) and washes out the following minerals: boron, calcium, cobalt, copper, iron, potassium, magnesium, manganese, nickel and zinc.

³ http://sustainablepulse.com/2014/07/02/uk-parliamentary-meeting-brings-dangers-roundup-public-focus/#.U7TvD-j_hzl

⁴ [Dr. Don M. Huber – Professor Emeritus of Plant Pathology at Purdue University](#)

⁵ [Professor Malcolm Hooper – Professor of Medicinal Chemistry at the University of Sunderland](#)

⁶ [Dr. John Peterson "Pete" Myers – Founder, CEO and Chief Scientist of Environmental Health Sciences](#)

⁷ [Dr. Michael Antoniou – Reader in Molecular Genetics and Head of the Gene Expression and Therapy Group, Department of Medical and Molecular Genetics, King's College London School of Medicine, UK.](#)

⁸ <http://www.google.com/patents/US3160632>

⁹ <http://www.google.com/patents/US3455675>

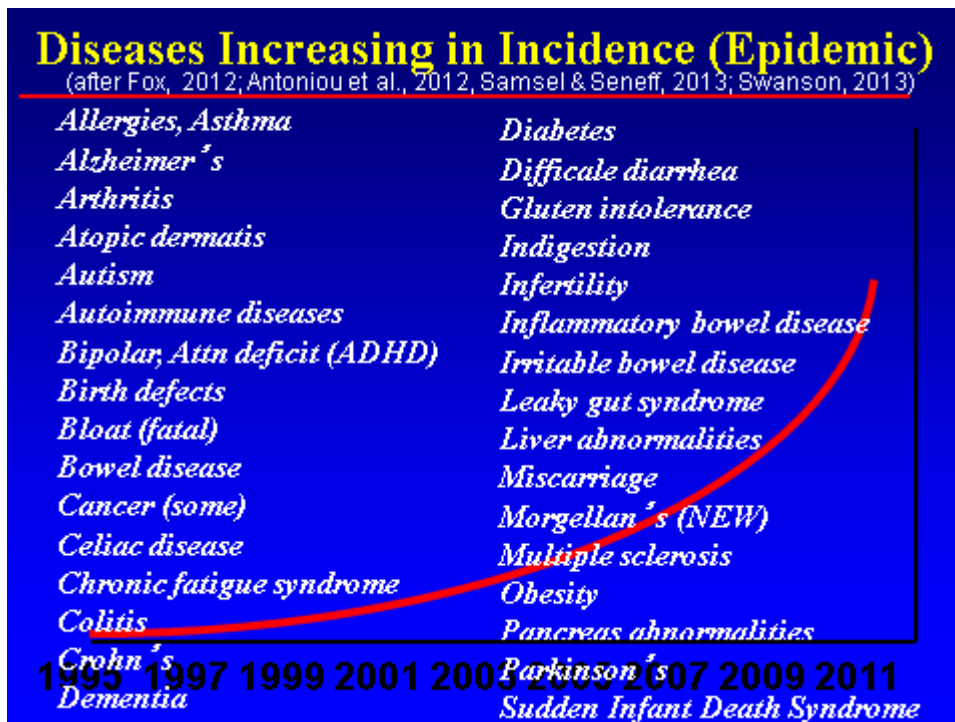
¹⁰ <http://www.google.com/patents/US7771736>

¹¹ <http://patft.uspto.gov/netacgi/nph->

[Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=%2Fnetahhtml%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=7771736.PN.&OS=PN/7771736&RS=PN/7771736](#)



Antibiotic-resistant diseases are an apocalyptic threat to humans; but when Monsanto is to blame UK public health doctors, the UK Science Media Centre, the Wellcome Trust, BBSRC and the Media Corporations are unaccountably silent



Dr Huber's second slide shows diseases which have increased in incidence since 1995, correlated with the red line, which represents the increasing use of glyphosate in the US

With Monsanto's chemical biocide glyphosate/Roundup (an antibiotic, antiprotozoal and chelator of minerals), which is sold around the world by all the pesticide companies, the day of the apocalypse is getting closer. ¹²

BfR and EFSA claim that glyphosate has minimal ecotoxic effects

Long-term exposure of a Nature Reserve to ultra-low dose Roundup® causes massive declines in biodiversity

We have done a 10-year (2006-2016) observational study of biodiversity on a small Nature Reserve exposed to ultra-low dose Roundup® sprayed on Japanese knotweed outside our area. Japanese knotweed has become a Roundup-resistant super-weed and just grows more strongly each year spray is applied (like super-weeds in GM cropping systems in the US).

From 2006 to 2010 we documented 143 different species of moth, four species of bush-cricket, 20 species of butterfly, six species of bumblebee and numerous dragonflies, damsel flies, grass-hoppers, many beetles including ladybirds and the rare oil-beetle, many forms of hover flies and solitary bees, vigorous pond life including whirligig beetles, water boatmen, giant diving beetles and bats. In 2013 biodiversity began to decline both in species and in numbers. This was documented in a paper in 2014. ¹³ Moths have almost vanished.



These lovely creatures photographed between 2006 and 2010 have disappeared

Declines in biodiversity continued in 2015 and 2016 because Swansea City and County Council had employed a commercial national contractor Complete Weed Control, to embark

¹² http://www.naturalnews.com/044879_MERS_pandemic_Saudi_Arabia_drug-resistant_superbugs.html

¹³ http://www.i-sis.org.uk/How_Roundup_Poisoned_My_Nature_Reserve.php

on a 3-year-programme of eradication of Japanese Knotweed with Dakar Pro, (a commercial form of Roundup) in the Ilston Valley not far from our reserve (as well as the Clyne Valley).

At the beginning of 2016 the Council asked Complete Weed Control to eradicate weeds

According to the Council, weeds were making the roadsides of Swansea untidy for the tourists and residents. In the summer the contractors sprayed 1500 km of roadsides; the same roads were sprayed in the autumn. Under Environmental Freedom of Information we found that they had sprayed 518 kg Dakar Pro, but 26 wards were still not completed. So the Council had suggested that they carry on if the weeds were still growing. Monsanto issued instructions in 2010 for uses of glyphosate in Europe.¹⁴ In 2012 new rules came into force for Streets and pavements. ***“From 2012 new rules from the regulator, Chemical Regulations Directorate (CRD) prohibits blanket spraying of any herbicide on non-porous hard surfaces. Targeted treatment of weeds must be undertaken on roads, pavements, concrete and paved areas and drains must not be over-sprayed.”*** *Hard surfaces offer no chemical binding and thus a high risk of run-off of pesticides to water courses, pollution of surface water and increased cost of treatment to remove pesticides from drinking water.”*

Is the UK removing pesticides from drinking water? The Chairman of the Environment Agency refused to measure glyphosate in 2013. Roundup has been sprayed blindly; no levels have ever been monitored in the UK, European Union, US EPA or the APVMA

In April 2013 I had asked the Chairman of the Environment Agency to monitor glyphosate levels in groundwater, sending him plenty of documented evidence of the widespread use of glyphosate and an unpublished Report from the British Geological Survey (BGS) that glyphosate and its metabolites were “emerging contaminants” that had been measured in other countries.¹⁶ 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.”* On 13 May 2013 I had a final tetchy response from Lord Smith: *“We do therefore have to refrain from engaging in further correspondence where we have already clearly given our position and answered questions to the best of our ability.”*

We sent samples for glyphosate analysis to the Biocheck Laboratory in Leipzig

Glyphosate was found to be present in samples of water (river and tap water) taken in August 2013 and sent to Leipzig, Germany. The level of glyphosate in a Welsh river draining from areas of Japanese knotweed spraying was 190 parts per trillion (ppt) and in local tap water was 30 ppt. These were of the order of concentrations found in a laboratory study in 2013 that showed that breast cancer cell proliferation is accelerated by glyphosate in extremely low concentrations. Analysis in local tap water in August 2014 revealed a 10-fold increase since August 2013: from 30 ppt to 300 ppt.

A Report from the USGS in 2014: *“concluded that Glyphosate and its degradation product AMPA occur frequently and widely in U.S. soils, surface water, groundwater, and precipitation.”*¹⁷

¹⁴ <http://www.monsanto.com/products/Documents/glyphosate-background-materials/Agronomic%20benefits%20of%20glyphosate%20in%20Europe.pdf>

¹⁵ https://www.monsanto-ag.co.uk/media/1327/tb_roundup_hard_surfaces_new_regulations_2012.pdf

¹⁶ <http://nora.nerc.ac.uk/14557/1/OR11013.pdf>

¹⁷ <http://onlinelibrary.wiley.com/doi/10.1111/jawr.2014.50.issue-2/issuetoc>

Pesticide drift is the aerial movement and unintentional deposit of pesticide outside the target area: it results in heavy contamination of people and the environment¹⁸

When Roundup is sprayed on plants and hard surfaces, the particles drift in the air, are blown by the wind and come down in the rain. Swansea is wet and windy: from January 1st 2016 to November 29th 1,417 mm (about 56 inches) of rain were recorded.

*"There are two forms of pesticide drift. **Particle drift** is the movement of pesticide droplets or solid particles outside the area being treated. Coarser droplets move short distances and fall close to the point of release. Finer particles (i.e. less than 200 microns) can remain suspended on air currents for long periods of time and can be carried far outside of the target area. For example, a 100 micron droplet takes 11 seconds to fall three metres in still air, and will drift more than 20 metres in an 8 km/h wind. **Vapour drift** is the movement of pesticide vapours outside the area being treated. Vapour drift is invisible and can have a considerable impact. Vapours are created when spray droplets evaporate both at the time of application and for some time after the spray has dried on plant or soil surfaces. The potential for vapour drift is more a product of the volatility of the active ingredient, the formulation (e.g. esters) and environmental conditions (e.g. hot and dry) than the equipment used."*

Roundup is an endocrine and nervous system disruptor (END) and acts at extremely low levels, of the order of parts per trillion (ppt).¹⁹

The USDA and the USDA ARS (Agricultural Research Service) must have noticed that on farmland where Monsanto and DuPont's GM crops grow are biological deserts?

Craig Childs confirms this in his book Apocalyptic Planet: Field Guide to the Future of the Earth.²⁰ The State of Iowa was just one area in which the US Geological Survey reported widespread contamination of soil, air, rainwater and river water with glyphosate and its longer-acting metabolite AMPA (α -amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid).²¹ Grundy County Iowa was where Craig Childs spent a long weekend in a monoculture of GM "Roundup® Ready" corn looking for wildlife. *"I listened and heard nothing, no bird, no click of 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 blog:²²

Corn farmers champion corn. Anything that might eat corn, hurt corn, bother corn, is killed. Their corn is bred to fight pests. The ground is sprayed. The stalks are sprayed again. So, Craig wondered, "What will I find?" The answer amazed me. He found almost nothing. There were no bees. The air, the ground, seemed vacant. He found one ant "so small you couldn't pin it to a specimen board." A little later, crawling to a different row, he found one mushroom, "the size of an apple seed." Then, later, a cobweb spider eating a crane fly (only one). A single red mite "the size of a dust mote hurrying across the barren earth," some grasshoppers, and that's it." Though he crawled and crawled, he found nothing else. "It felt like another planet entirely," he said, a world denuded.

Sustainable Use of Pesticides 21 October 2009: DIRECTIVE 2009/128/EC OF THE EUROPEAN

¹⁸ <http://www.omafra.gov.on.ca/english/crops/facts/11-001.htm>

¹⁹ <http://www.amsi.ge/jbpc/31515/15-3-abs-3.htm>

²⁰ <http://houseofrain.com/bookdetail.cfm?id=1344621970977>

²¹ <http://onlinelibrary.wiley.com/doi/10.1111/jawr.12159/abstract>

²² <http://www.npr.org/sections/krulwich/2012/11/29/166156242/cornstalks-everywhere-but-nothing-else-not-even-a-bee>

PARLIAMENT. ²³ **EU Directive Advice compared with UK Government's Response 2010**
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.

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 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 garden, sports and recreation grounds, school grounds and children's playgrounds, 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 minimized 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.

UK Government and Media have conspired against the people

Industry hosted a secret meeting on 26/06/2012 to get GM into the UK²⁴

Monsanto, Syngenta, Bayer and BASF and their industry body, the Agricultural Biotechnology Council (ABC) are setting the agenda for UK agricultural research with a view to bringing GM crops into the UK and exporting them overseas. Two Ministers and two MPs met with scientists from Defra, the John Innes Centre, Rothamsted Research and the National Farmers Union. They had a round table discussion including how to overcome the

²³ <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32009L0128>

²⁴ <http://tinyurl.com/9jbce4g> , <http://tinyurl.com/8ahylza> , <http://tinyurl.com/92rrajj>

negative public opinion that currently prevents the UK achieving these outcomes and a strategy to attain them.

In 1998, Clinton and Blair conspired with Monsanto to suppress information about the side effects of GM Crops

Monsanto had contributed money to the Clinton presidential campaign. On 10 August 1998 in a Granada 'World in Action' broadcast²⁵ Dr Árpád Pusztai (a GM expert leading the team at the Rowett Institute) explained his research that showed that rats fed with genetically modified potatoes had suffered immune damage. He raised questions about the safety of GM food in the human diet on the basis of the study. Clinton phoned Blair and as a result, Dr Pusztai lost his job and his Laboratory in the Rowett Institute was closed down.

As a result the UK Science Media Centre (SMC) was founded, financed by corporations and hosted by the Wellcome Trust, so they were prepared for the next attack on GM crops

Colin Macilwain, a science policy writer from Edinburgh who has worked as a reporter and an editor from both sides of the Atlantic²⁶ wrote about plans to replicate Britain's Science Media Centre (SMC) in the United States, which he said was "*fraught with danger.*" He said that in the US they wouldn't accept an SMC that was financed by corporations.

