

Open Letter to the National Assembly for Wales about PISA tests and Ecocide

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The Cabinet Secretary for Education Kirsty Williams is worried about the 2015 PISA¹ results taken by 15-year-olds in mathematics, science and reading that are due out in December 2016. PISA test results have little to do with poor teaching in Wales, but with the poisoning of our food supply with chemical residues. The British government and farmers are colluding with the Agrochemical Industry and helping it to sell more chemicals.

It was stated in December 2013: *"We know from previous OECD skills surveys that, despite billions of pounds of investment in education over the last 15 years, school leavers in the UK are among the least literate and numerate in the developed world."*

Declines in educational attainment in Britain over recent years

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.² PISA was first performed in 2000 and then repeated every three years. It is done with a view to improving education policies and outcomes. It measures problem solving and cognition in daily life.

The UK is falling behind global rivals in international tests taken by 15-year-olds, failing to make the top 20 in 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.

In 2016 an OECD study showed that in England the young have lower basic skills than their counterparts in Europe.³ But adults approaching retirement age (55-65 year-olds) in England compare reasonably well with their counterparts in other countries.

¹ 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.

² [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)

³ <http://www.oecd.org/unitedkingdom/building-skills-for-all-review-of-england.pdf>

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).”*

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 agrochemical industry and the input of chemicals. Rothamsted developed the first chemical herbicide 2,4-D during World War II at British Rothamsted Experimental Station (at the same time as in the US) and Britain has collaborated with the US Department of Agriculture (USDA) ever since.⁴

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

Robert van den Bosch, writing in 1978 in *The Pesticide Conspiracy*:⁵ *“If one considers how dangerous these chemicals are, one would suppose that it would be Government policy to minimize 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.⁶ 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.”*

Ecocide with chemicals and the chemical poisoning of human food and animal feeds

Roundup has poisoned our Nature Reserve in South Gower

I have just sent two photo-journals (2009/2010) of our Nature Reserve in South Gower [Speckled Bush Crickets](#) and [The Year of the Bumblebee](#) to my AM’s Constituency Office in Gowerton. I am afraid they have become historic documents. Over the 10 years (2006-2016) invertebrates (animals without back bones such as bees and butterflies) have been poisoned by Roundup that was sprayed in adjacent valleys in an attempt to eradicate Japanese Knotweed, a Roundup Resistant super-weed.⁷ Although the paper was published in September 2014, the last solitary bees disappeared from our bee hotel between 2015 (when

⁴ <http://www.rothamsted.ac.uk/about>

⁵ Van den Bosch, R. *The Pesticide Conspiracy*: USA Doubleday & Company (1978): Dorchester, UK: Prism Press (1980).

⁶ Industry’s Statistics: British Agrochemical Association London 1976

⁷ http://www.i-sis.org.uk/How_Roundup_Poisoned_My_Nature_Reserve.php

it was full) and 2016 (when it was totally empty). Under Freedom of environmental information, 1440 kg of Dakar Pro (a professional preparation of Roundup) was sprayed between April 2015 and September 2015. I sent these two journals to Dr Mark Porter at the central British Medical Association in Tavistock Square London a week ago asking for an acknowledgment of their arrival, but have heard nothing. I had sent them to EFSA CEO Bernhard Url and an Editor-in-Chief of a major UK newspaper, but again nothing.

The UK State of Nature Report 2016; the environment in Britain is 'pretty knackered'

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 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."*

The Butterfly Conservation Trust Big Butterfly Count told the same story: these are species that have declined in summer 2016 compared with 2015⁸

"It was a pretty good summer, with above average temperatures and yet butterflies on the whole fared badly. Over half of the big butterfly count target species decreased in 2016 compared with the previous year. The 'blues' did badly, with [Small Copper](#) recording its lowest numbers since the big butterfly count began and both [Common Blue](#) and [Holly Blue](#) halved in numbers compared with summer 2015. This was particularly disappointing for Holly Blue, which had an excellent 2015 and numbers in spring 2016 also appeared high. The stunning [Peacock](#), with its beautiful eye-spot wing markings that can scare off would-be predators such as Blue Tits, decreased for the third summer in a row. Its numbers have now dropped from an average of 3.6 individuals per count in 2013 to just 0.5 per count in 2016, a six-fold decrease over three years. [Small Tortoiseshell](#) numbers were down once again too, falling by 47% from 2015 levels, and even the [Comma](#), one of the butterfly success stories of the past few decades, suffered a poor summer. Its numbers were down 46% year on year, resulting in its lowest abundance in the seven years of big butterfly count. It was all change at the top of the big butterfly count chart in 2016, with [Gatekeeper](#), the most abundant species in 2015's count, suffering a 40% decrease and finishing in fourth place. An average of just 1.5 Gatekeepers seen per count in 2016 was the lowest abundance of this species since big butterfly count began."

*Toads "Toad numbers have fallen by more than two-thirds in 30 years, according to a study using data from volunteer patrols set up to help the amphibians cross roads."*⁹

The NFU and Defra completely denied responsibility

It was therefore astounding to see the complete denial of the NFU and Defra about The State of Nature Report. 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 previous environment and supporting our world-leading farmers, a cornerstone of our economy, will form an important part of out*

⁸

http://www.bigbutterflycount.org/2016mainresults?utm_source=Butterfly%20Conservation&utm_medium=email&utm_campaign=7591230_October%202016&utm_content=BBC%20results&dm_i=DGT,4IPFI,KNFC3B,GQ32W,1

⁹ <https://www.theguardian.com/environment/2016/oct/06/uk-common-toad-numbers-down-two-thirds-in-30-years>

EU exit negotiations.” The statistics for pesticide usage produced by Fera show exactly the opposite. Isn't Defra supposed to be advising the UK Government?

Food and Environment Research Agency (FERA) survey of pesticides 1988 to 2014

These indicate that Pesticide Residues on British food are increasing annually. A survey of pesticide (active substances) usage on Oil Seed Rape (OSR) 1988-2014 showed that the number of active substances applied had increased from 5 in 1988 to 15 in 2014 (Fig 1) and the number of treatments had increased from 5 in 1988 to 12 in 2014. (Fig 2) In 2014, herbicides were used on 98.4% OSR and seed treatments on 95.8%.

In 2014 glyphosate was used on Wheat (601,330 kg) Winter barley, Spring barley, Oats, Rye, Triticale, Oilseed rape (577,969 kg), Linseed, All potatoes, Peas, Beans, Sugar beet, with a total of 1,765,465 kg glyphosate on all crops. The total weight of pesticides (herbicides and desiccants, fungicides, growth regulators, molluscicides and repellants, insecticides and seed treatments) applied to farmland in 2014 was in excess of 16,000 tonnes.