Steve Druker who had challenged the Royal Society with the fact that Genetically Engineered Foods were the Biggest Fraud in the History of Science²⁷ now rebukes them "*Nor has the Society faced up to the fact that it dispensed multiple misrepresentations, and otherwise behaved unethically, in order to discredit the solid, and unsettling, research conducted at the Rowett Institute under the direction of Dr. Arpad Pusztai, one of the world's foremost experts in food safety. That study²⁸ is still one of the most rigorous yet performed on a GM food, and it's still highly relevant because it controlled for the effects of the new foreign protein - which entails that the adverse results it registered were attributable to a broader feature of the genetic engineering process itself. And that is why proponents of GM foods cannot abide it and have ardently attacked it - with the Royal Society leading the charge.*"

UK Government and the GM Industry: colluding to promote GM crops and foods

To undermine consumer choice and ignore environmental harm (published by Genewatch UK, May 2014)²⁹ *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.*"

The BBC promoted GM Crops with a Panorama programme, that was widely ridiculed

²⁵ <http://news.bbc.co.uk/1/hi/health/149882.stm>

²⁶ <http://www.nature.com/news/two-nations-divided-by-a-common-purpose-1.10224>

²⁷ 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.

²⁸ <http://www.thelancet.com/pdfs/journals/lancet/PIIS0140673698058607.pdf>

²⁹

http://www.genewatch.org/uploads/f03c6d66a9b354535738483c1c3d49e4/Fol_summary_May14.pdf

BBC Panorama: GM Food – Cultivating Fear³⁰ drew these comments from Lawrence Woodward and Pat Thomas. *Cultivating Myths – The Pro-GMO Bias of the BBC: “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 that 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.”*³¹

Lawsuit with Monsanto, EFSA and EU Commission against civil society

On 23/09/2013 the British Government³² 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®.

Open Letter from America warning about the hazards of GM Crops and glyphosate

14/11/2014: Living with GMOs: Citizen to Citizen:³³ From 57 million citizens in the US to citizens, politicians, and regulators in the UK and the rest of the EU about the hazards of genetically modified crops was delivered to 10 Downing Street. David Cameron ignored the warning, so did EFSA and the European Commission.

Public Health England³⁴ endorsed the CMO’s links between alcohol and seven types of cancer.³⁵ This attempt to blame people not corporations was promoted by the Pesticides Industry (CRUK): CRUK denied there was a link between pesticides and cancer

An article in the BMJ by Anne Gulland on 9 April 2016³⁶ reported a survey commissioned by Cancer Research UK ‘People lack awareness of link between alcohol and cancer.’ The Report produced by researchers at the University of Sheffield ‘comes ahead of the consultation closing on how well new drinking guidelines proposed by the UK’s Chief Medical Officers in January 2016, are communicated.’³⁷

“Almost 90 per cent of people in England don’t associate drinking alcohol with an increased risk of cancer” Alison Cox, Cancer Research UK’s Director of Cancer Prevention. She said: “The link between alcohol and cancer is now well established, and it’s not just heavy drinkers who are at risk. Drinking alcohol is linked to an increased risk of seven different cancers - liver, breast, bowel, mouth, throat, oesophageal (food pipe), laryngeal (voice box) - but when people were asked “which, if any, health conditions do you think can result from drinking too much alcohol?” just 13 per cent of adults mentioned cancer.” Dr Penny Buykx, a senior research fellow at The University of Sheffield and lead-author of the report, said: “We’ve

³⁰ <https://www.youtube.com/watch?v=6KruFQ2uCqk>

³¹ <http://beyond-gm.org/cultivating-myths-the-bbc-pro-gmo-bias/>

³² <http://www.testbiotech.de/en/node/898>

³³ <http://www.theletterfromamerica.org/>

³⁴ <https://www.gov.uk/government/publications/consumption-of-alcoholic-beverages-and-risk-of-cancer>

³⁵ <https://www.gov.uk/government/news/new-alcohol-guidelines-show-increased-risk-of-cancer>

³⁶ <http://www.bmj.com/content/353/bmj.i1881>

³⁷ <http://www.cancerresearchuk.org/about-us/cancer-news/press-release/2016-04-01-9-in-10-dont-link-alcohol-and-cancer>

shown that public awareness of the increased cancer risk from drinking alcohol remains worryingly low. People link drinking and liver cancer, but most still don't realise that cancers including breast cancer, mouth and throat cancers and bowel cancer are also linked with alcohol, and that risks for some cancers go up even by drinking a small amount."

Cancer Research UK's Chairman is Michael Pragnell, founder of Syngenta and former CEO of CropLife International. CropLife International is an international trade association that was formed in 2001. It comprised BASF, Bayer CropScience, Dow Agrosciences, DuPont, FMC Corp., Monsanto, Sumitomo and Syngenta.

David Cameron invited the Fracking industry into England: Wales and Scotland has banned it. France has banned it too, so French companies are coming to frack in England

Ministers deliberately delayed a report showing fracking could affect house prices, health and the environment until after a crucial planning decision, documents reveal.³⁸

The aim of the government has been to get chemicals as far away from London as possible

For example, the Task Force on Shale Gas included Lord Howell, President of the British Institute of Economics whose backers include BP and BG Group. This senior Conservative peer, who is George Osborne's father-in-law, provoked anger and surprise today after he suggested "fracking" for shale gas should be limited to the North East of England because it has "*large and uninhabited and desolate areas*".³⁹

Government does another U-turn on pledge to ban fracking in National Parks

On December 16 2015 MPs voted to allow [fracking](#) under Britain's national parks, drawing accusations that the government has sneaked the measure through parliament without a proper debate.⁴⁰ "*Ministers used a statutory instrument – a form of secondary legislation – to push through the new rules, which means legislation can pass into law without a debate in the House of Commons. MPs voted in favour by 298 to 261. The new rules allow fracking 1,200 metres below national parks and sites of special scientific interest, as long as drilling takes place from outside protected areas. This comes despite the government previously pledging an outright ban on the controversial technique for extracting shale gas in such areas.*"

The Government delayed the report of the May 2016 Expert Committee on Pesticides until after the meeting because Bayer and Syngenta were going to be present to give advice.⁴¹

Appointment of key environment posts to those with financial backgrounds

A new appointment for the [Chair of Natural England](#) is about to be made and the preferred candidate has been announced:⁴² "*Mr Sells qualified as a chartered accountant prior to developing investment banking and venture capital interests. He was Managing Director of a venture capital business, which he co-founded*". The job description for the post included: "*You will have a real passion for England's diverse habitats, landscapes and wildlife. This will underpin a desire to ensure that the natural environment is improved for future*

³⁸ <https://www.theguardian.com/environment/2016/nov/25/government-accused-of-dirty-tricks-over-controversial-fracking-report>

³⁹ <http://www.independent.co.uk/news/uk/politics/former-energy-minister-lord-howell-george-osborne-s-father-in-law-says-it-s-fine-to-frack-in-empty-8738634.html>

⁴⁰ <http://www.theguardian.com/environment/2015/dec/16/fracking-under-national-parks-approved-by-mps-amid-acrimony>

⁴¹ <http://www.theguardian.com/environment/2015/jul/29/bee-harming-pesticide-firms-took-part-key-meeting-ban>

⁴² <https://www.gov.uk/government/news/natural-england-preferred-candidate-for-chair-announced>

generations.” George Monbiot wrote: “*Transylvanian Count to Chair Bloodbank: A new government appointment provides a chilling insight into its priorities.*”⁴³ He went on to say: “*It couldn’t have anything to do with the £111,000 he gave to the Conservative party in 2010 and 2011, could it? The environment department, Defra, assures us that “all appointments are made on merit and political activity plays no part in the selection process”.* Phew, that clears it up.” Damian Carrington wrote: “*Major Tory party donor chosen as chair of government nature watchdog.*”⁴⁴ *Venture capitalist Andrew Sells has been selected by ministers as the new chair of Natural England. Andrew Sells, a chartered accountant, donated £111,250 to the Tories in 2010-11. Sells is the preferred candidate of the Environment Minister, Owen Paterson, and will be questioned by MPs on the environment, food and rural affairs select committee before being confirmed, although their advice is not binding.*” He was to replace Sir Martin Doughty, an ardent conservationist, who had died aged 62 from liver cancer.

Chairman of the Environment Agency was made in September 2014. It was Sir Philip Dilley, who had corporate links to the Fracking Industry. He worked for Arup Group Ltd and became Chairman of the Board. He accompanied Prime Minister Cameron on a large trade mission (68 including captains of industry plus six cabinet minister) to India.⁴⁵ Arup was employed to write environmental reports for Cuadrilla and the Environment Agency is responsible for granting permits for fracking.⁴⁶ He left under a cloud in January 2016 for not having interrupted his holiday (in Barbados) to visit flood hit areas in the North of England. New Chairman of the Environment Agency is Emma Howard-Boyd. “*Emma Howard Boyd joined Jupiter Asset Management in 1994 and has overall responsibility for the management and development of Jupiter’s sustainable investment business. She is also responsible for Jupiter’s corporate governance and engagement services for institutional clients and Jupiter’s UK retail funds.*”

Public Health England (PHE) is an executive agency of the Department of Health. It began operating on 1 April 2013, taking over the role of the Health Protection Agency

PHE published controversial Reports as diverse as the impacts of Fracking on public health (low), review of e-cigarettes (safe), alcohol, sugar, diabetes and obesity, all of which were advantageous to industry and the British government. Professor Paul Cosford, Director for Health Protection and Medical Director Public Health England, (who had defended the Report on Fracking in his evidence to the House of Commons Health Select Committee in June 2014) had the opportunity to influence the European Commission’s decision on glyphosate in Europe, but he failed to.

PHE: The government is being advised by industry on action on sugar

The Scientific Basis of Guideline Recommendation on Sugar Intake⁴⁷ published 20/12/2016 in *Annals of Internal Medicine* is funded by US International Life Sciences Institute and has conflicts of interest. “*This project was funded by the Technical Committee on Dietary Carbohydrates of ILSI North America, which in turn is a body funded by a group of companies. Some of the members of this group include Coca-Cola, Hershey Foods, Nestle and PepsiCo. Also, one of the authors of the study is a member of the scientific advisory board of*

⁴³ <http://www.monbiot.com/2013/12/06/transylvanian-count-to-chair-bloodbank/>

⁴⁴ <http://www.theguardian.com/environment/2013/nov/28/tory-donor-chair-natural-england-andrew-sells>

⁴⁵ <https://www.theguardian.com/politics/wintour-and-watt/2010/jul/27/davidcameron-india>

⁴⁶ <https://www.gov.uk/government/publications/about-shale-gas-and-hydraulic-fracturing-fracking/developing-shale-oil-and-gas-in-the-uk>

⁴⁷ <http://annals.org/aim/article/2593601/scientific-basis-guideline-recommendations-sugar-intake-systematic-review>

Tate & Lyle; described by the New York Times as "one of the world's largest suppliers of high-fructose corn syrup".⁴⁸

Vice President of the International Life Science Institute (ILSI) Europe on JMPR Panel

Professor Alan Boobis, Chairman of the FAO/WHO/JMPR panel who claimed he had no conflicts of interest is Vice President of the International Life Science Institute (ILSI) Europe, an organisation that had received money from both Monsanto the and CropLife International.⁴⁹ *"A UN panel that on Tuesday ruled that glyphosate was **probably not carcinogenic to humans** has now become embroiled in a bitter row about potential conflicts of interests. It has emerged that an institute co-run by the chairman of the UN's joint meeting on pesticide residues (JMPR) received a six-figure donation from Monsanto, which uses the substance as a core ingredient in its bestselling Roundup weed-killer. Professor Alan Boobis, who chaired the UN's joint FAO/WHO meeting on glyphosate, also works as the vice-president of the International Life Science Institute (ILSI) Europe. The co-chair of the sessions was Professor Angelo Moretto, a board member of ILSI's Health and Environmental Services Institute, and of its Risk21 steering group too, which Boobis also co-chairs. In 2012, the ILSI group took a \$500,000 (£344,234) donation from Monsanto and a \$528,500 donation from the industry group CropLife International, which represents **Monsanto, Dow, Syngenta and others**, according to **documents obtained by the US right to know campaign**."* When Glyphosate was reassessed in 2002, Alan Boobis was also Chairman of the UN's JMPR meeting on pesticide residues.⁵⁰ Prof Boobis is current Chairman of the UK Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT), which is alleged to be an independent scientific body.

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.⁵¹ 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 expressed concern about the misuse of the scientific process by the alcohol industry and its mouthpiece. They 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.*⁵² The extensive investigation shows

⁴⁸ <http://www.nhs.uk/news/2016/12December/Pages/Sugar-guidelines-unreliable-says-study-funded-by-sugar-industry.aspx>

⁴⁹ <https://www.theguardian.com/environment/2016/may/17/unwho-panel-in-conflict-of-interest-row-over-glyphosates-cancer-risk>

⁵⁰ http://whqlibdoc.who.int/publications/2006/9241665203_eng.pdf?ua=1

⁵¹ <http://www.bmj.com/content/348/bmj.g110>

⁵² jgornall@mac.com BMJ 2014;348:f7646

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

The legal limit of alcohol for driving is highest in the UK and Malta at 0.8 g/l

The relationship between relative crash rate and BAC-level is exponential. From Figure 7 we may conclude that for instance the crash rate per kilometre driven for a driver with 0.8 g/l alcohol in his blood (still the legal limit in the United Kingdom and Malta) is approximately 2.7 times higher than the rate for a sober driver.⁵³ This confirms that British commercial interests are considered to be more important than the health of the public.

Re-approval of aspartame by UK CoT and the Food Safety Authority

The UK is the RMS for aspartame. In December 2013 CoT re-approved Monsanto’s chemical sweetener aspartame.⁵⁴ As a result of unpublished British research (Hull University), CoT had decided there was 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.”*⁵⁵ 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 20/02/2013 in response to the EFSA draft report:⁵⁶ *“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 indictment⁵⁷ 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.⁵⁸ 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.

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

From the European Environment Agency Report 2001: The Precautionary Principle: Late lessons from Early Warnings.⁵⁹

⁵³

http://ec.europa.eu/transport/road_safety/specialist/knowledge/alcohol/prevalence_amp_rate_of_a_lcohol_consumption/the_legal_limit.htm

⁵⁴ <http://www.food.gov.uk/news-updates/news/2013/5894/aspartame>

⁵⁵ <http://www.efsa.europa.eu/en/press/news/131210.htm>

⁵⁶ <https://www.sussex.ac.uk/webteam/gateway/file.php?name=em-letter-to-efsa-on-aspartame-20feb2013.pdf&site=25>

⁵⁷ 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.”

⁵⁸ <http://ww.dorway.com/peerrev.html>

⁵⁹ http://www.eea.europa.eu/publications/environmental_issue_report_2001_22 Chapter 15 page 384 Patrick van Zwanenberg and Erik Millstone. ‘Mad cow disease’ 1980s–2000: how reassurances undermined precaution. The Precautionary Principle. Late lessons from early warnings.

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 could cause Creutzfeldt-Jakob disease (CJD) in young people. In 1996 experiments start 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.”⁶⁰

Mark Purdey, a farmer who died from a brain tumour aged 52, had another theory.⁶¹ *“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.⁶² 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.⁶³ 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.

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 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.⁶⁴ OPs target memory, information processing speed, the

⁶⁰ 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

⁶¹ <http://www.theguardian.com/news/2006/nov/21/guardianobituaries.bse>

⁶² http://www.surgicalneurologyint.com/temp/SurgNeuroInt6145-4381109_121011.pdf

⁶³ Stride CD, Edwards RV, Seddon JC. Sward destruction by application of glyphosate before cutting or grazing; 1985. pp. 771–778. British Crop Protection Conference – Weeds 7B–6.

⁶⁴ <http://www.tandfonline.com/doi/pdf/10.3109/10408444.2012.738645>

ability to plan and have abstract thoughts. 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 would continue to authorise the OP insecticides chlorpyrifos and dimethoate.

Chemical Concern published 23/02/2015: Incriminating sheep dip poisoning: Health & Safety Executive Report (1990) – officially destroyed –but has now been revealed⁶⁵

Farmer Tom Rigby, Sheep Dip Sufferers' Support Group, requested a Fol. 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 Fol 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.

Organophosphate Sheep Dip Debate 10 June 2015 Westminster Hall

Jessica Morden MP spoke on behalf of Andy Burnham⁶⁶ *"We want a full inquiry, independent of DEFRA, to allow us to question why farmers might have been compelled to use this chemical with no guidance if governmental research pointed to health impacts. Was compulsory dipping stopped because MAFF knew it was affecting farm workers' and farmers' health? If so, why did it not say so? We need an answer to that question in particular."* Labour MP Andy Burnham said: *"Farmers who allegedly suffered as a result of organophosphate (OP) sheep dip poisoning are entitled to a 'Hillsborough-style disclosure' of the truth."*

Aerotoxic Syndrome and Organophosphates

OPs are also associated with Aerotoxic Syndrome in pilots and cabin crew as a result of exposure to OPs in engine oil. The Aerotoxic Association⁶⁷ was founded on 18th June 2007 at the Houses of Parliament, London by a group of aircrew whose careers had ended prematurely due to Aerotoxic Syndrome. The Association gives advice to aircrew.

Gulf War Syndrome and Organophosphates

The use of [organophosphate pesticides](#) and [insect repellents](#) during the first Gulf War is credited with keeping rates of pest-borne diseases low. Pesticide use is one of only two exposures consistently identified by Gulf War epidemiologic studies to be significantly associated with Gulf War illness. Multisymptom illness profiles similar to Gulf War illness have been associated with low-level pesticide exposures in other human populations. In addition, Gulf War studies have identified dose-response effects, indicating that greater pesticide use is more strongly associated with Gulf War illness than more limited use. Pesticide use during the Gulf War has also been associated with [neurocognitive](#) deficits and [neuroendocrine](#) alterations in Gulf War veterans in clinical studies conducted following the end of the war. The 2008 report concluded that: *"all available sources of evidence combine to support a consistent and compelling case that pesticide use during the Gulf War is causally associated with Gulf War illness."*⁶⁸ In January 2006, a study led by Melvin Blanchard and

⁶⁵ <https://politicalcleanup.wordpress.com/2015/02/23/secret-state-14-incriminating-sheep-dip-poisoning-hse-report-officially-destroyed-has-now-been-revealed/>

⁶⁶ <https://www.theyworkforyou.com/whall/?id=2015-06-10a.130.0>

⁶⁷ <http://aerotoxic.org>

⁶⁸ http://www.va.gov/gulfwaradvisorycommittee/docs/GWlandHealthofGWVeterans_RAC-GWVIReport_2008.pdf

published by the *Journal of Epidemiology*, part of the "National Health Survey of Gulf War-Era Veterans and Their Families", stated that veterans deployed in the Persian Gulf War had nearly twice the prevalence of chronic multi-symptom illness, a cluster of symptoms similar to a set of conditions often called Gulf War Syndrome.⁶⁹ There is compensation for Gulf War Veterans in the US.⁷⁰

Antimalarial mefloquine (Larium Roche) may contribute to psychiatric problems⁷¹ but its prescription to troops is based on Public Health England Guidelines

General Lord Dannatt told the paper it was 'extraordinary' the MoD continued to prescribe Larium given the weight of evidence about its side effects, and urged it to use other anti-malaria medicines. Ministry of Defence could face hundreds of legal claims from former military personnel who say they have suffered side effects including hallucinations, severe depression, sleep deprivation and anxiety after being prescribed the drug. An MOD spokesperson said: "All antimalarial treatments have side effects, but we must protect our personnel from a potentially fatal disease. We need to be able to use the most appropriate drug to ensure resistance and base our advice on Public Health England Guidelines."

Presumably the Armed Forces aren't eating organic food so they will have chemical residues in it including glyphosate, chlormequat and malathion to add to this lethal chemical mix. Malathion, like glyphosate, has been declared a potential carcinogen to humans.

Armed repression by Britain: exports take priority over human rights

Professor Neil Cooper said:⁷² "This summer (2013) the government released information showing that it had 3,000 extant (still existing) arms export licences to countries that the Foreign Office listed as countries of concern in terms of human rights abuses... In 2012, over 7 billion pounds worth of British military-related equipment was exported around the world. All three main political parties strongly support arms exports and none has a policy of banning them to human rights abusers. David Cameron has visited over a dozen countries with arms exports on the agenda."

'Few prime ministers have been as tireless in promoting Britain's arms industry as David Cameron.⁷³ He calls it a key part of the UK's economy, but do the figures really add up? In this business, in defiance of the past three decades' free-market orthodoxies, the state is pivotal. Accompanying Cameron in India are representatives of a dozen British or partly British-based companies – the industry is clever at blurring such definitions – with defence interests: Rolls-Royce, Serco, BAE, EADS, Thales, Atkins, Cobham, JCB, Strongfield Technologies, MBDA, Ultra Electronics. The British state is also the industry's biggest customer, with our armed forces accounting for four-fifths of its annual sales.' "Boosting exports is vital for economic growth, and that's why I'm doing all I can to promote British business ... so [it] can thrive in the global race." said Cameron on the eve of his Oman trip. "Every country in the world has a right to self-defence, and I'm determined to put Britain's first-class defence industry at the forefront of this market, supporting 300,000 jobs across the country."

⁶⁹ <https://source.wustl.edu/2006/01/study-finds-multisymptom-condition-is-more-prevalent-among-persian-gulf-vets/>

⁷⁰ <http://www.benefits.va.gov/COMPENSATION/claims-postservice-gulfwar.asp>

⁷¹ <https://www.theguardian.com/uk-news/2015/aug/17/antimalarial-drug-malaria-larium-uk-troops-tory-mp-johnny-mercere-mental-health>

⁷² Prof Neil Cooper: Expert on the Arms Trade; Peace Studies; Bradford University. Today Programme edited by PJ Harvey. 2 January 2014

⁷³ <http://www.theguardian.com/world/2013/feb/18/britains-arms-trade-making-killing?INTCMP=SRCH>

Arms to Saudi for use in Yemen

European ministers have embarrassed David Cameron by voting to impose an arms embargo on Saudi Arabia on the same day the British prime minister praised the UK for selling “brilliant” arms to the country. Speaking at a BAE Systems factory in Preston, the prime minister said the UK had pushed the sale of Eurofighter Typhoons to countries in the Middle East, including Oman and Saudi Arabia.⁷⁴ His comments come as a report by Amnesty International reveals that EU and US arms trading provided Saudi Arabia with arms worth billions of dollars in 2015. The Saudis are engaged in a military offensive against Houthi rebels in Yemen. The latest figures from Action on Armed Violence (AOAV) suggest some 6,400 civilians have been killed or injured in the conflict.

Theresa May values exports more than human rights, just like Cameron and Thatcher

The Prime Minister has been criticized for holding talks in the Gulf States, Britain’s third largest export market, due to alleged human rights breaches. She has also faced calls for arms deals with Saudi Arabia and other nations in the region to be banned.

But Mrs May said ahead of the trip: “*We achieve far more by stepping up, engaging with these countries and working with them to encourage and support their plans for reform.*”⁷⁵

The execution of the *Observer* journalist Farzad Bazoft on 15 March 1990⁷⁶

Declassified documents on 1 January 2017 reveal why the Tory government was so reluctant to intervene. The execution ordered by Saddam Hussein, provoked outrage around the world. Yet later that same day Margaret Thatcher and her government decided not to take any action, against what ministers admitted was a “ruthless” regime, for fear of jeopardising lucrative exports to Iraq.

The International Monsanto Tribunal in The Hague

Civil society in Europe hits back against Monsanto and those conspiring with them

The International Monsanto Tribunal⁷⁷ is an international civil society initiative to hold Monsanto accountable for human rights violations, for crimes against humanity, and for ecocide. Eminent judges heard testimonies from victims, and will deliver an advisory opinion following procedures of the International Court of Justice. A parallel People's Assembly provided the opportunity for social movements to rally and plan for the future we want. The Tribunal and People's Assembly took place between 14 and 16 October 2016 in The Hague, Netherlands.

Four of the 10 strong Steering Committee were from France.

Corinne Lepage is a lawyer since 1975, specializing in environmental issues. Former French environment minister, she was MEP (Member of the European Parliament) from 2009 to 2014. She is Honorary President of the Independent Committee for Research and Information on Genetic Engineering (CRIIGEN) after having been founding president of the association to study the effects of genetic technologies for life.

Marie-Monique Robin is an award-winning journalist and author. She has directed numerous documentaries across Latin America, Africa, Europe and Asia, receiving thirty awards. She wrote the best-selling documentary (and book by the same name), “The World

⁷⁴ <https://www.rt.com/uk/333709-saudi-arms-amnesty-cameron/>

⁷⁵ <http://www.express.co.uk/news/politics/739549/Theresa-May-Gulf-States-visit-trade-partnership>

⁷⁶ <https://www.theguardian.com/world/2017/jan/01/farzad-bazoft-journalist-iraq-executed-saddam-hussein-thatcher>

⁷⁷ www.monsanto-tribunal.org

to According Monsanto," which has been broadcast on fifty international television stations, and translated into 22 languages. She is the patron of the Monsanto Tribunal. She also wrote the book: Our Daily Poison: From Pesticides to Packaging, How Chemicals Have Contaminated the Food Chain and Are Making Us Sick⁷⁸ *"Pull at the corner of any recent public health scandal, and you can find the fingerprints of the multinationals that profit from lax regulation. In this muckraking exposé, Marie-Monique Robin lays bare the hidden history of the chemical industry and its long trail into the present."*

Gilles-Éric Séralini, professor of molecular biology since 1991, researcher at the Fundamental and Applied Biology Institute (IBFA) of the University of Caen and co-director of the pole Quality Risk and Sustainable Environment of the House of the Human Sciences Research (pole associated with the CNRS). He became particularly known to the public for his studies on GMOs and pesticides and, in particular, a toxicological study published in September 2012, driven by CRIIGEN, questioning the safety of GM maize NK 603 and Roundup health of rats.

Arnaud Apoteker has participated in numerous Greenpeace campaigns on pesticides, protection of the Mediterranean Sea, ocean ecology, fisheries, nuclear waste and nuclear testing. In 1996, he developed a GMO campaign in France, which became one of the priority campaigns of Greenpeace France. From 2011 to 2015, he was in charge of the GMO campaign for the Greens/EFA group at the European Parliament. He wrote the book "Du poisson dans les fraises, Notre alimentation manipulée," (Fish in the Strawberries: Our Manipulated Food).

There were 14 other members of the organizing committee. Five judges, seven lawyers and 14 Ambassadors took part in the tribunal, as well as victims.

The Tribunal Judges invited Monsanto to attend

Two of the Tribunal Judges wrote to Monsanto to invite them to participate in the Tribunal.⁷⁹ Monsanto **decided not to appear for their defense.** They issued a statement in 5 languages saying that the Tribunal was *'pushing the wrong issues, since the real discussion is about feeding the world.'*

Dr Peter Clausing gave evidence at the International Monsanto Tribunal in 2016

"Ample evidence has been provided above showing that European Authorities twisted or ignored scientific facts and distorted the truth to enable the conclusion that glyphosate is not to be considered a carcinogen, thereby accepting and reinforcing the false conclusion proposed by the Monsanto-led GTF. The German Federal Institute for Risk Assessment (BfR) and the European Food Safety Authority (EFSA) committed scientific fraud."

In his evidence to the Tribunal, Clausing systematically demolished arguments that the EU authorities used to dismiss the significant findings of glyphosate-induced malignant lymphoma in mouse carcinogenicity studies.⁸⁰

The complete recordings from the International Monsanto Tribunal are now available. Below is the link to Dr Peter Clausing's presentation: his is the third one on page 8.⁸¹

The German Government summoned Prof Dr Andreas Hensel before the Committee on Agriculture and Food and accused BfR of scientific fraud for using GTF statistics

⁷⁸ <http://thenewpress.com/books/our-daily-poison>

⁷⁹ http://www.monsanto-tribunal.org/upload/asset_cache/579350554.pdf

⁸⁰ http://www.pan-germany.org/download/Memo_Monsanto-Tribunal_Peter_Clausing_10_2016.pdf

⁸¹ <https://vimeo.com/channels/mten/page:8>

The report says that BfR stands “accused of endangering the population” and also of “intentional falsification of the content of scientific studies”.