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.’¹⁰ 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.*”

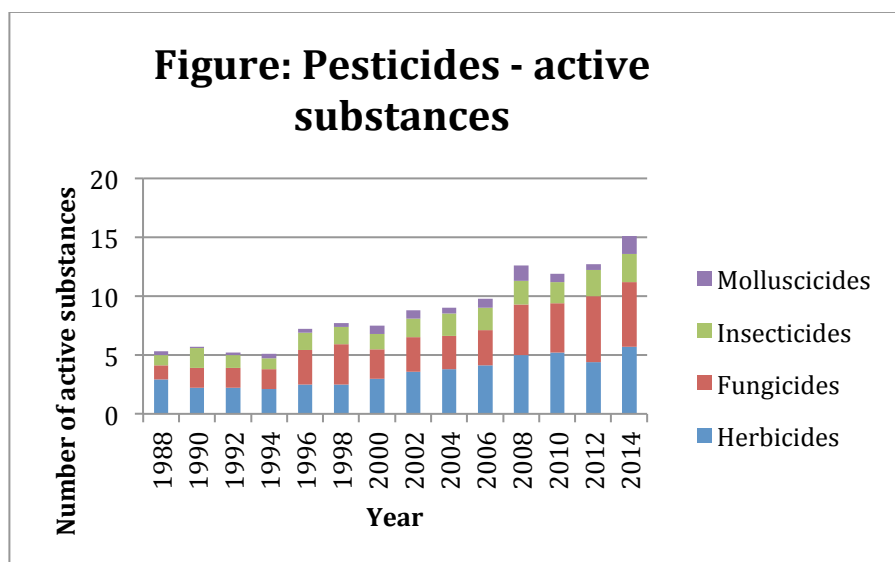


Fig. 1 PESTICIDES: Number of active substances used on Oil Seed Rape in the UK between 1988 and 2014: By kind permission of John Hoar, Hampshire Beekeeper’s Spray Liaison Officer. Figures supplied by FERA

¹⁰ <http://www.thetimes.co.uk/tto/environment/article4528297.ece>

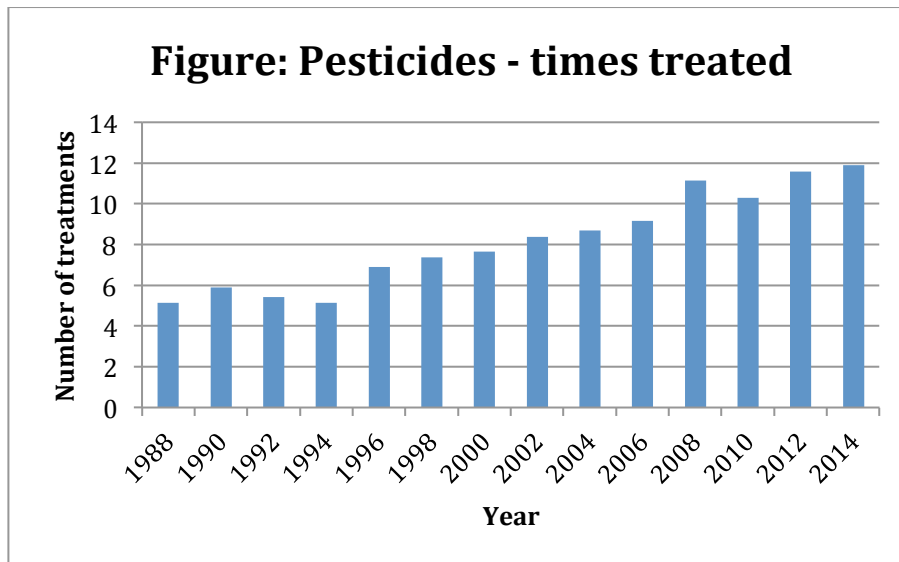


Fig. 2 PESTICIDES TIMES TREATED: used on Oil Seed Rape in the UK between 1988 and 2014: By kind permission of John Hoar, Hampshire Beekeepers Spray Liaison Officer. Figures supplied by FERA

Biodiversity Intactness Index correlates with pesticide usage

This is a link to an animated pictorial representation but it is not easily findable.¹¹

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

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

Most UK farmers who manage ‘75% of UK land’ are drowning their crops in pesticides

The National Farmers’ Union (NFU), the Crop Protection Association (CPA) and the Agricultural Industries Confederation (AIC) combine to lobby the EU not to restrict the 320+ pesticides available to them. The publication is called: **HEALTHY HARVEST**.¹² The countries that have even lower Biodiversity Intactness Indices are similarly working with the Agrochemical Corporations. These are the Republic of Ireland and the USA.

Residues of pesticides found in non-organic food

Defra started publishing pesticide residues in foods in 2000.¹³ *“Residues of chlormequat¹⁴ glyphosate and pirimiphos-methyl¹⁵ were found (in bread). Defra said: “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.”*

¹¹ <https://ww2.rspb.org.uk/whatwedo/stateofnature2016>

¹² Healthy Harvest: The impact of losing plant protection products on UK food and plant production. <http://www.nfuonline.com/assets/30597>

¹³ <http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/about-PRiF>

¹⁴ Chlormequat, a plant growth regulator was present consistently throughout.

¹⁵ 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.

A Report by Pesticides Action Network- UK has shown that 46% of non-organic food in 2013 contained residues of one or more pesticides and this had increased from 25% in 2003.¹⁶ A further Report by PAN-UK: Pesticides in your daily bread showed that nearly two-thirds of bread contained one or more pesticides and the three most frequently found were glyphosate, chlormequat and malathion.¹⁷

Soil Association's campaign NOT IN OUR BREAD:¹⁸ the UK's position is anomalous
Meeting on 15 July 2015 in London between the Soil Association and a Scientific Panel¹⁹
 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 Roundup®, 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."*

Britain does not measure pesticides in humans, animals or food

In Europe glyphosate residues were 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 2007.²⁰ Glyphosate residues were found in German beer.²¹ *"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."*

¹⁶ http://www.pan-uk.org/files/pesticides_on_a_plate_2013_final.pdf

¹⁷ [http://www.pan-uk.org/files/Pesticides%20in%20Your%20Daily%20Bread%20guide%20-%20FINAL%20\(1\).pdf](http://www.pan-uk.org/files/Pesticides%20in%20Your%20Daily%20Bread%20guide%20-%20FINAL%20(1).pdf)

¹⁸ <http://www.soilassociation.org/notinourbread>

¹⁹ <http://www.soilassociation.org/news/newsstory/articleid/8110/soil-association-calls-for-ban-on-glyphosate-the-world-s-most-widely-sold-weedkiller>

²⁰ 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>

²¹ <http://sustainablepulse.com/2016/02/25/german-beer-industry-in-shock-over-probable-carcinogen-glyphosate-contamination/>

A vast majority of German citizens are contaminated with the herbicide glyphosate, according to a report from the Heinrich Böll Foundation. ²²

According to the study, 99.6% of the 2,009 German citizens monitored have some level of glyphosate found in their urine. Over 75% of these individuals have concentrations that are higher than the EU's legal level for glyphosate in drinking water. Further, children up to age 19 are found to exhibit higher levels of urinary glyphosate than older adults. Individuals living near agricultural areas also show elevated concentrations compared to those that did not.

Look at Denmark, Germany, the US and Australia to see the studies that have been carried out on glyphosate related to diseases in animals.

Glyphosate residues in meat in animals fed soya and maize contaminated by glyphosate

Studies in Danish Dairy cattle fed GM soya. ²³ Farm animals such as high yielding dairy cows ingest concentrated feeds like soy, corn, and other grains contaminated with the herbicide glyphosate. This contamination is especially high in genetically modified crops (GMO) with resistance to glyphosate or in those crops treated pre-harvest with glyphosate to desiccate grain or kill late-emerging weeds. This is the first report of glyphosate in the urine of dairy cows chronically contaminated with glyphosate in their feed. The cows had:

- Glyphosate in the urine
- Blood parameter indicative of cytotoxicity (Increased alkaline phosphatase (AP), glutamate dehydrogenase (GLDH), glutamate oxaloacetate transaminase (GOT), creatinine kinase (CK)
- Signs of nephrotoxicity (raised urea and creatine)
- Increased serum cholesterol (the first statin, simvastatin, was trialled by Merck in 1994).
- Trace elements: very low levels of manganese and cobalt.

Birth defects in piglets in Denmark correlated with glyphosate residues in organs

Detection of Glyphosate in 38 malformed Piglets ²⁴

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

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

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

Evidence of GMO harm in pig study

This was a combined study between the US and Australia. ²⁵ GM-fed females had on average a 25% heavier uterus than non-GM-fed females, a possible indicator of disease that requires further investigation. Also, the level of severe inflammation in stomachs was markedly higher in pigs fed on the GM diet. The research results were striking and statistically significant.

²² <http://beyondpesticides.org/dailynewsblog/2016/03/study-finds-majority-of-germans-have-glyphosate-in-their-bodies/>

²³ <http://dx.doi.org/10.4172/2161-0525.1000186>

²⁴ <http://omicsonline.org/open-access/detection-of-glyphosate-in-malformed-piglets-2161-0525.1000230.pdf>

²⁵ <http://www.organic-systems.org/journal/81/8106.pdf>

Lead researcher Dr Judy Carman, adjunct associate professor at Flinders University, Adelaide, Australia, said: “Our findings are noteworthy for several reasons.

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

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

Diseases related to glyphosate in animals

Glyphosate has been found in the urine of urban populations and farmers. “In the search for the causes of serious diseases of entire herds of animals in Northern Germany especially cattle, glyphosate has repeatedly been detected in the urine, faeces, milk and feed of the animals.”²⁶

Krüger *et al.* have studied the damaging effects of glyphosate on the beneficial gut biota of poultry.²⁷ In another paper: *Visceral botulism at dairy farms in Schleswig Holstein, Germany* the authors show that the farmers who look after sick cattle with botulism often have botulism too. *C. botulinum* occurs in cows' and farmers' faeces and in cattle feeds.²⁸ The researchers show that the humans are most likely contracting their infections, not from the cattle but from the feeds, because the same type of botulinum is present in both humans and feeds, but the type of botulinum in the cattle is different. There is now a strong probability that glyphosate residues in animal feeds result in botulism in the cattle and also in related ailments in poultry.

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

Glyphosate in other species: “In the present study²⁹ glyphosate residues were tested in urine and different organs of dairy cows as well as in urine of hares, rabbits and humans using ELISA and Gas Chromatography-Mass Spectroscopy (GC-MS). The correlation coefficients

²⁶ <http://www.ithaka-journal.net/druckversionen/e052012-herbicides-urine.pdf>

²⁷ <http://www.ncbi.nlm.nih.gov/pubmed/23224412>

²⁸ <http://www.ncbi.nlm.nih.gov/pubmed/22200452>

²⁹ <http://www.omicsonline.org/open-access/detection-of-glyphosate-residues-in-animals-and-humans-2161-0525.1000210.pdf>

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

Exposure to environmental chemicals causes developmental damage to the foetus and infant

In 2007 The Faroes Statement: Human Health Effects of Developmental Exposure to Chemicals in Our Environment: ³⁰ 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 and Public Health England (and, we are forced to assume by their refusal to discuss Glyphosate as a carcinogen, the British Medical Association Leaders) denied that exposure to chemicals damaged the development of the foetus and young child. The Chemicals Regulation Directorate continues to register biocides at the industry request and using industry data.

Chemical brain drain: Only One Chance: How Environmental Pollution Impairs Brain Development³¹

Prof Philippe Grandjean, Professor of Environmental Health, Harvard University and University of Southern Denmark. "Today, one out of every six children suffers from some form of neurodevelopmental abnormality. The causes are mostly unknown. Some environmental chemicals are known to cause brain damage and many more are suspected of it, but few have been tested for such effects. The brain's development is uniquely sensitive to toxic chemicals, and even small deficits may negatively impact our academic achievements, economic success, risk of delinquency, and quality of life. Chemicals such as lead, mercury, polychlorinated biphenyls (PCBs), arsenic, and certain solvents and pesticides pose an insidious threat to the development of the next generation's brains".³²

Prof Grandjean's book gives a courageous account of how, over the years, industrial chemicals have damaged children's brains. He describes how each industry has fought to protect its products. The Pesticides Industry is no different. A major human and environmental disaster is upon us.

Neurobehavioural effects of developmental toxicity ³³

³⁰ <http://www.ncbi.nlm.nih.gov/pubmed/18226057>

³¹ Only one chance: How environmental pollution impairs brain development – and how to protect the brains of the next generation Oxford University Press

³² <http://braindrain.dk/>

³³ [http://www.thelancet.com/pdfs/journals/laneur/PIIS1474-4422\(13\)70278-3.pdf](http://www.thelancet.com/pdfs/journals/laneur/PIIS1474-4422(13)70278-3.pdf)

*“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.

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 an insect

Dr Henk Tennekes was the first independent researcher to recognise the extreme toxicity of low levels of systemic neonicotinoid insecticides that have become widespread in the environment.³⁴ 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 predicts that there may be no safe level of exposure. Many independent scientists have demonstrated that the neonicotinoid insecticides have effects on the mammalian brain, particularly on the foetus. In 2000, Tomiwaza *et al.* showed that neonicotinoids acted on mammalian nicotinic acetylcholine receptors as well as those of insects, but considered that the selective nature of its binding (i.e. less affinity than in insects) made them safe for human exposure.³⁵ 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. The neonicotinoids aren't measured in groundwater in the EU. Farmers apply clothianidin and thiamethoxam blindly the following year. There are several papers that have shown harmful effects of neonicotinoids on mammalian nicotinic acetylcholine receptors. (Li *et al.*,³⁶ Abou-Donia *et al.*³⁷ and Kimura-Kuroda *et al.*³⁸) A prevalence case study has reported neurological symptoms in humans that have been correlated with neonicotinoids and their metabolites.³⁹ In a Review, Taira has published Human neonicotinoids exposure in Japan,⁴⁰ where seven neonicotinoid insecticides are in use.