In 2015, a German television investigative programme showed BfR director Prof Andreas Hensel facing questions from experts before the German Parliamentary committee for food and agriculture. One of the experts, Prof Dr Eberhard Greiser, a retired epidemiologist at the University of Bremen, says of BfR’s actions, “I’d say this is an intentional falsification of the content of scientific studies.”

Part of Claire Robinson’s (Editor of GM Watch) account at the International Monsanto Tribunal of events surrounding the publication and retraction of the Séralini study⁸²

“I’m going to speak today on how Monsanto and its allies used underhand, deceptive, and non-transparent tactics to try to discredit a scientific study that threatened the company’s interests – and to smear the scientists themselves. In this and other similar cases, the company’s interests were often represented by third parties such as public relations firms or ostensibly independent academics and scientists (the “third-party” PR technique).

The Séralini study was published in 2012. It was a long-term toxicity study that found that two Monsanto products, a GM herbicide-tolerant maize (NK603) and the Roundup herbicide it was engineered to tolerate, had toxic effects on rats when fed over the long-term period of 2 years. Effects included liver and kidney damage. In addition, a trend of increased tumour rates was found in most treatment groups, although this would have to be confirmed in a dedicated cancer study using larger numbers of animals.

Within hours of the study’s publication, a massive PR campaign sprang into operation to try to discredit the study and pressurize the editor of the journal that published it, Food and Chemical Toxicology, to retract it. The UK-based Science Media Centre (SMC) was in the forefront of the attacks. It collected and disseminated quotes denigrating the study from third party experts. The SMC defends and promotes GM technology and is 70% funded by corporations, including Monsanto and other big GMO developer firms.

The SMC’s director was subsequently reported as saying that she took pride in the fact that the SMC’s “emphatic thumbs down” on the study “had largely been acknowledged throughout UK newsrooms”. She added that several television news programmes had rejected the story after reading the quotes. The SMC quotes were also circulated to the media by Monsanto and GMO lobby groups.

As a result, the quotes appeared in media coverage worldwide. One popped up in the New York Times along with the scathing comments of Bruce M. Chassy, professor emeritus of food science at the University of Illinois. At the time, no one could have foreseen that this year, Chassy would be exposed in a media investigation as having received a grant from Monsanto of more than \$57,000 over less than two years. In his promotional activities for GM crops and associated pesticides, Chassy has failed to disclose this relationship with Monsanto and has only described himself by his university role. Indeed Chassy and the University of Illinois directed Monsanto to deposit the payments through the University of Illinois Foundation, a body whose records are shielded from public scrutiny.”

Chair of the Monsanto Tribunal explains what it means and what it might do

The chair of the Monsanto Tribunal, Judge Françoise Tulkens, who heard witnesses in The Hague on Saturday 15 and Sunday 16 October 2016, hopes to contribute to the development of international law by the inclusion of new issues, in particular ecocide.⁸³ Françoise Tulkens was a judge for fourteen years at the European Court of Human Rights –

⁸² http://gmwatch.org/files/MON_Tribunal.pdf

⁸³ <http://www.gmwatch.org/news/latest-news/17273-chair-of-the-monsanto-tribunal-explains-what-it-means-and-what-it-might-do>

she was even the Vice President – and was appointed in September 2012 to the Human Rights Advisory Panel of the United Nations in Kosovo.

What is the purpose of this Monsanto Tribunal that you have agreed to chair?

Judge Françoise Tulkens:

“We will hear witnesses for two days, familiarise ourselves with the many items in the file, including scientific studies, and we five judges will deliberate amongst ourselves in order to issue an “advisory opinion”. Six questions have been put to us regarding rights that are recognized by international law, such as the right to food, the right to a better state of health, and the right to the freedom that is indispensable for scientific research. These rights are notably enshrined in the International Covenant on Economic, Social and Cultural Rights, as well as the Convention on the Rights of the Child and the International Convention on the Elimination of All Forms of Discrimination Against Women. Other international instruments also exist, such as the UN Principles and Guidelines on Business and Human Rights, as approved by the Council of Human Rights in a resolution of June 2011.”

How Prof Andrés Carrasco’s work on teratogenicity was suppressed

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

Paganelli, A. *et al.* Glyphosate-Based Herbicides Produce Teratogenic Effects on Vertebrates by Impairing Retinoic Acid Signaling *Chem. Res. Toxicol.*, 2010, 23 (10), 1586–1595

DOI: 10.1021/tx1001749.⁸⁴

Reports of neural defects and craniofacial malformations from regions where glyphosate-based herbicides (GBH) are used led them 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.

When carrying out the Renewal Assessment Report (RAR) for glyphosate, why did the European GTF exclude papers from Latin America that reported birth defects and cancers associated with glyphosate: and why did they dismiss papers that showed teratogenicity?

In the RAR for glyphosate a total of 18 peer-reviewed publications showing reproductive toxicity were ranked 3 – not reliable. The RAR commented on the study by Paganelli *et al.*⁸⁵ It was very revealing. Whoever reviewed it wanted it deleted, regardless of content. This was the classic study from Professor Andrés Carrasco in the University of Buenos Aires that showed embryological evidence in frogs and chicks, of what was happening to human embryos in the Crop-sprayed towns of Argentina.

RAR Report: ‘The study reported endocrine disruption but was deemed “not reliable”. The RAR commented: “Non-Guideline study that is not sufficiently described for assessment - Inadequate positive and negative control experiments. Irrelevant routes of exposure and inappropriately high doses. Test system not adequate for human risk assessment”. [Volume 3 Annex B.6.1, p 669] Furthermore, “multiple high quality toxicity studies and expert review panels consistently agree glyphosate is not a teratogen or reproductive toxicant. The author’s justification for this research is flawed, providing no valid basis, other than an

⁸⁴ <http://www.ncbi.nlm.nih.gov/pubmed/20695457>

⁸⁵ Paganelli, A. *et al.* Glyphosate-Based Herbicides Produce Teratogenic Effects on Vertebrates by Impairing Retinoic Acid Signaling *Chem. Res. Toxicol.*, 2010, 23 (10), 1586–1595. DOI: 10.1021/tx1001749 <http://pubs.acs.org/doi/abs/10.1021/tx1001749>

opinion, of an increase in the rate of birth defects in Argentina. Direct injection of frog embryos and through chick egg shells do not reflect real world exposure scenarios to either environmental species or humans.”⁸⁶ There were several papers on the increasing rate of birth defects in South America where GM Roundup Ready crops are grown; but the European Glyphosate Task Force had excluded all of them.

GMO Pesticides Used in South American GMO-Based Agriculture: A Review of Their Effects on Humans and Animal Models⁸⁷

Genetically-Engineered Corn and Roundup®-Ready Soya were introduced into the rural towns of Argentina and Paraguay in 1996. The devastation of human and animal health and biodiversity is described in this chapter: *“In South America, the incorporation of genetically modified organisms (GMO) engineered to be resistant to pesticides changed the agricultural model into one dependent on the massive use of agrochemicals. Different pesticides are used in response to the demands of the global consuming market to control weeds, herbivorous arthropods, and crop diseases. Here, we review their effects on humans and animal models, in terms of genotoxicity, teratogenicity, and cell damage. We also stress the importance of biomarkers for medical surveillance of populations at risk.*

Cancer and detrimental reproductive effects in an Argentine agricultural community environmentally exposed to glyphosate⁸⁸

“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, myelo-meningocele (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 model of agricultural production foisted on Argentina by international biotechnology companies has led to 858 % increase in the amount of pesticides used per year, resulting in a massive environmental and health impact in the region. Glyphosate is the most commonly used toxic agrochemical in Argentina, comprising 64 % of total sales, and 200 million litres of glyphosate were applied during the last crop season... The clinical manifestations that physicians working in the crop-sprayed towns find in patients are consistent with the results of scientific research on the effects of various pesticides including glyphosate on experimental animals. Laboratory research by our Scientists show how glyphosate acts on embryonic development to produce birth defects, and how this poison damages DNA molecules in the cell nucleus, promoting mutant cell lines that will cause cancer if they cannot be eliminated by the individual.”

Fig 1 shows: The rise in birth defects correlates with the rise in cultivation of GM glyphosate-tolerant soybeans in Chaco, Argentina. Birth defects per 10 000 live births increased from approx. 15/10,000 live births in 1997 to approx. 82/10,000 live births in 2008.

They produced evidence of *in vitro* genotoxicity of an environmental metabolite of glyphosate (AMPA) in humans as assessed by the Comet assay and cytogenetic tests.

Birth defects in seven regions of Argentina

⁸⁶ http://www.i-sis.org.uk/Scandal_of_Glyphosate_Reassessment_in_Europe.php

⁸⁷ Lopez, S.L. *et al* GMO Pesticides Used in South American GMO-Based Agriculture: A Review of Their Effects on Humans and Animal Models. In *Advances in Molecular Toxicology*, Vol. 6, 201 published by Elsevier: ISSN 1872-0854 <http://www.sciencedirect.com/science/article/pii/B978044459389400021>

⁸⁸ <http://www.amsi.ge/jbpc/31515/15-3-abs-2.htm>

A report of the many types of birth defects in seven geographical areas of Argentina⁸⁹ was excluded from the BfR glyphosate re-assessment (it was in Spanish, but with an English abstract). A sample of 21,844 new born with birth defects was selected, ascertained from 855,220 births, between 1994 and 2007, in 59 hospitals belonging to the ECLAMC network. *Extracts: "High frequencies regional analysis showed the following significant results: PAM: severe hypospadias; CEN: spina bifida, microtia, cleft lip with cleft palate, polycystic kidney, postaxial polydactyly and Down syndrome; CUY: postaxial polydactyly; NOA: omphalocele, gastroschisis, cleft lip without cleft palate, cleft lip with cleft palate, anorectal atresia/stenosis, indeterminate sex, preaxial polydactyly and pectoral agenesis; PAT: cleft lip without cleft palate."* [Metropolitana (MET); Pampa (PAM); Centro (CEN); Cuyo (CUY); Noroeste (NOA); Nordeste (NEA) and Patagonia (PAT)].

Drastic action was taken to stop the public presentation of Carrasco's paper in Argentina

Monsanto must have been sufficiently worried about the damaging nature of this research that showed glyphosate to be a teratogen (and a carcinogen) that someone stopped the presentation of this paper to the residents of Crop-Sprayed Towns of Argentina. Many of these rural residents had experienced birth defects and cancers that had been ignored by local health officials. On 7th August 2010 Professor Andrès 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.⁹⁰ *"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 International⁹¹ 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."*

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 4.⁹² Prof Andrès Carrasco, who had been a member of Conicet, the National Scientific

⁸⁹ <http://www.ncbi.nlm.nih.gov/pubmed/21132229> [Births prevalence of 27 selected congenital anomalies in 7 geographic regions of Argentina]. [Campaña H](#)

⁹⁰ 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

⁹¹ <http://www.amnesty.org/en/library/asset/AMR13/005/2010/en/303e9ee6-9138-405f-97fc-ed58965b76d0/amr130052010en.html>

⁹² <http://www.bbc.co.uk/programmes/b042ldz0>

and Technical Research Council – Argentina, had continually challenged Monsanto and the pesticide regulators. **He would have been a key witness.** However, he died suddenly on May 10th 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 14th.



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

Birth defects in animals in Montana correlate with glyphosate usage on crops and with birth defects in humans

A recent study by Hoy *et al.* found alarming increases in congenital malformations in wildlife in Montana that Hoy has been documenting for the past 19 years. Similar birth defects have occurred in humans in the USA. Their graphs illustrating human disease patterns over the twelve-year period correlate remarkably well with the rate of glyphosate usage on corn, soy and wheat crops, which has increased due to “Roundup® Ready” crops. While the animals’ exposure to the herbicide is through food, water and air, the authors believe that human exposure is predominantly through food, as the majority of the population does not reside near agricultural fields and forests. They conclude: *“Our over-reliance on chemicals in agriculture is causing irreparable harm to all beings on this planet, including the planet herself. Most of these chemicals are known to cause illness, and they have likely been causing illnesses for many years. But until recently, the herbicides have never been sprayed directly on food crops, and never in this massive quantity. We must find another way”*.⁹³

In the US, Benton County’s 3-year control of river weeds; is it linked to the fatal birth defect anencephaly?