How pesticides are undermining our children's health

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.⁴¹

³⁴ http://farmlandbirds.net/sites/default/files/Tennekes_2010_2.pdf

³⁵ <http://pubs.acs.org/doi/abs/10.1021/jf000873c>

³⁶ <http://www.tandfonline.com/doi/abs/10.1080/15287390701613140#.VdmL8fVhHw>

³⁷ <http://www.tandfonline.com/doi/abs/10.1080/15287390701613140#.VdmL8fVhHw>

³⁸ <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0032432>

³⁹ <http://www.ncbi.nlm.nih.gov/pubmed/26535579>

⁴⁰ http://www.asahikawa-med.ac.jp/dept/mc/healthy/jsce/jjce23_1_14.pdf

⁴¹ <http://www.panna.org/publication/generation-in-jeopardy>

“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.⁴²

“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 1998⁴³

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. *“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 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.”*

Well controlled by industry, Cancer Research UK (CRUK) denies environmental 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.

Tell the NFU that farmers, their families and rural communities are most affected by the

⁴² <http://www.panna.org/sites/default/files/KOF-report-final.pdf>

⁴³ <http://www.telegraph.co.uk/science/2016/09/03/modern-life-is-killing-our-children-cancer-rate-in-young-people/>

toxic effects of pesticides

CHEM Trust published a Report in 2010:⁴⁴ **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.”*

UK government and industry are violating citizen’s human rights

The International Monsanto Tribunal

The International Monsanto Tribunal⁴⁵ was an international civil society initiative to hold Monsanto accountable for human rights violations, for crimes against humanity, and for ecocide. Five eminent judges heard testimonies from victims, and delivered 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 they wanted. The Tribunal and People's Assembly took place between 14 and 16 October 2016 in The Hague, Netherlands.

There were 7 Human Rights Lawyers; one dealt with the question of whether Monsanto was complicit in war crimes (supplying Agent Orange as a defoliant which caused suffering to thousands of Vietnamese during the Vietnam War) as defined in Article 8(2) of the International Criminal Court. *“The Agent Orange produced by Monsanto had dioxin levels many times higher than that produced by Dow Chemicals, the other major supplier of Agent Orange to Vietnam... Internal Monsanto memos show that Monsanto knew of the problems but once again a cover-up was the order of the day.* Monsanto responded that while "sympathetic" with the victims *"reliable scientific evidence indicates that Agent Orange is not the cause of serious long-term health effects"*⁴⁶ More than 40 years since the end of the war, the long-term consequences of Agent Orange on the Vietnamese people was the subject of Unreported World on Channel 4 (28/10/2016). This Report was investigative journalism at its best. Channel 4 sent its disabled journalist (in a wheelchair) to see the legacy of Agent Orange on the people of Vietnam. He spoke to the parents of the disabled and also where possible to the victims themselves. Some of the birth defects that were passed on to the next generation by exposed Vietnamese were horrific. US Army veterans that were exposed got compensation from the US, but the Vietnamese people didn't. The US government and Monsanto were in a state of denial.

International exchanges at the Tribunal allowed participants to compare notes

Between the meetings witnesses could talk to each other and compare notes. For example a farmer in Europe could show pictures of his deformed piglets after being fed GMO soya to a physician in Argentina who had seen identical deformities in children in the Crop-Sprayed Towns. An Iowa veterinarian could speak to a European veterinarian who had linked glyphosate with botulism that was traced to animal feeds. The US veterinarian could tell Europe that there was worse to come with GMOs and deterioration in animal health. *“The most obvious problems with glyphosate-GMO have been with the Fusarium mycotoxins.”*

⁴⁴ <http://www.chemtrust.org.uk/wp-content/uploads/CHEM-Trust-Report-Pesticides-Cancer-July-2010.pdf>

⁴⁵ www.monsanto-tribunal.org

⁴⁶ Sills, P.J. Toxic War: The Story of Agent Orange.

Laboratory analysis had revealed Fusarium, a fungal pathogen that can produce mycotoxins in GM feeds. This was linked to the breeding problems in livestock. The mycotoxin enters the food chain and can negatively affect human and animal health.

The poison cartel, Bill Gates and new attempts to control our seed and food

The Wellcome Trust which hosts the industry-funded Science Media Centre and the Bill and Melinda Gates Foundation (two so-called 'philanthropic organizations'), together with the Brazilian, US and UK governments, have [announced \\$18m \(£14.7m\) funding for an ambitious project](#) to release mosquitoes infected with *Wolbachia bacteria* in two urban areas of Brazil and Colombia.⁴⁷

"We definitely like to get our geek on, as people talk about it," said Desmond-Hellmann (Sue D-H the CEO of the Gates Foundation). *"We love data, we love science, we love technology. But increasingly one of the exciting things in science and technology is what people call implementation science and social science. It is at anyone's peril if they think they're going to make a difference in the world and not deeply understand that aspect of the work."*

*"I believe we are going in the right direction. There is **almost** universal consensus,"* said Farrar (Dr Jeremy Farrar, Director of the Wellcome Trust which hosts the industry-funded Science Media Centre.)

Almost, but not quite a universal consensus

Corporations, philanthropists and governments (the global elite) are concealing the truth in order to sell more chemicals and further contaminate the environment.

The Guardian is being used, either wittingly or unwittingly, to convey this hoax message to the public

The Zika Virus Hoax: The people who should know are Brazilian doctors and independent epidemiologists⁴⁸

"The larvicide sprayed in Brazil, for example, is called "pyriproxyfen," and it's manufactured by Sumitomo Chemical, a corporation known to be a "strategic partner" of Monsanto. The Argentinian doctors' report lists Sumitomo as a "subsidiary" of Monsanto." As [GM Watch reports](#), "Pyriproxyfen is a growth inhibitor of mosquito larvae, which alters the development process from larva to pupa to adult, thus generating malformations in developing mosquitoes and killing or disabling them."

From the doctors' report:

*"All the cases of microcephaly being discovered in Brazil have never been scientifically linked to the Zika virus. A group of doctors from South America are now saying the brain deformations the world is witnessing are caused by the **mass fumigation of low-income Brazilian people** with a chemical larvicide, not by mosquitoes carrying the Zika virus.*

*"What we're seeing with the brain deformations of children, in other words, is more like the history of **thalidomide**, a prescription medicine given to pregnant women that caused children to be born with limbs missing. But the official narrative on all this is pushing a false link with Zika in order to justify more chemical fumigation, more vaccines and more genetically engineered mosquitoes."*

From the doctors at [Red Universitaria de Ambiente y Salud](#) (the Red University of Environment and Health), with h/t to [GM Watch: \(SOURCE document\)](#)

"A dramatic increase of congenital malformations, especially microcephaly in newborns, was detected and quickly linked to the Zika virus by the Brazilian Ministry of Health. However, they fail to recognise that in the area where most sick persons live, a chemical larvicide producing malformations in mosquitoes has been applied for 18 months, and that this poison

⁴⁷ <https://www.theguardian.com/global-development/2016/oct/26/zika-virus-india-africa-medical-research-charity-warns-wellcome-trust-gates-foundation>

⁴⁸ http://www.naturalnews.com/052943_Zika_virus_hoax_larvicide_chemical_GM_mosquitoes.html

(pyroproxifen) is applied by the State on drinking water used by the affected population.”

Human Rights Lawyers say people have a right to information

The British Media is silent: about pesticides, about the Monsanto Tribunal and about the UK State of Nature Report. Therefore the British and the Republic of Ireland governments have no idea that if the International Criminal Court decides that Ecocide is a crime against humanity for which individuals and Governments can be prosecuted, their countries can be held to account. Wales and Welsh farmers should be forewarned.

As the Chairman of the Judges, Francoise Tulkens said, “We will try to deliver the legal opinion before December 10th, the International Day of Human Rights. It will be addressed to Monsanto and to the United Nations. From this legal opinion, other jurisdictions can be involved and more judges will step in. We, as the judges [at the Monsanto Tribunal] have seen, heard, noted and deliberated. **Chances are that the international law will take into consideration new issues such as the ones related to ecocide.”⁴⁹**

Monsanto and the Pentagon and are involved in a new war

Columbia is the new Vietnam and glyphosate is the new Agent Orange

The spraying of Monsanto’s glyphosate on coca crops in Columbia authorized by the US has just resumed again after a pause of only a few months. ⁵⁰ This constitutes crimes against humanity of ecocide, land-grabs and genocide. Elena Sharoykina reports: *“The use of glyphosate in the war against the partisans began in the 1980s. And in 1999, after the signing of anti-drug agreements between Washington and Bogota known as ‘Plan Colombia’, this war method acquired an official status. According to these agreements, the U.S.A government pledged to fund the purchase of pesticide from Monsanto, to supply the project with specially equipped aircrafts and also to train and arm Colombian commandos in order to protect the aircraft from possible ground fire. This is what FARC leader Timoleón Jiménez (real name is Rodrigo Londoño Echeverri), known as ‘Timochenko’ among partisans (by the way, he is a graduate of the Peoples’ Friendship University in Russia and is a trained doctor), says in his interview to Colombian newspaper VOZ.”⁵¹*

“In the regions, where farm communities live close to coca crops, the government accuses landowners of illegal coca production and using this excuse constantly air-sprays their fields with glyphosate. This chemical destroys coca randomly along with other agricultural crops, causing irretrievable harm to animals and people, especially to children, seniors and pregnant women. The partisans try to shoot down U.S. crop duster aircraft loaded with chemical death. To escape the fire pilots go higher and the glyphosate crop dusting becomes even less precisely aimed. Colombia is the only country in the world where the use of glyphosate happens in such a barbaric style. Millions of liters of toxic herbicide are sprayed over ‘the lungs of the planet’, which is how they often call tropical rain forests in South America. The country holds one of the first positions in the world for biodiversity. It is here that almost 10% of all endemic plant species grow. More than 6 million Colombians were forced to leave their homes in the areas affected by glyphosate. It is comparable to the number of refugees from Syrian conflict areas, but Colombia draws considerably less attention from the western mass media. The land abandoned by Colombians, because they

⁴⁹ <http://www.gmwatch.org/news/latest-news/17273-chair-of-the-monsanto-tribunal-explains-what-it-means-and-what-it-might-do>

⁵⁰ <http://sustainablepulse.com/2016/11/05/monsanto-the-pentagons-soldier-in-colombia/>

⁵¹ <http://farc-epeace.org/index.php/blogs/item/337-about-glyphosate-powerful-chemical-weapon-of-transnational-power.html>

can't be used anymore for traditional agriculture, are inhabited by biotech corporations to expand their genetically-modified crop empires, which are resistant to glyphosate. The number of diseases, affecting local populations, grows progressively, cancer and birth defects among them. Soil loses its fertility, forests are being eradicated and water is being polluted."

It is remarkable, that the FARC leader Timochenko in his article 'About Glyphosate: powerful chemical weapon of transnational power: A crime against humanity': linked the Pentagon and Monsanto hostilities in the region with 'the Colombian money-laundering empire'. In Colombia, 1,5 million hectares have been sprayed with glyphosate at high concentrations. "Formulated glyphosate is causing the early stages of cancerization," told Robert Bellé, French scientist who led an investigation about Roundup to The Universe, and he stated that the aerial spraying of this chemical is "a crazy thing to do."

United State's politicians have conveniently short memories

US Secretary of State John Kerry, in justification of the bombing of Syria by the US on 30/08/2013, said: "History will judge us harshly if we turn a blind eye to use of weapons of mass destruction". Has John Kerry forgotten the Vietnam War, after which he gave evidence to Congress about US War Crimes?

"In the course of 10 years, American forces sprayed nearly 20 million gallons of the chemical (a dioxin, Agent Orange) in Vietnam, Laos and parts of Cambodia in an effort to deprive guerrilla fighters of cover by destroying plants and trees where they could find refuge."⁵² Among the illnesses contracted by people exposed to the dioxin are non-Hodgkin's lymphoma, several varieties of cancer, type 2 diabetes, soft tissue sarcoma, birth defects in children, spina bifida and reproductive abnormalities, to name a few."

The German Government accuses BfR and EFSA of scientific fraud

The French Press and the European Professional Beekeepers are fully aware that the German Rapporteur Member State Committee Pesticides Risk Assessment (BfR) has industry members involved in glyphosate's reassessment

Le Monde revealed that one third of the Members of the BFR Commission on Pesticides and their Residues are directly employed by the chemical industry; others came from the 'dubious' Bee Institutes. The satirical comment from *Le Monde* was, that in Germany: "*people from the pesticide industry give expert safety advice on their own products.*"⁵³ Walter Haefeker President of the European Professional Beekeepers' Association (EPBA) confirmed this: "Federal authority for Consumer Protection and Food Safety: BVL (Bundesamt für Verbraucherschutz und Lebensmittelsicherheit), during a presentation in 2015, in Berlin, at the world's largest agricultural products fair, 'Die Grüne Woche', the Director of the Department for the Admission of Plant Protection (Pesticide Regulation Authority), Dr. Karsten Hogardt, stated that the BVL sees itself as: 'a service for its clients, the plant protection industry'. In this role it is 'advised' by an expert group of 'risk managers' including many from the pesticide industry. It is shocking and disgraceful, that no independent scientists are allowed in the regulation, or licensing, of pesticides in Germany."⁵⁴

⁵² <http://www.dailymail.co.uk/news/article-2401378/Agent-Orange-Vietnamese-children-suffering-effects-herbicide-sprayed-US-Army-40-years-ago.html>

⁵³ FOUCCART, S. 2015. Noire semaine pour l'expertise. *Le Monde (Paris)* article 30.III.2015 http://www.lemonde.fr/idees/article/2015/03/30/noire-semaine-pour-expertise_4605627_3232.html?xtmc=neonicotinoides&xtcr=1

⁵⁴ <http://podcasts.haefeker.org/?p=132>

They were correct. The BfR Committee for Pesticides and its residues had two members from Bayer and two members from BASF. Bayer manufactures Super Strength Glyphosate and BASF supplies a chemical component of glyphosate.⁵⁵

After 1.4 million people signed a [petition](#) calling for glyphosate to be banned, campaign groups welcomed today's vote as a sign that citizen concerns were being listened to. Pascal Vollenweider, the campaign director of Avaaz, which organized the poll for glyphosate to be banned, said: *"Governments are beginning to understand that their citizens refuse to be treated as lab rats. Monsanto and other chemical giants are used to getting their way, but public pressure has forced politicians to stand firm behind the precautionary principle."*⁵⁶

German toxicologist accuses EU authorities of scientific fraud over glyphosate link with cancer⁵⁷ Nov 3 2016.