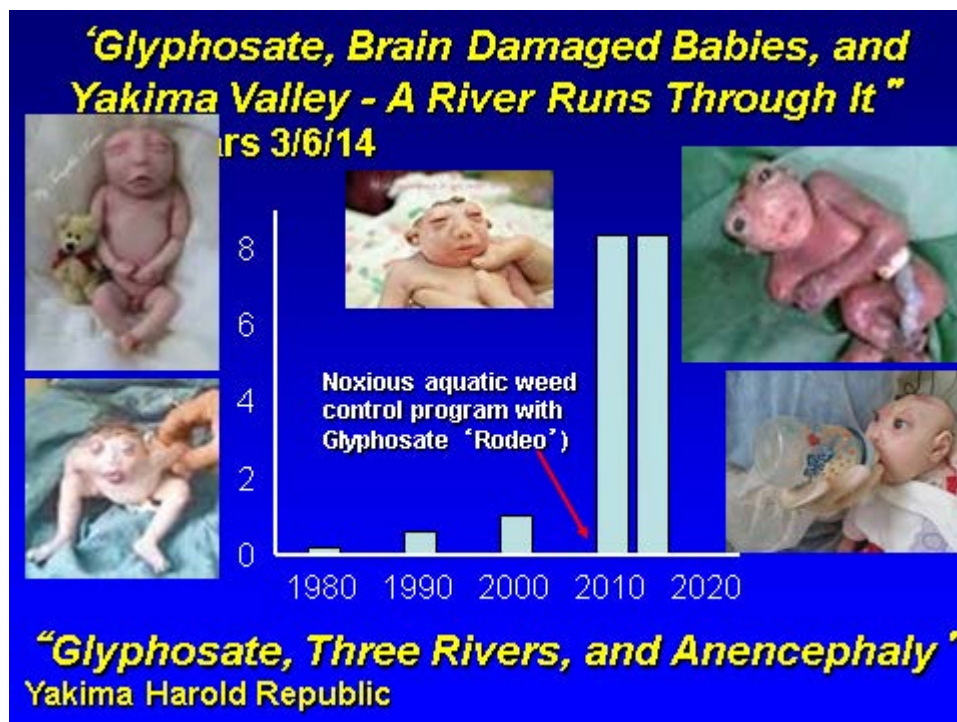
Washington State has a Noxious Weed Control Board and glyphosate is the main herbicide recommended for noxious weed eradication. Benton County Herbicide treatment started in the Yakima River in 2010 and continued for 3 years without monitoring glyphosate levels in water.⁹⁴ Three Washington Counties (Yakima, Benton and Franklin) sharing the same irrigation water for agriculture, reported a high number of pregnancies resulting in a fatal birth defect, anencephaly.⁹⁵ The cause was ‘a mystery’ to state health officials.⁹⁶

⁹³ <http://www.esciencecentral.org/journals/the-high-cost-of-pesticides-human-and-animal-diseases-2375-446X-1000132.php?aid=56471>

⁹⁴

<http://agr.wa.gov/plantsinsects/weeds/npdespermits/docs/IPMFreshwaterEmergentNoxiousQuarantineListedWeeds.pdf>

⁹⁵ <http://farmwars.info/?p=11137>



Official investigation into the causes fails to consider herbicides⁹⁷

Between January 2010 and January 2016, 42 babies were confirmed with anencephaly in Yakima, Benton and Franklin counties. These are higher rates than average.

On average, anencephaly affects about 2 out of every 10,000 babies. In Yakima, Benton and Franklin counties, this rate is higher. More than 8 out of every 10,000 babies in these counties have had anencephaly. Between January 2010 and January 2016, 42 babies had anencephaly. Total number of Neural Tube Defect (NTD) cases in the three-county area is 69 confirmed since 2010, including 44 cases of anencephaly. Current numbers reflect cases confirmed through July 15, 2016.

Monsanto found guilty by the Attorney General of New York for false claims about Roundup[®]

In 1996, the Attorney General of the State of New York, Consumer Frauds and Protection Bureau, Environmental Protection Bureau successfully brought a case against Monsanto with regard to: False advertising by Monsanto regarding the safety of Roundup[®] herbicide (glyphosate). In particular, in many advertisements, Monsanto implied that Roundup[®] could be used safely in aquatic environments. However, the US EPA-approved label said: *Do Not Contaminate water...minute amounts of this herbicide can cause severe damage or destruction to the crop, plants or other areas on which the treatment was not intended.*⁹⁸

⁹⁶ <http://abcnews.go.com/Health/washington-state-health-officials-stumped-high-rate-birth/story?id=19687592>

⁹⁷

<http://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/BirthDefects/AnencephalyInvestigation>

⁹⁸ <http://www.mindfully.org/Pesticide/Monsanto-v-AGNYnov96.htm>

But the false claim from Monsanto has not been corrected and many countries now use glyphosate freely on invasive aquatic species.⁹⁹

Detection of Glyphosate in 38 malformed Piglets in Denmark¹⁰⁰

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 with glyphosate at 2 to 8 weeks of pregnancy.

Emerging pathogens wipe out wildlife species across the globe secondary to immune suppression

Emerging pathogens as threats to animal and plant health

Outbreaks of infectious diseases amongst species of wildlife around the world (such as amphibians, honey bees and wild bees, fish, birds and bats) have occurred over the last 25 years. Kiesecker (2002) found that atrazine (herbicide) and malathion (pesticide) made frogs more susceptible to a parasite, a burrowing trematode worm, which caused limb deformities in tadpoles.¹⁰¹ Field experiments conclusively demonstrated that exposure to trematode infection was required for the development of limb deformities in wood frogs, *Rana sylvatica*. Even very low levels of exposure (*“at concentrations considered safe for drinking water by the US Environmental Protection Agency”*) could produce *“dramatic effects on the immune response of the animals”*. Field studies showed *“considerably higher rates of limb deformities where there was pesticide exposure... Amphibian deformities, in particular those related to limb development, have now been reported in 43 states in the U.S. and in five Canadian Provinces, as well as in several other countries around the world.”*¹⁰²

Since the late 1990's scientists have written in increasingly desperate tones. In 2012 there were two papers in *Nature*: *“Biodiversity loss and the impact on humanity”*¹⁰³ and *“Emerging fungal threats to animal, plant and ecosystem health”*.¹⁰⁴ Authors of this last review had appealed to scientists urgently to find *‘the elusive magic bullet.’* Only one other (in addition to Kiesecker's) paper from California dared to mention pesticides. Davidson *et al.*¹⁰⁵ reported in 2002 spatial patterns of decline for four California ranid frogs and matched the declines with the distribution of agricultural lands (based on USGS land use maps and

⁹⁹

<http://agr.wa.gov/plantsinsects/weeds/npdespermits/docs/IPMFreshwaterEmergentNoxiousQuarantineListedWeeds.pdf>

¹⁰⁰ <http://omicsonline.org/open-access/detection-of-glyphosate-in-malformed-piglets-2161-0525.1000230.pdf>

¹⁰¹ <http://www.pnas.org/content/99/15/9900.full.pdf>

¹⁰² [http://onlinelibrary.wiley.com/doi/10.1002/1096-9926\(200009\)62:3%3C147::AID-TERA2%3E3.0.CO;2-2/full](http://onlinelibrary.wiley.com/doi/10.1002/1096-9926(200009)62:3%3C147::AID-TERA2%3E3.0.CO;2-2/full)

¹⁰³ http://www.nature.com/nature/journal/v486/n7401/full/nature11148.html?WT.ec_id=NATURE-20120607

¹⁰⁴ <http://www.ncbi.nlm.nih.gov/pubmed/22498624>

¹⁰⁵ <http://onlinelibrary.wiley.com/doi/10.1046/j.1523-1739.2002.01030.x/abstract>

key predominant wind directions based on California Air Resources streamline wind maps). The authors stated that *“In California, the transport and deposition of pesticides from the agriculturally intensive Central Valley to the adjacent Sierra Nevada is well documented, and pesticides have been found in the bodies of Sierra frogs.”* The widespread use on agricultural crops of the systemic neonicotinoid insecticides¹⁰⁶ and the herbicide glyphosate,¹⁰⁷ both of which cause immune suppression, make species vulnerable to emerging infectious pathogens, driving large-scale amphibian extinctions.

Chytrid fungus has wiped out amphibian populations over five continents.

Chytrid fungus, *Batrachochytrium dendrobatidis* has wiped out amphibian populations over five continents. A spokesman for IUCN said: *“The IUCN Red List currently considers 31% of the earth’s amphibians are threatened with extinction...it’s thought that 159 species have vanished forever in recent years.”* Amphibians, particularly tadpoles, are considered to be environmental indicators of indirect ecosystem effects because of their unique niche at the boundary of the aquatic-terrestrial ecosystems as well as their sensitivity to pollutants. While tadpoles feed on periphyton, adult amphibians are strictly insectivorous. Amphibians were the first group of vertebrates to be affected by the epidemics of diseases caused by uncommon pathogens. Joseph Mendelson an amphibian taxonomist wrote in 2011.¹⁰⁸ *“The reality of amphibian declines and extinctions has shifted the ecological baseline in so many ecosystems, that an entire generation of biologists is conducting their research in a framework that has been very recently remodelled. I am a taxonomist and I have seen my career vacillate between the thrill of discovering new species and the chill of tracking extinction events—including species that I described.”*

Plant immune systems are similar to those of animals: could that explain why trees around the world are dying from diseases because there are so many chemicals in the environment?

Prof Jeff L Dangl of North Carolina, Chapel Hill is an expert on the plant immune systems. He said: *“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...”*

Praise for Dangl’s career: *“He was at the cutting edge of what he calls a mini-revolution that not only showed that plants have an immune system, but that, at the genetic and molecular levels, the system shares basic organizational traits with mammals.”*¹⁰⁹ For his work in deciphering how plants interact, at the molecular level, with pathogens to fight off disease, Dangl was elected into the National Academy of Sciences in 2007.”

The State of Nature Report 2016¹¹⁰

Mark Eaton of the RSPB, the Report’s first author said: *“The report includes a new “biodiversity intactness index”, which analyses the loss of species over centuries. The UK has lost significantly more nature over the long term than the global average with the UK the 29th lowest out of 218 countries. “It is quite shocking where we stand compared to the rest of the world, even compared to other western European countries: France and Germany are*

¹⁰⁶

http://www.boerenlandvogels.nl/sites/default/files/JEIT%20Immune%20Suppression%20pdf_6.pdf

¹⁰⁷ http://www.fs.fed.us/foresthealth/pesticide/pdfs/seratr01_43_08_04.pdf

¹⁰⁸ http://nationalzoo.si.edu/support/volunteer/documents/HR_Mar2011_JoeM_proofs.pdf

¹⁰⁹ <http://www.pnas.org/content/107/30/13203.full>

¹¹⁰ http://www.rspb.org.uk/Images/State%20of%20Nature%20UK%20report_%2020%20Sept_tcm9-424984.pdf

quite a way above us in the rankings,” said Eaton. “The index gives an idea of where we have got to over the centuries, and we are pretty knackered.”

Complete denial that farming was responsible

It was therefore astounding to hear the complete denial of the NFU and Defra of the responsibility of farmers for The State of Nature Report 2016. NFU vice-president Guy Smith said “intensification of farming had ended in the early 1990s.” that farmers “were using less fertiliser and pesticides than ever” and a spokeswoman from Defra said: “Protecting our precious environment and supporting our world-leading farmers, a cornerstone of our economy, will form an important part of our EU exit negotiations.” The statistics for pesticide usage produced by Fera show exactly the opposite.

Pesticide usage statistics show massive increase in glyphosate between 2012 and 2014

Fera statistics showed that in 2012 the area treated by glyphosate was 1,750,000 ha. This had increased in 2014 to 2,250,000 ha. Guy Gagen, Chief Arable Adviser for the NFU, said increased glyphosate use (up one third since 2012, to an area the size of Wales) was probably due to treatment of ‘black grass.’¹¹¹ 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. Gagen said that 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.*”

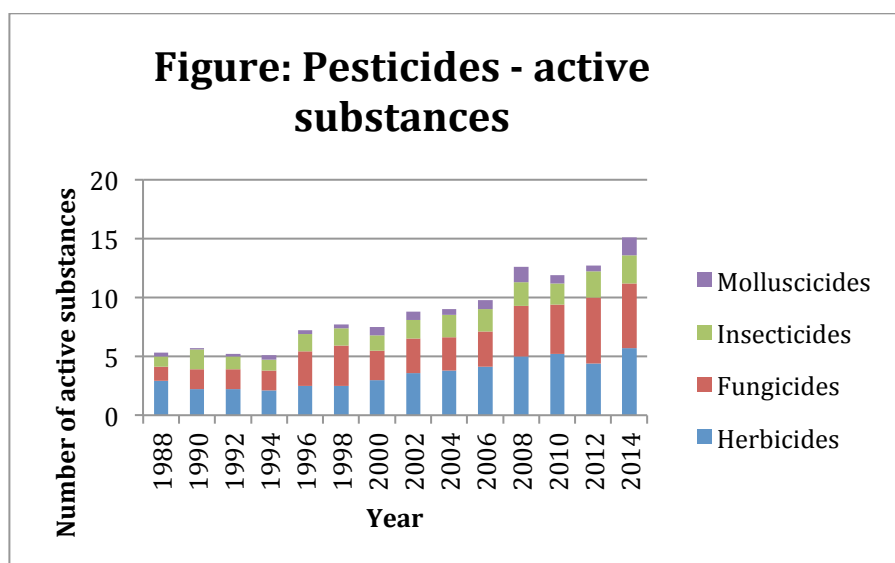


Fig. 1 PESTICIDES: Number of active substances used on Oil Seed Rape in the UK between 1988 and 2014: By kind permission of John Hoar, Hampshire Beekeeper’s Spray Liaison Officer. Figures supplied by FERA

¹¹¹ <http://www.thetimes.co.uk/tto/environment/article4528297.ece>

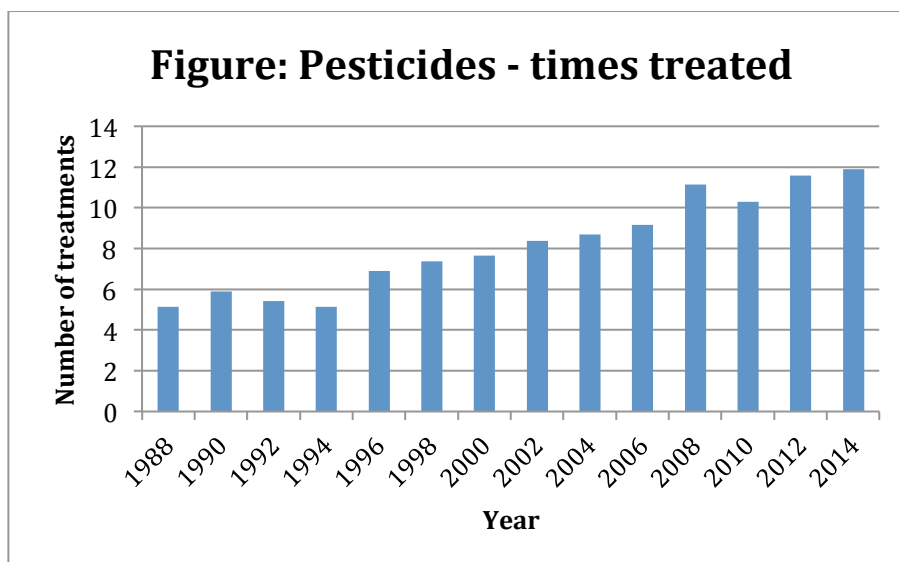


Fig. 2 PESTICIDES TIMES TREATED: used on Oil Seed Rape in the UK between 1988 and 2014: By kind permission of John Hoar, Hampshire Beekeepers Spray Liaison Officer. Figures supplied by FERA

A steady increase in numbers of active ingredients, frequency of times applied during the year and area of cropland to which it is applied between 1988 and 2014.