Dr Peter Clausing spoke at the International Monsanto Tribunal. Clausing, a former industry toxicologist who now works for Pesticide Action Network Germany, said there is *"ample evidence"* 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. The German Federal Institute for Risk Assessment (BfR) and the European Food Safety Authority (EFSA) committed scientific fraud."*

BfR accused of intentionally falsifying science on German TV: a scandal

"The statistical dodge employed by the German authorities to defend glyphosate was the subject of an explosive in-depth news report that aired on German TV last October, in the midst of deliberations by EU authorities on whether to re-authorize the chemical."

The news report was broadcast by MDR, which is part of ARD, the main public national TV network in Germany. The report says that BfR stands *"accused of endangering the population"* and shows 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."*

The MDR film notes that BfR, in its initial report to the EU authorities, claimed that there were no signs of cancer in the animal studies: *"They took the position that even though one of the five studies on mice did show a significant increase in malignant lymphoma, they dismissed it as irrelevant, because, the BfR asserted, the other four studies did not indicate any cancer risk."* Clausing says in the film: *"The German Federal Institute for Risk Assessment has confirmed several times in writing that it performed an independent evaluation of the studies and materials it had. That should include the statistical evaluation of cancer studies. And the fact that the results of the industrial studies were so blindly trusted is scandalous."*

Our Daily Poison: From Pesticides to Packaging, How Chemicals Have Contaminated the Food Chain and Are Making Us Sick.⁵⁸

Marie-Monique Robin is an award-winning French journalist and filmmaker and author of the above book. She was the patron of the Monsanto Tribunal and on the Steering

⁵⁵ http://www.bfr.bund.de/en/members_of_bfr_committee_for_pesticides_and_their_residues-189322.html

⁵⁶ <https://www.theguardian.com/environment/2016/may/20/monsanto-weedkiller-faces-recall-from-europes-shops-after-eu-fail-to-agree-deal>

⁵⁷ <http://gmwatch.org/news/latest-news/17307>

⁵⁸ <http://thenewpress.com/books/our-daily-poison>

Committee. She received the 1995 Albert-Londres Prize, awarded to investigative journalists in France. She is the director and producer of more than thirty documentaries.

"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. Unless you're part of the international lobbying set, you'll be shocked by the global connections between regulatory agencies, the corporations that have nestled into them, and the betrayal of public health that they have licensed. For anyone concerned about democracy, corporate power or public health, this is a gripping and urgent book." Raj Patel, author of *Stuffed and Starved*

"Marie-Monique Robin's Our Daily Poison is a gift to citizens across the world. She brings us scientific facts about pesticides and poisons in a period when this evidence is being kept from the public. Whether you are interested in your health and the safety of your food, the protection of species and ecosystems, or the independence of science and laws from corporate law, this is a book you must read." Vandana Shiva, author of *Stolen Harvest* and *Making Peace with the Earth*.

British Government supports Monsanto, EFSA and the EC

On 23/09/2013 the British Government⁵⁹ joined forces with Monsanto, EFSA and the EU Commission to fight civil society in the EU Court

The lawsuit was to defend the right to import Monsanto's transgenic soybean Intacta® which produces an insecticide and is resistant to glyphosate herbicides such as Roundup®.

Confirmation of the action: answer to a Written Question in the House of Lords about the UK Government

Monday 18 November 2013

Agriculture: Genetically Modified Crops

Question Asked by: **The Countess of Mar:**

To ask Her Majesty's Government which member of the Government is responsible for the United Kingdom's approach in the case before the Court of Justice of the European Union regarding the decision of the European Food Safety Authority to allow genetically-modified soya beans to be marketed by Monsanto in the European Union; and whether any organisations are contributing to Her Majesty's Government's legal costs in that case.⁶⁰

The Parliamentary Under-Secretary of State, Department of Health (Earl Howe) (Con):

The United Kingdom has a strong interest in the science-based system underpinning genetically modified product applications and so has applied to intervene in this case, which concerns the authorisation of genetically modified food and feed. Any intervention will represent the view of the Government as a whole and the only likely external legal costs will be those from instructing counsel and costs of attending any hearing should that prove necessary.

The Open Letter from America⁶¹ was from 60 million American citizens to David Cameron (and the rest of the EU) warning them not to authorize GM crops because of the devastating effects on human health and the environment

It was delivered to 10 Downing Street on 11 November 2014.⁶²

Extracts: *"In our country, GM crops account for about half of harvested cropland. Around 94% of the soy, 93% of corn (maize) and 96% of cotton grown is GM. The UK and the rest of*

⁵⁹ <http://www.testbiotech.de/en/node/898>

⁶⁰ http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/131118w0001.htm#w_a_st_0

⁶¹ www.theletterfromamerica.org

⁶² https://twitter.com/beyond_gm/status/532224079605288960

the EU have yet to adopt GM crops in the way that we have, but you are currently under tremendous pressure from governments, biotech lobbyists, and large corporations to adopt what we now regard as a failing agricultural technology...Studies of animals fed GM foods and/or glyphosate, however, show worrying trends including damage to vital organs like the liver and kidneys, damage to gut tissues and gut flora, immune system disruption, reproductive abnormalities, and even tumors.⁶³...These scientific studies point to potentially serious human health problems that could not have been anticipated when our country first embraced GMOs, and yet they continue to be ignored by those who should be protecting us. Instead our regulators rely on outdated studies and other information funded and supplied by biotech companies that, not surprisingly, dismiss all health concerns.

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

Americans are reaping the detrimental impacts of this risky and unproven agricultural technology. EU countries should take note: there are no benefits from GM crops great enough to offset these impacts. Officials who continue to ignore this fact are guilty of a gross dereliction of duty. Most of the countries in the EU took that advice and opted out of GM (including Scotland, Wales and Ireland).

David Cameron ignored that advice on behalf of England. He and Defra concealed the letter from the British public. The European Commission and the European Food Safety Authority also ignored it and continued to approve GM Crops for growing and for food and feed in the EU.