Around 75% of the UK is managed for food production. How we manage that land is key to the state of Nature.

Biodiversity Intactness Index correlates with pesticide usage

This is a link to an animated pictorial representation but it is not easily findable.¹¹²

“Of 218 countries assessed, the UK is ranked 189: it is 29th lowest out of 218.

Countries below the UK are the Republic of Ireland, USA, Hong Kong and Macao. This means that nature is faring worse in the UK than in most other countries.

UK 165 species are considered critically endangered and likely to go extinct.

England 109 species are critically endangered and likely to go extinct.

Scotland 65 species are critically endangered and are likely to go extinct.

Northern Ireland 45 species are critically endangered and likely to go extinct.

Wales 41 species are critically endangered and likely to go extinct.”

Healthy Harvest-safeguarding the Crop Protection tool box: June 2014

The National Farmers’ Union (NFU), the Crop Protection Association (CPA) and Agricultural Industries Confederation (AIC) launched *Healthy Harvest – safeguarding the crop protection toolbox* in June 2014. The NFU and pesticide companies continually defend the use of pesticides for economic reasons and complain at any attempt to restrict the 320 at their disposal. One farmer defended aerial spraying of bracken with a herbicide.¹¹³ CPA, AIC and the NFU commissioned Andersons to write a Report: The effect of the loss of ‘plant protection products’ (i.e. pesticides) on UK Agriculture and Horticulture that predicted dire economic effects on UK farming if pesticides were restricted.¹¹⁴

¹¹² <https://ww2.rspb.org.uk/whatwedo/stateofnature2016>

¹¹³ https://www.nfuonline.com/healthyharvest_final_digital/ The impact of losing plant protection products on UK Food Production

¹¹⁴ http://www.cropprotection.org.uk/media/89364/andersons_final_report.pdf

The people of Wales have been exposed to pesticides for years

Mustard gas manufacture and storage in Wales: secret stockpiling of Mustard Gas and other chemicals by the Winston Churchill Government near Mold, Flintshire

These are quotations from a report by Andrew P Smith with the full permission of Defra, the Department of the Environment, Food and Rural Affairs.¹¹⁵ *"The Winston Churchill Government had been stockpiling Mustard Gas with a view to its use in WW2. Mustard production at the manufacturing sites near Mold in Flintshire, Wales started in 1939-40 and ceased in April 1945 and between 1946 and 1948 the associated plant and facilities were decommissioned. By April 1959 the entire stockpile had been sent for destruction and dismantling and decontamination of all the remaining pipework and equipment was completed by April 1960. From the 1960s the site was used as a buffer depot for the storage of a variety of non-perishable foodstuffs such as sugar and flour.*

In 1994 Defra was charged with cleaning up the site. However, investigation of the toxic burial pit marked by "Headstones" north of the tunnel entrances found contamination with chemical warfare degradation products, dioxins, asbestos and heavy metals." It was noted that although there were bats hunting in the area there was no evidence that they were living in the storage tunnels. *"Burnt material from the toxic burial and soil from the adjoining river bank were found to contain high dioxin concentrations and some carbon tetrachloride contamination was identified in a couple of soil samples."*

Glyphos Dakar Pro: Marketed by Headland Agrochemicals, also in Flintshire, Wales¹¹⁶

The manufacturing company is Cheminova in Denmark; the marketing company Headland Agrochemicals is in Flintshire Wales. Monsanto says that it is important to read the label...but even on the computer screen the label is unreadable.

With invertebrate declines in rivers, 2016 was a disastrous year for salmon and trout in Wales¹¹⁷

Leading fisheries charity, Salmon & Trout Conservation UK (S&TC UK) has brought forward its programme of river invertebrate monitoring on three rivers in Wales to support efforts by Natural Resource Wales (NRW), who are investigating the unprecedented threats facing rivers and salmon stocks in Wales. Shockingly, a recent report identifies that 61 per cent of Wales' water bodies do not meet 'Good Ecological Status' as required under the Water Framework Directive (WFD). Earlier this year, S&TC UK's Riverfly Census in England, revealed that many rivers and chalk streams across the country were in a poor state because of pollution caused by human pressure, ranging from sewage treatment works, septic tanks and agricultural run-off to abstraction and degraded river habitats. The charity is now planning to launch the Riverfly Census on three rivers in Wales this autumn in order to help determine the level of threats facing Welsh rivers and streams not just for salmon fry but other important aquatic species too. The S&TC Riverfly Census provides a very detailed microscopic picture down to species level.

Glyphosate on Giant Hogweed by rivers as well as Japanese Knotweed in the valleys

There was NRW document about the River Usk.¹¹⁸ On page 12 it described the problem of

¹¹⁵ http://www.subbrit.org.uk/rsg/sites/r/rhydymwyn/defra_1.html

¹¹⁶ [http://headland-ag.co.uk/image/catalog/pdf/Glyphos%20Dakar%20Pro%20F+B%20bag%20\(CLP\)%20Apr15.pdf](http://headland-ag.co.uk/image/catalog/pdf/Glyphos%20Dakar%20Pro%20F+B%20bag%20(CLP)%20Apr15.pdf)

¹¹⁷ <http://www.salmon-trout.org/river-invertebrates-could-hold-the-key-to-abysmal-state-of-rivers-in-wales/news/403>

¹¹⁸ http://www.naturalresources.wales/media/679394/2016_updated_usk_catchment_summary_nrw.pdf

another invasive weed, Giant Hogweed. “Five spray teams are working on the project from Environment Agency Wales (now Natural Resources Wales). Extensive control work has continued in the growing season along the river between Crickhowell and Newbridge-on-Usk since 2006. A number of Forum events have been organised periodically to update and involve local riparian owners and river users on the progress of the project.”

On Page 55 of another NRW document there was a paragraph marked Evidence Gaps:¹¹⁹ “Impacts of new and emerging chemicals and substances, such as neonicotinoid pesticides, nanoparticles and pharmaceuticals, on water quality and ecology.”

Neonicotinoid insecticides are not new. They were introduced in 1994. There is plenty of independent evidence that seeds coated with these insecticides act by causing virtually irreversible blockage of postsynaptic nicotinic acetylcholine receptors (nAChRs) in the central nervous systems of insects.¹²⁰ In 2013, EFSA banned them for 2 years on crops attractive to bees. The ban should end this month but the NFU accompanied by Syngenta and Bayer scientists went to the UK Expert Committee on Pesticides to try to obtain derogation from the ban. There are still plenty of neonicotinoid insecticides applied to the seeds of other crops that haven’t been banned.



Photographer: Steffan Jones. Caption: Dead fish can be seen in the river

At least 1,000 fish have been killed following pollution of the River Teifi in Ceredigion, Natural Resources Wales has said.¹²¹

Environmental officers said the water has been discoloured and believe the source was an agricultural site in the Tregaron area. Salmon and sea trout are among the dead fish and NRW said the number was "rising".

The label is law, according to the US EPA position paper on evaluation of glyphosate

The US EPA Glyphosate Position Paper Evaluation of Carcinogenic Potential EPA’s OPP September 12 2016.

The US EPA states: “All pesticide products provide critical information about how to safely

¹¹⁹ <http://www.naturalresources.wales/media/679427/annex-chapter-3-final-for-publication.pdf>

¹²⁰ Tennekes, H.A. *The Systemic Insecticides: a Disaster in the Making* (2010).

¹²¹ <http://www.bbc.co.uk/news/uk-wales-mid-wales-38366208>

and legally handle and use pesticide products. Pesticide labels are legally enforceable and all carry the statement *'it is a violation of Federal law to use this product in a manner inconsistent with its labeling.'* In other words, the label is law. As a result, a key function of the pesticide product label is to manage the potential risk from pesticides."¹²² However, in many cases labels are unreadable out of doors.

When PCBs were banned in the US for causing ill health in Anniston, Alabama, the Heath Government agreed to ramp up production in a Monsanto-owned factory in Wales in 1971

A Monsanto-owned factory was built in Newport in 1949. They paid contractors to illegally dump 67 chemicals such as PCBs, dioxins and Agent Orange derivatives between 1965 and 1972: Brofiscin Quarry one of the most contaminated places in Britain, is polluting Cardiff.

Polychlorinated biphenyls (PCBs) were manufactured by Monsanto from 1930-1977 primarily for insulating fluids in heavy-duty electrical equipment in plants. They were toxic and persistent in the environment and were EDCs. *"The Anniston and other scandals led to the banning of PCB production in America in 1971. During that period – and up until 1977, when the UK government reluctantly followed suit – PCB production was ramped up at Newport, creating even more wastes. While Brofiscin and Maendy quarries took the bulk of these, five other quarries across Wales and into the north of England were also used as Monsanto dumping grounds. It is not clear that any were prepared (lined and sealed) to accept such wastes. Both Brofiscin and Maendy certainly weren't and both are porous: Brofiscin being limestone, and Maendy sandstone, which means that the wastes slowly and inevitably leach into the waterways, groundwater, and major aquifers. Of particular concern today is that Brofiscin stands above an underground reservoir that might well in the future be used as a public water supply."*¹²³ The UK government, which knew of the dangers of PCBs in the environment in the 1960s, allowed their production in Wales until 1977.¹²⁴

"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."¹²⁵ 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 - a government agency concerned with flooding and pollution – 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, even claiming that they offered no

¹²² <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0094>

¹²³

http://www.theecologist.org/investigations/politics_and_economics/269077/exclusive_how_the_environment_agency_is_gagging_one_eyewitness_to_what_is_potentially_one_of_the_uk_s_biggest_environmental_crimes.html

¹²⁴ <https://www.theguardian.com/guardian/2007/feb/12/frontpagenews.uknews>

¹²⁵ http://www.naturalnews.com/044009_Monsanto_Brofiscin_environmental_damage.html

“identifiable harm or immediate danger to human health” in their official report.” In 2007¹²⁶ previously unseen Environment Agency documents from 2005 show that almost 30 years after being filled, Brofiscin is one of the most contaminated places in Britain. According to engineering company WS Atkins, in a report prepared for the agency and the local authority in 2005 **but never made public**, the site contains at least 67 toxic chemicals. Seven PCBs have been identified, along with vinyl chlorides and naphthalene. The unlined quarry is still leaking, the report says. *“Pollution of water has been occurring since the 1970s, the waste and groundwater has been shown to contain significant quantities of poisonous, noxious and polluting material, pollution of ... waters will continue to occur.”* 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 2013 an association was found between PCB serum levels and non-Hodgkin lymphoma (NHL).

How pesticides are undermining our children’s health

A history of farming with chemicals in the UK: British farmers have been working with chemicals since 1843

When UK Rothamsted was founded in 1843, it was an enormous tragedy that the philanthropist John Bennet Laws, owner of the Rothamsted Estate, appointed a **chemist** as his scientific collaborator. This set the pattern for farming in the UK: to rely totally on the use of chemicals.

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*:¹²⁷
“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 fungicides.¹²⁸ 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.”*

¹²⁶ <https://www.theguardian.com/environment/2007/feb/12/uknews.pollution1>

¹²⁷ Robert van den Bosch. *The Pesticide Conspiracy*. 1978. Doubleday & Company, Inc. USA

¹²⁸ Industry’s Statistics. British Agrochemicals Association London 1976

In 2007 The Faroes Statement: Human Health Effects of Developmental Exposure to Chemicals in Our Environment:¹²⁹ was published by Grandjean *et al.* Twenty-five experts in environmental health from eleven countries contributed (including two from the UK). *“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”.*

The Chief Medical Officer of England,¹³⁰ Tracey Brown from *Sense about Science* (a pro-GM organization) and Public Health England denied that exposure to chemicals damaged the development of the foetus and young child. The Chemicals Regulation Directorate continues to register biocides at industry request and using industry data.

Evidence of Chemical Brain Drain in British Children

Academic performance of 15-year-olds has deteriorated since the 1990s said Michael Gove, the former UK Education Secretary; the UK ratings have declined significantly in the Programme for International Student Assessment. 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. PISA was first performed in 2000¹³¹ 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 mathematics, reading and science (3 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 mathematics and 23rd for reading, broadly similar to three years ago. Michael Gove said since the 1990s, various test performances in UK schools had been *“at best stagnant, at worst declining”*.¹³²

Pisa Tests in Wales 2016 Scores of Welsh students in science, reading and maths were below the average of 72 countries and economies taking part in a major study of educational performance.¹³³ Welsh students also did worse than their counterparts in England, Scotland and Northern Ireland.

OECD publication: children in England have lower basic skills than their European counterparts

In 2016 an OECD study showed that in England the young have lower basic skills than their counterparts in Europe.¹³⁴ But adults approaching retirement age (55-65 year-olds) in England compare reasonably well with their counterparts in other countries.

The study says: *“The priority of priorities is therefore to improve the standard of basic schooling in England, improving both average and minimum standards (which are especially weak in England).”*¹³⁵

¹²⁹ <http://www.ncbi.nlm.nih.gov/pubmed/18226057>

¹³⁰ <https://www.theguardian.com/lifeandstyle/2013/jun/07/pregnancy-advice-royal-college-health-chief>

¹³¹ [http://www.cmec.ca/252/Programs-and-Initiatives/Assessment/Programme-for-International-Student-Assessment-\(PISA\)/PISA-2012/index.html](http://www.cmec.ca/252/Programs-and-Initiatives/Assessment/Programme-for-International-Student-Assessment-(PISA)/PISA-2012/index.html)

¹³² <http://www.bbc.co.uk/news/education-25187997>

¹³³ <http://www.bbc.co.uk/news/uk-wales-38208738>

¹³⁴ <http://www.oecd.org/unitedkingdom/building-skills-for-all-review-of-england.pdf>

White children in the UK are 'falling behind other groups at GCSE'

*"By the age of 16, the group's performance slips to 13th in a table behind children of Chinese, Indian, Asian and black African heritage."*¹³⁶

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

Dr Henk Tennekes was the first independent researcher to recognize the extreme toxicity of low levels of systemic neonicotinoid insecticides, which have become widespread in the environment.¹³⁷ They cause a virtually irreversible blockage of postsynaptic nicotinic 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 might 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 for human exposure.¹³⁸ 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.