This was despite these grave warnings from American citizens of their experiences (Living with GMOs) and from independent organisations in Europe, such as Testbiotech (Germany), CRIIGEN (France), Corporate Europe Observatory, Earth Open Source and Pesticides Action Network.

21 March 2016: In response to a question asked by the Countess of Mar in the House of Lords about glyphosate, Baroness Chisholm of Owlpen (Con) said the government supports EFSA's conclusions, particularly that glyphosate does not cause cancer⁶³

The Countess of Mar: To ask Her Majesty's Government, in the light of the European Union Ombudsman's finding of maladministration by the European Commission over pesticides, published on 22 February, and given that several EU countries including France, the Netherlands and Sweden have indicated that they will not support an assessment by the European Food Standards Agency (EFSA) that glyphosate is harmless, whether they support the EFSA view that that chemical should receive a licence for a further 15 years.

Baroness Chisholm of Owlpen (Con): (Replying on behalf of Lord Gardiner of Kimble, the Defra spokesperson for the HOL) My Lords, the Government support pesticide use where scientific evidence shows that this is not expected to harm people or to have unacceptable effects on the environment. UK experts participated in the European Food Safety Authority's assessment of glyphosate and support its conclusions particularly that glyphosate does not cause cancer. The Government therefore supports the continuing approval of glyphosate.

In June 2012, a secret meeting was held between the Agricultural Biotechnology Council (ABC), representing industry, two UK Ministers, two MPs, Civil Servants, Scientists and NFU to discuss the barriers to introducing Genetically Modified Crops (GM) into Britain and how to overcome them

⁶³ Food safety:glyphosate: <http://www.publications.parliament.uk/pa/ld201516/ldhansrd/text/160321-0001.htm>

On 25th October 2012 Dr Helen Wallace Director of Genewatch and Pete Riley Campaign Manager GM Freeze published a Press Release:⁶⁴ Monsanto meets Ministers to push return of GM crops to Britain. On 26 June 2012, Roundtable discussion on 'Going for Growth': Realising the potential of agricultural technologies in the UK. Attendees⁶⁵ included Government Ministers, MPs, Civil Servants from Defra, the Department of Business, Innovations and Skills, Office of Life Sciences, Director of the Centre for Food Security, John Innes Centre, Rothamsted Research, James Hutton Institute, the National Farmers Union and the Agricultural and Horticultural Development Board. Here are the links to the Agenda⁶⁶ and a summary of the meeting.⁶⁷ The ABC had also communicated with the Food Standards Agency (FSA). These organisations have colluded with industry.

Monsanto-funded UK Science Media Centre announces the Séralini rat study to be a fraud

In 2012 Séralini and his colleagues performed a 2-year rat feeding study on GMO Maize and Roundup® and found liver and kidney damage and a variety of tumours, but the industry-funded Science Media Centre accused Séralini's team of fraud and said the paper should be withdrawn.

Gilles-Eric Séralini went on to win whistle blower of the Year award 2015 for his work

"He was the first to publish animal test results demonstrating the toxic and carcinogenic properties of the most commonly used herbicide worldwide, the glyphosate-based "Roundup" by carrying out a two-year feeding test on rats. After the research was published, Prof Séralini was attacked by a vehement campaign by 'interested circles' from the chemical industry as well as the industry-financed British Science Media Centre."

The UK Government and the GM Industry: colluding to promote GM crops and foods, undermine consumer choice and ignore environmental harm (published by Genewatch UK, May 2014)⁶⁸

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

The documents:

*Reveal how foreign multinational GM companies are running the Government's PR strategy on GM crops by controlling how public and private money will be invested in research;
Show that taxpayers' money is being spent on PR for the GM industry rather than delivering better food and farming;*

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

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

The BBC also supported the Government: BBC Panorama programme on GM crops: it was accused by some viewers of being a 'clichéd corporate press release'

⁶⁴ <http://www.genewatch.org/article.shtml?als%5Bcid%5D=569457&als%5Bitemid%5D=571449>

⁶⁵ <http://tinyurl.com/9jbce4g>

⁶⁶ <http://tinyurl.com/8ahylza>

⁶⁷ <http://tinyurl.com/92rrajn>

⁶⁸

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

BBC Panorama: GM Food – Cultivating Fear⁶⁹ 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 which was once a flagship of investigative journalism. It had no more veracity and insight than the most clichéd corporate press release and the result was that a mix of myths, deceptive assertions and inaccurate statements by pro-GM lobbyists – including those masquerading as independent scientists – were given a free ride and promotional slot on prime time television. It’s tempting to say that you couldn’t make this stuff up – except Panorama has proven with its latest fiction that actually you can – and that you can even get the BBC (and thus the licence fee payer) to pay for it.”*⁷⁰ GM watch’s Claire Robinson also reported on the programme in a similar fashion and gave the view of the Bangladeshi journalist who was present at the time.⁷¹

BBC Trust dismissed complaints outright

The BBC Trust dismissed outright viewers’ complaints about the outrageous Panorama Programme on GM Crops.⁷² The Trust Editorial Standards Committee (ESC) Richard Ayre, Mark Damazer, Sonita Alleyne, Bill Matthews and Nicholas Prettejohn, actually apologised to Monsanto. *“The programme had achieved due accuracy and due impartiality in the way it reflected the role of Monsanto (an agricultural company). In accurately stating Monsanto’s direct interest in the project and in reflecting the reporter’s professional judgement that the exercise could sway the public argument over GM, Panorama gave the audience sufficient information to reach an informed view on the issue.”*

Richard Ayre the Chairman of the ESC of the BBC Trust was founder of the UK Food Standards Agency. He had conflicts of interest having previously worked with Monsanto.

We are what we eat: the poisoning of our food supply

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

Dr Nancy Swanson; writing on the history of how corporations have successfully changed the laws in the US to poison our food: 03/04/2014.⁷³

The UK CRD Head of Regulatory Policy defended glyphosate’s authorisation

When the CRD Head of Regulatory Policy replied on 28/02/2014 to defend the authorisation of glyphosate, he told me that the capability to detect individual pesticides in food had increased from 150 in 2003 to 393 in 2012. He stated: *“In the 2012 Report, although there were a large number of residues found in bread, none of these were at a level to suggest a risk to consumer health.”* However, he failed to reply to my question as to why EFSA was regularly increasing the Maximum Residue Limits (MRLs) of glyphosate in foods at the request of Monsanto to accommodate their practice of desiccation of crops and to protect their imports into Europe.⁷⁴

⁶⁹ <https://www.youtube.com/watch?v=6KruFQ2uCqk>

⁷⁰ <http://beyond-gm.org/cultivating-myths-the-bbc-pro-gmo-bias/>

⁷¹ <http://gmwatch.org/news/latest-news/16221-what-bbc-s-panorama-got-wrong-on-gmos>

⁷² http://downloads.bbc.co.uk/bbctrust/assets/files/pdf/appeals/esc_bulletins/2016/feb.pdf

⁷³ <http://www.examiner.com/article/the-poisoning-of-our-food-supply>

⁷⁴ <http://www.efsa.europa.eu/en/efsajournal/pub/2550.htm>

Georgina Downs⁷⁵ has been campaigning since 2001 for rural communities against spraying in the countryside and around schools

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

Why does David Cameron hate Wales?