Neurobehavioural effects of developmental toxicity¹³⁹

*"Neurodevelopmental disabilities, including autism, attention-deficit hyperactivity disorder, dyslexia, and other cognitive impairments, affect millions of children worldwide, and some diagnoses seem to be increasing in frequency. Industrial chemicals that injure the developing brain are among the known causes for this rise in prevalence. Since 2006, epidemiological studies have documented six additional developmental neurotoxicants—manganese, fluoride, **chlorpyrifos**, dichlorodiphenyl-trichloroethane, tetrachloroethylene, and the polybrominated diphenyl ethers. Pesticides mentioned, each with supporting references, were: **Acetamiprid**, amitraz, avermectin, emamectin, fipronil (Termidor), **glyphosate**, hexaconazole, **imidacloprid**, tetramethylenedisulfotetramine. We postulate that even more neurotoxicants remain undiscovered. Untested chemicals should not be presumed to be safe to brain development, and chemicals in existing use and all new chemicals must therefore be tested for developmental neurotoxicity. To coordinate these efforts and to accelerate translation of science into prevention, we propose the urgent formation of a new international clearinghouse."* The ones in bold are still registered by Defra/Fera in the UK.

OECD publication: Reviews of Health Care Quality tells the UK that is falling behind the EU

The OECD publication Reviews of Health Care Quality: United Kingdom 2016 Raising Standards¹⁴⁰

"The United Kingdom's health systems have long made the quality of care a high priority, pioneering many tools and policies in this area. Yet despite being a global leader in monitoring and improvement, the United Kingdom does not consistently perform well on

¹³⁵ <https://www.gov.uk/government/collections/coc-guidance-statements>

¹³⁶ <http://www.theguardian.com/education/2016/apr/04/white-children-falling-behind-other-groups-at-gcse>

¹³⁷ http://farmlandbirds.net/sites/default/files/Tennekes_2010_2.pdf

¹³⁸ <http://pubs.acs.org/doi/abs/10.1021/jf000873c>

¹³⁹ [http://www.thelancet.com/pdfs/journals/lanneur/PIIS1474-4422\(13\)70278-3.pdf](http://www.thelancet.com/pdfs/journals/lanneur/PIIS1474-4422(13)70278-3.pdf)

¹⁴⁰ http://www.keepeek.com/Digital-Asset-Management/oecd/social-issues-migration-health/oecd-reviews-of-health-care-quality-united-kingdom-2016_9789264239487-en#page19

international quality benchmarks. Why?”... “Based on international benchmarks of health care quality, notably OECD, some indicators for the UK show average or disappointing performance. Survival estimates for breast cancer, cervical and colorectal cancer, for example, are all below the OECD average...”

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 2015.¹⁴¹ The Concord-2 global study looked at survival rates in 67 countries for patients diagnosed with lung, breast, colonic and stomach cancers in 1995 to 1999, compared with levels in 2005 to 2009.

US Kids’ Health Report October 2012 and May 2016

In October 2012 A Generation in Jeopardy: How pesticides are undermining our children’s health & intelligence.¹⁴²

“Our current system of industrial agriculture and pest control relies on chemical inputs sold by a handful of corporations. These multinational corporations wield tremendous control over the system, from setting research agendas to financing, crop selection and inputs throughout the production and distribution chain. Not surprisingly, these same corporations also hold significant sway in the policy arena, investing millions of dollars every year to influence voters, lawmakers and regulators at both the state and federal level to protect the market for pesticides. The result is agriculture, food and pest control systems that serve the interests of these corporations well. It does not, however, serve farmers, who have lost day-to-day control of their operations and are putting themselves and their families in harm’s way. Farmworker interests are not served, as workers are continuously exposed to chemicals known to harm human health. And the health of children across the country is compromised by exposure to pesticides used to control pests in agriculture and where they live, learn and play. In short, the system is broken.”

Kids in the Frontline: How pesticides are undermining the Health of rural children

In May 2016 Pesticides Action North America says little has changed.¹⁴³

“And yet, we continue to use hundreds of millions of pounds of pesticides every year on farms across the country. These chemicals—as science continues to demonstrate—can derail brain and body development, increase risk of cancers, and rob our children of their full potential. It’s time our food system reflected the value we place on our children’s health. The health risks created by our current pesticide-reliant methods of industrial agriculture represent an unnecessary, unacceptable and urgent public health problem.”

Increase in cancers in children: in 15-24 year olds cancers have increased 40% since 1998¹⁴⁴

The Telegraph Science Editor Sarah Knapton put her head above the parapet to mention ‘pesticides’ although it is absent from the headline and Cancer Research UK puts her down. Knapton reports: “New analysis of government statistics by researchers at the charity Children with Cancer UK found that there are now 1,300 more cancer cases a year compared with 1998, the first time all data sets were published. The rise is most apparent in teenagers and young adults aged between 15 and 24, where the incident rate has risen from around 10

¹⁴¹ <http://www.theguardian.com/society/2015/mar/24/uk-cancer-survival-rates-trail-10-years-behind-those-in-european-countries>

¹⁴² <http://www.panna.org/publication/generation-in-jeopardy>

¹⁴³ <http://www.panna.org/sites/default/files/KOF-report-final.pdf>

¹⁴⁴ <http://www.telegraph.co.uk/science/2016/09/03/modern-life-is-killing-our-children-cancer-rate-in-young-people/>

cases in 100,000 to nearly 16. Researchers say that although some of the rise can be explained by improvements in cancer diagnoses and more screening, the **majority is probably caused by environmental factors**. Diagnoses of colon cancer among children and young people has risen 200 per cent since 1998, while thyroid cancer has doubled. Ovarian and cervical cancers have also risen by 70 per cent and 50 per cent respectively.”

Cancer Research UK (CRUK) denies environmental factors; it suggests genetic factors

CRUK Chairman was founder of Syngenta and former Chairman of CropLife International.

Sarah Knapton was immediately shot down by Nicola Smith, Cancer Research UK’s senior health information officer, who said: “Any rise in childhood cancers is worrying but it’s important to remember that less than one per cent of cancer cases in the UK occur in children. It’s not yet clear exactly what causes cancer in childhood and research has not shown a link with environmental factors like air pollution and diet during pregnancy. There are some factors which can increase the risk of childhood cancer like inherited genetic conditions and exposure to radiation – but these are usually not avoidable and no one should feel blamed for a child getting cancer.” Genetic conditions can’t arise in such a short time.

Farmers, their families and rural communities are most affected by the toxic effects of pesticides

CHEM Trust published a Report in 2010:¹⁴⁵ **A Review of the Role Pesticides Play in Some Cancers: Children, Farmers and Pesticide Users at Risk?** “Studies of death registries in some parts of the world suggest that farmers and agricultural workers are more likely than the general population to die from several cancers including Non-Hodgkin’s Lymphoma (NHL), leukaemia, multiple myeloma, prostate cancer, Hodgkin’s disease, pancreatic cancer and brain cancer. Some studies strongly indicate an association between pesticide exposure and NHL, leukaemia and prostate cancer.

Monsanto persuaded the UK Media not to talk about pesticides

Preach the gospel according to Monsanto (like Britain) or receive threats

John Vidal environment editor for *The Guardian* in his final piece before retiring described what happened in 1997 when Alan Rusbridger became the new editor. “Representatives from the old American chemical company, which had a dark history of making Agent Orange and polychlorinated biphenyls (PCBs), came to the Guardian offices in 1997 claiming that Monsanto was the leader of the new “biological” age, having re-invented itself as a global seed company and world saviour. Five directors sat down in new editor Alan Rusbridger’s office, and within minutes were literally thumping the table, saying that we had misunderstood their intention to feed the world with GM food.” But we understood very well at that moment that GM farming was not just about science, genes and the promise of greater yields, but also about the intensification of power, the control of food and the gigantic profits that all large corporations could make at the expense of nature. **True to form, the British government sided with Monsanto. Most of the rest of the world said: no, thanks.**¹⁴⁶

Observer Editorial 14th March 2014: We must have GM crops.¹⁴⁷

¹⁴⁵ <http://www.chemtrust.org.uk/wp-content/uploads/CHEM-Trust-Report-Pesticides-Cancer-July-2010.pdf>

¹⁴⁶ <https://www.theguardian.com/environment/2016/dec/23/john-vidal-environment-editor-greatest-job-on-earth>

¹⁴⁷ <https://www.theguardian.com/commentisfree/2014/mar/16/gm-crops-world-food-famine-starvation>

The UK Food Group Chair Patrick Mulvany asks if *The Observer/Guardian* is now joining the quislings, collaborating with powerful industrial interests (Monsanto etc.) March 17 2014¹⁴⁸

“John Mulholland’s hackneyed article strings together a series of ‘feed the world’ myths ‘busted’ a thousand times by reputable academics.”

Mulvany says: *“It is a double affront to the shade of David Astor, as editor of *The Observer*, who set up the trust which now owns the paper and – above all – as founder of the Organic Research Centre Elm Farm.*

The scourge of hunger has almost nothing to do with food production per se – it’s a problem of redistribution, rights and reduction of waste. So, on what basis can your editor assert that GM crops will solve the problem of hunger?

As many of your readers will know, UK plc’s AgriTech business strategy, pushed by BIS and implemented by the BBSRC (the UK’s biotech science funder), is to export proprietary British technology that will deliver returns through patents and the sale of scientific know-how with biotechnological and chemical input packages of benefit to the UK – the only technologies that the UK now has expertise in, having lost most of its capacity to do research that supports real food production. To achieve their strategy, government, the scientific establishment and agro-biotech industry need to have a test-bed in a UK that permits the release of GM crops, for which, as government and retailers well know, there is no consumer demand.

From where I am here in Cuzco, Peru, a region that has legally rejected GM crops in favour of supporting local campesinos’ production of biodiverse foods produced ecologically, your editorial appears insular – the views of a little Englander – and rather farcical if there were not a darker side to it.

*Is *The Observer/Guardian* now joining the quislings who are collaborating with powerful industrial interests, which are set to undermine and contaminate the world’s efficient, effective, biodiverse and ecological food systems, so that their proprietary technologies dominate globally?”*

On 1 June 2015, John Mulholland additionally became an assistant editor of *The Guardian* in one of the first appointments made by Katharine Viner, the new editor-in-chief of Guardian News and Media. The Guardian is supported by the Bill & Melinda Gates Foundation. Katharine Viner, Editor-in-Chief of *The Guardian* and David Pemsel the new Chief Executive of the Guardian Media Trust blocked Alan Rusbridger from returning to Chair the Scott Trust, which he was expected to do.

Some corruption amongst the judiciary

Supreme Court Judges in the US find in favour of Monsanto

The US Government and US Monsanto have control of judgements by the Supreme Court.¹⁴⁹ *“WASHINGTON (Reuters Report 13 January 2014) - The U.S. Supreme Court upheld Monsanto Corporation’s biotech seed patents on Monday, dealing a blow to a group of organic farmers and other activists trying to stop the biotech company from suing farmers if their fields contain a few plants containing the company’s genetically modified traits.”* Supreme Court Justice, Clarence Thomas, served as a lawyer for Monsanto for several years.¹⁵⁰

¹⁴⁸ <https://politicalcleanup.wordpress.com/2014/03/17/uk-food-group-chair-asks-if-the-observerguardian-is-now-joining-the-quislings-collaborating-with-powerful-industrial-interests-monsanto-etc/>

¹⁴⁹ <http://www.scientificamerican.com/article/monsanto-critics-denied-us-supreme/>

¹⁵⁰ <http://www.biography.com/people/clarence-thomas-9505658#supreme-court-justice>

Judge rejects glyphosate-labelling lawsuit

US District Judge Dean Pregerson has agreed with Monsanto's request to dismiss the lawsuit, ruling that its labelling claims were approved by the US EPA and thus the complaint is pre-empted by federal regulation.¹⁵¹

Monsanto's pocket is deep and its reach and influence extends far and wide: an Australian organic farmer sued his neighbour (effectively Monsanto) and finally lost¹⁵²

This was to be a landmark world's first trial against Monsanto that began on February 10 2014. Steve Marsh, an organic farmer from Kojonup, south of Perth, lost organic certification for most of his farm when pollen from GM canola (Oil Seed Rape) from the neighbouring farm blew over and contaminated his crop in 2010. He sued his neighbour¹⁵³ in the Supreme Court of WA.

However, Marsh lost the lawsuit in a May 2014 ruling from the Supreme Court of Western Australia and was ordered instead to pay court costs of about \$804,000. Disclosure was asked for and it was found that Monsanto had paid some of Baxter's costs: "*Monsanto Australia contributed to the Baxters' legal costs to ensure they could defend themselves in court.*" Marsh appealed the decision to the West Australian Court of Appeal but in September, the court instead ruled in favor of Baxter. Steve Marsh lost his appeal on 12/02/2016 and can go no further.¹⁵⁴

Ms Downs won a legal battle in the High Court: but the Court of Appeal overturned it

Ms Downs (Founder of UK Pesticides Campaign) 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 (Mr Justice Collins). 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 (Lord Justice Sullivan*). 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.*"

***May 2008, The Sullivan Report: Ensuring Access to Environmental Justice in England and Wales: Chaired by Mr Justice Sullivan**

Introduction by The Hon Mr Justice Sullivan, Royal Courts of Justice

"When it signed up to the Aarhus Convention nearly a decade ago the United Kingdom

¹⁵¹ <http://globaljusticeecology.org/judge-rejects-lawsuit-against-monsanto-over-glyphosate-labeling/>

¹⁵² <http://sustainablepulse.com/2013/12/08/australian-farmers-gain-mass-consumer-support-gmo-pollution/#.UqIkFPRdU64>

¹⁵³ Monsanto has the money to win in court and/or settle with anyone who opposes them. http://www.naturalnews.com/034847_Michael_Taylor_Monsanto_FDA.html

¹⁵⁴ <http://www.abc.net.au/news/2016-02-12/gm-contamination-farmer-loses-bid-for-high-court-review/7163506>

undertook to ensure that ordinary members of the public who wished to pursue environmental law challenges should have access to procedures that were “fair, equitable, timely and not prohibitively expensive...Unless more is done, and the Court’s approach to costs is altered so as to recognise that there is a public interest in securing compliance with environmental law, it will only be a matter of time before the United Kingdom is taken to task for failing to live up to its obligations under Aarhus.”

Mr Justice Sullivan became a Lord Justice of Appeal in January 2009 (five months before he overturned Ms Downs’ victory in the High Court) and was appointed Senior President of Tribunal in 2012 and Independent Board Tribunal 2012-2015 at which stage he retired.

Pesticide Residues in all non-organic foods and in alcohol

Defra Expert Committee on Pesticide Residues in Food: ¹⁵⁵ **Monsanto is responsible for humans and animals having glyphosate residues in their bodies: it is in all staple, non-organic foods**

The results from monitoring of Pesticide Residues in Food (PRiF) have been published quarterly in the UK since 2000, but pre-harvest application to crops had already been authorised 20 years before. Bread and breakfast cereals are staple foods but there are no maximum residue limits (MRLs) for bread or breakfast cereals. Residues in bread are tested twice a year.

e.g. 2002 3rd Quarter: Comments from PRiF: *“Residues of chlormequat,¹⁵⁶ glyphosate and pirimiphos-methyl¹⁵⁷ 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.”*

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.”*

In Europe glyphosate residues are found in alcohol: wine, whisky and beer

The brewing and distilling industries accepted the use of glyphosate for desiccation on both barley and wheat in 2007.¹⁵⁸ In February 2016 glyphosate residues were found in German beer.¹⁵⁹ *“The Munich Environmental Institute (Umweltinstitut München) has released shocking results on 25/02/2016 of laboratory testing it has completed on 14 of the most sold beers in Germany. The probable carcinogen and World’s most used herbicide – glyphosate – was found in all of the 14 beers tested.”*

Soil Association’s campaign NOT IN OUR BREAD:¹⁶⁰ **the UK’s position is anomalous**
Meeting on 15 July 2015 in London between the Soil Association and a Scientific Panel¹⁶¹

¹⁵⁵ <http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/about-PRiF>

¹⁵⁶ Chlormequat, a plant growth regulator was present consistently throughout.

¹⁵⁷ 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.

¹⁵⁸ Notes on the use of Roundup® products on malting, milling and seed crops: Monsanto UK Ltd 2007. <http://www.grainfarmers.co.uk/seeddownloads/Roundup%20on%20seed%20%20milling%20and%20malting.pdf>

¹⁵⁹ <http://sustainablepulse.com/2016/02/25/german-beer-industry-in-shock-over-probable-carcinogen-glyphosate-contamination/>

¹⁶⁰ <http://www.soilassociation.org/notinourbread>

¹⁶¹ <http://www.soilassociation.org/news/newsstory/articleid/8110/soil-association-calls-for-ban-on-glyphosate-the-world-s-most-widely-sold-weedkiller>

The scientific panel included Professor Christopher Portier one of the co-authors of the World Health Organisation's International Agency for Research on Cancer's (IARC) recent report that determined Glyphosate's status as a probable carcinogen. Portier reiterated the IARC's conclusions, and said: ***"Glyphosate is definitely genotoxic. There is no doubt in my mind."***

Dr Robin Mesnage of the Department of Medical and Molecular Genetics at Kings College in London, revealed new data analysis showing Round Up[®], the most common brand of Glyphosate-based herbicides, is 1,000 times more toxic than Glyphosate alone due to the inclusion of other toxic chemicals in its mix. Claire Robinson, an editor at GMWatch.org gave the international perspective looking at moves by other countries to ban Glyphosate; *"Outside the United Kingdom, the reaction to the WHO IARC report has been dramatic. Some retailers in Switzerland and Germany have removed Glyphosate products and France has committed to do so by 2018 and German states are calling for an EU wide ban. The Danish Working Environment Authority has declared it as a carcinogen and El Salvador and Sri Lanka have banned it and the Colombia government has banned aerial spraying on coca crops."*

Peter Melchett, Soil Association policy director said; *"If Glyphosate ends up in bread it's impossible for people to avoid it, unless they are eating organic. On the other hand, farmers could easily choose not to use Glyphosate as a spray on wheat crops – just before they are harvested. This is why the Soil Association is calling for the immediate ending of the use of Glyphosate sprays on wheat destined for use in bread."*

Violent Behavior: A Solution in Plain Sight

Why is there an increasing incidence in unsociable behaviour, disorder, aggression, gun crime, and brutality in the US and the UK? This paper by Sylvia Onusic, PhD, CNS, LDN, seeks reasons for the increase in violent behaviour in America, especially among teenagers. She identifies malnutrition, vitamin and micronutrient deficiency as potent causes of aberrant behaviour, crime and the spectrum of autistic diseases. She says: *"Some children have been corrected by a proper diet free of junk food."*¹⁶² These are precisely the effects of exposure to glyphosate and other chemicals.

The Health Care Doctors Forgot: Why Ordinary Food Will Be the Future of Medicine

Prof T Colin Campbell also identifies our *"neglect of the remarkable ability of nutrition to promote health and decrease illness."*¹⁶³ He quotes Hippocrates: *"Let food be thy Medicine."* *"Can diet cure disease, and not just prevent it? Scientific evidence is accumulating that diets which emphasize consumption of plants and which avoid meat and dairy products can rapidly reverse common and life-threatening chronic diseases such as diabetes and heart disease. For these and other common diseases research is showing that a diet-based cure is much more effective than current medical treatments which are largely ineffectual, expensive, and plagued by side effects. These important facts about the power of nutrition are not widely known, however. That is because they simultaneously challenge the food industry, the pharmaceutical industry, and the medical profession."* Professor Campbell also asked why cancer research has stalled.¹⁶⁴

"The non-mutagenic nutrition effects we observed in our research on cancer development closely resemble the nutrition-based effects known to dramatically reverse other diseases, including advanced coronary heart disease and diabetes (Esselstyn 2014 and Barnard 2009). These nutrition-based effects have been observed as a result of the dietary lifestyle

¹⁶² <http://www.westonaprice.org/environmental-toxins/violent-behavior-a-solution-in-plain-sight/pdf>

¹⁶³ <http://www.independentsciencenews.org/health/the-healthcare-doctors-forgot-ordinary-food-will-be-the-new-medicine>

¹⁶⁴ <https://www.independentsciencenews.org/health/why-cancer-research-has-stalled/>

composed of whole plant-based foods without added oil and refined carbohydrates. The benefits are truly remarkable, broad in scope, and surprisingly rapid in response (Campbell and Campbell 2005; Campbell 2013)."

A study from Norway found that GM soya is not 'substantially equivalent' to non-GM: GM soya and maize is being fed to animals in Europe

US FDA is responsible for regulating the safety of GM crops that are eaten by humans or animals. According to a policy established in 1992, FDA considers most GM crops as "substantially equivalent" to non-GM crops.¹⁶⁵ In such cases, GM crops are designated as "Generally Recognized as Safe" under the Federal Food, Drug, and Cosmetic Act (FFDCA) and do not require pre-market approval.

This study from Norway rejects that GM soy is "substantially equivalent" to non-GM soybeans. It describes the nutrient and elemental composition, including residues of herbicides and pesticides, of 31 soybean batches from Iowa, USA.

T. Bøhn *et al.*¹⁶⁶ found:

- Glyphosate tolerant GM soybeans contain high residues of glyphosate and AMPA (mean 3.3 and 5.7 mg/kg, respectively).
- Soybeans from different agricultural practices differ in nutritional quality.
- Organic soybeans showed a more healthy nutritional profile than other soybeans; more sugars, protein, and zinc. Organic soybeans also contained less total saturated fat and total omega-6 fatty acids than both conventional and GM-soy.

"Using 35 different nutritional and elemental variables to characterise each soy sample, we were able to discriminate GM, conventional and organic soybeans without exception, demonstrating substantial non-equivalence" in compositional characteristics for 'ready-to-market' soybeans"

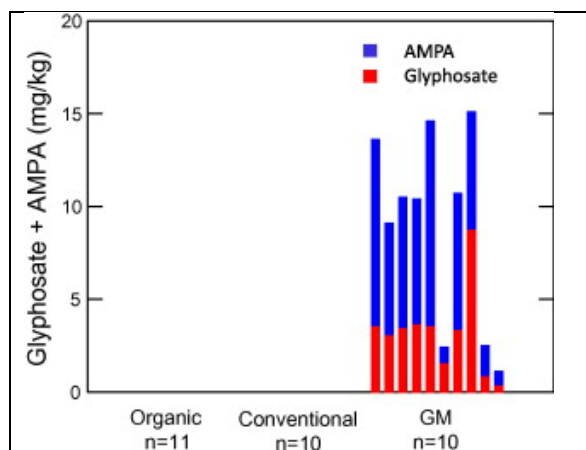
Extreme Levels" of Roundup® in Food Became the Industry Norm

In a commentary on the paper Bøhn wrote: Extreme Levels" of Roundup® in Food Became the Industry Norm:¹⁶⁷ *"Roundup® Ready GM-soy accumulates residues of glyphosate and aminomethylphosphonic acid (AMPA) and GM soy also differs markedly in nutritional composition compared with soybeans from other agricultural practices. Organic soybean samples also showed a more healthy nutritional profile (e.g. higher in protein and lower in saturated fatty acids) than both industrial conventional and GM soybeans. Lack of data on pesticide residues in major crop plants is a serious gap of knowledge with potential consequences for human and animal health. How is the public to trust a risk assessment system that has overlooked the most obvious risk factor for herbicide tolerant GM crops, i.e. high residue levels of herbicides, for nearly 20 years? If it has been due to lack of understanding, it would be bad. **If it is the result of the producer's power to influence the risk assessment system, it would be worse."***

¹⁶⁵ <http://www.fas.org/biosecurity/education/dualuse-agriculture/2.-agricultural-biotechnology/us-regulation-of-genetically-engineered-crops.html>

¹⁶⁶ <http://www.sciencedirect.com/science/article/pii/S0308814613019201> Compositional differences in soybeans on the market: glyphosate accumulates in Roundup Ready GM soybeans

¹⁶⁷ <http://www.independentsciencenews.org/news/how-extreme-levels-of-roundup-in-food-became-the-industry-norm/>



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

Public Health England and the Office of National statistics come together to explain the increase in death rate in England in 2015¹⁶⁸

“It is due to an increase in dementia and Alzheimer’s related deaths and flu outbreaks among older people... Deaths from dementia and Alzheimer’s disease were well above average throughout the year but particularly from January to March 2015, having shown a general upward trend over the past decade.”

Rise in death rates spread across the age groups not just in the elderly

Will Hutton wrote in *The Observer* on 1 January 2017: *“The British are in the midst of a critical health epidemic. In the 12 months to June 2016, the number of deaths jumped by the biggest absolute and relative amount since 1940 – a rise of 52,400. And this appears not solely to be an effect of a growing and ageing population, since the increase is spread across age groups. (Deaths rose by 12% among those aged 90 and over; 10% for 85-89; 7% for 80-84; 5% for 75-70; and 3% for those aged 55-74.) This is unprecedented in peacetime.”*¹⁶⁹

Humans and the environment are being silently poisoned by thousands of untested and unmonitored chemicals¹⁷⁰

This is according to the International Federation of Gynecologists and Obstetrics Opinion on reproductive health impacts of exposure to toxic environmental chemicals. Three are from the UK, one from Canada, eight from the USA and one from the World Health Organisation.

Rosemary Mason MB ChB FRCA 03/01/2017

Compiled over six years with information from a Global Network of Beekeepers, Toxicologists, Independent Scientists, Doctors, Conservationists and Regulators

Silent Killers – the Toxic Legacy of Biocides in Britain

<http://tinyurl.com/hlauvyp>

¹⁶⁸ <http://www.bmj.com/content/353/bmj.i2022>

¹⁶⁹ <https://www.theguardian.com/commentisfree/2017/jan/01/good-health-good-society-we-are-suffering>

¹⁷⁰ http://www.figo.org/sites/default/files/uploads/News/Final%20PDF_8462.pdf

Appendix

Cancer Research UK website shows similar trends for certain cancers

The Cancer Research UK (CRUK) website shows similarly increasing trends over time in graphs from 1975 (when glyphosate was introduced) for thyroid cancer,¹⁷¹ breast cancer,¹⁷² prostate cancer,¹⁷³ malignant melanoma,¹⁷⁴ liver cancer,¹⁷⁵ myeloma,¹⁷⁶ and anal cancer.

Glyphosate and GM crops associated with declines in health in the US

Genetically-engineered crops, glyphosate and the deterioration of health in the United States of America. Nancy L Swanson, Andre Leu, Jon Abrahamson and Bradley Warren¹⁷⁷

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).

¹⁷¹ <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/thyroid/incidence/>

¹⁷² <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/breast/incidence/#trends>

¹⁷³ <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/prostate/incidence/uk-prostate-cancer-incidence-statistics#trends>

¹⁷⁴ <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/skin/incidence/uk-skin-cancer-incidence-statistics#trends>

¹⁷⁵ <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/liver/incidence/#trends>

¹⁷⁶ <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/myeloma/incidence/#trends>

¹⁷⁷ http://www.organic-systems.org/journal/92/JOS_Volume-9_Number-2_Nov_2014-Swanson-et-al.pdf