This was the question posed by Polly Toynbee in *The Guardian*

She wrote on Friday March 7th 2014:⁷⁶ *“David Cameron has mentioned Wales 29 times in Prime Minister's Questions, which sounds reasonable because he is its prime minister too – except that every single mention has been derogatory and contemptuous. The Conservatives detest everything Welsh.”* He has said the Health Service in Wales is a disgrace on several occasions since then (and so has Jeremy Hunt).

Are there reasons for the Prime Minister's regular attacks on Wales?

Polly Toynbee goes on to say: *“Most poisonous have been Tory scares on health, driven by need to prove that Welsh refusal to put its services out to tender to private companies produces worse results.... Wales has the oldest and sickest population in Britain, with the highest post-industrial disease and thousands moving there to retire.”*

I would add that the population is sick because most cannot afford to eat organic, pesticide-free food

Very little is available in South Wales. Trust Me I'm a Doctor on BBC 2 Dr Michael Mosley, having analysed an apple, a tomato and a carrot for pesticides (what pesticides?) said it wasn't worth eating organic food. I wrote to his agent and asked 'what about bread, cereals and sugar?', but somehow he was too busy to reply.

Monsanto given special treatment by the Whitehall Government, against Wales⁷⁷

“In 2003, the residents of Groesfaen began to complain about vile smells emanating from the Brofiscin quarry, a 36-meter deep quarry located at the edge of the village. More alarming still, the waters of the stream that flowed around the quarry began to turn vivid orange...The investigation revealed that a Monsanto-owned plant in Newport (a city near Groesfaen) had paid contractors to illegally dump thousands of tons of cancer-causing chemicals - among them PCBs, dioxins and Agent Orange derivatives - into the Brofiscin quarry between 1965 and 1972. These chemicals, which had corroded their containers and were leaching into the soil, not only endangered the lives of the local villagers but also those of the more than 350,000 residents of Cardiff, since the chemicals were coming into contact with a major underground aquifer that was (and still is) destined to be the city's main water supply.”
The Environment Agency - a government agency concerned with flooding and pollution – was hired to clean up the site in 2005.

⁷⁵ <http://www.pesticidescampaign.co.uk>

⁷⁶ <http://www.theguardian.com/commentisfree/2014/mar/07/lessons-real-job-creation-wales>

⁷⁷ http://www.naturalnews.com/044009_Monsanto_Brofiscin_environmental_damage.html

“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 “identifiable harm or immediate danger to human health” in their official report.” In 2007⁷⁸ 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 2011, Monsanto reluctantly agreed to help the Environment Agency clean-up the Brofiscin quarry when the latter discovered that many of the 67 chemicals detected on the site were exclusively manufactured by the former. Nonetheless, the clean-up effort remains underfunded and inefficient, and the Brofiscin quarry remains the most contaminated site in the United Kingdom.”*

Three years later Natural Resources Wales, which took over from the Environment Agency in Wales in 2013, confirmed that they had finally come to an agreement with Monsanto, BP and Veolia to cover the clean up bill. However all three continue to deny responsibility. In 2015 a spokesperson for Monsanto said: *“We have reached an agreement with the Environment Agency Wales resolving our alleged liability associated with the quarry.”*⁷⁹

Monsanto’s secret studies held by the US EPA

One of Monsanto’s own long term studies in rats in 1990⁸⁰ showed an increased risk of cataracts following exposure to Roundup® as well as cancers

So why is the renewal of glyphosate’s licence supported only by Britain, the European Food Safety Authority and the European Commission?

The rate of cataract surgery in England *“increased very substantially”* between 1989 and 2004 from 173 (1989) to 637 (2004) episodes per 100,000 population.⁸¹ Annual rates of admission for cataract surgery in England rose 10-fold from 1968 to 2003: from 62 episodes per 100,000 population in 1968 to 637 in 2004. A 2016 study by the WHO also confirmed that the incidence of cataracts had greatly increased:⁸² ‘A global assessment of the burden of disease from environmental risks.’ says that cataracts are the leading cause of blindness worldwide. Globally, cataracts are responsible for 51% of blindness – an estimated 20 million

⁷⁸ <https://www.theguardian.com/environment/2007/feb/12/uknews.pollution1>

⁷⁹ https://www.theguardian.com/environment/2015/jul/14/monsanto-bp-veolia-agree-to-pay-for-clean-up-contaminated-welsh-quarry-site?CMP=share_btn_link

⁸⁰ Stout, L.D. & Ruecker, F.A. Chronic study of glyphosate administered in feed to albino rats. Unpublished Study, Project No. MSL-10495. Monsanto Agricultural Company (2,175 pp.) EPA MRID 416438-01 (26 September 1990)

⁸¹ <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955650/>

⁸² http://apps.who.int/iris/bitstream/10665/204585/1/9789241565196_eng.pdf

individuals suffer from this degenerative eye disease. The rat study on cataracts was one of many that Anthony Samsel obtained under FOI from US EPA. He said: "*Forty years of glyphosate exposure have provided a living laboratory where humans are the guinea pigs.*" Some UK farmers started spraying glyphosate on crops pre-harvest in 1980 at the suggestion of a scientist working for Monsanto⁸³ and on grassland in 1985 on the advice of another Monsanto scientist.⁸⁴

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.*"⁸⁵ 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.*"⁸⁶ 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.⁸⁷

"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 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)."

Birth defects in animals in Montana correlates 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

⁸³ O'Keeffe MG. The control of Agropyron repens and broad-leaved weeds pre-harvest of wheat and barley with the isopropylamine salt of glyphosate; 1980. pp. 53–60. Proceedings of British Crop Protection Conference-Weeds.

⁸⁴ 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.

⁸⁵ <http://www.westonaprice.org/environmental-toxins/violent-behavior-a-solution-in-plain-sight/pdf>

⁸⁶ <http://www.independentsciencenews.org/health/the-healthcare-doctors-forgot-ordinary-food-will-be-the-new-medicine>

⁸⁷ <https://www.independentsciencenews.org/health/why-cancer-research-has-stalled/>

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*”.⁸⁸

Genetically-engineered crops, glyphosate and the deterioration of health in the United States of America. Swanson et al.⁸⁹

Abstract: A huge increase in the incidence and prevalence of chronic diseases has been reported in the United States (US) over the last 20 years. Similar increases have been seen globally. The herbicide glyphosate was introduced in 1974 and its use is accelerating with the advent of herbicide-tolerant genetically engineered (GE) crops. Evidence is mounting that glyphosate interferes with many metabolic processes in plants and animals and glyphosate residues have been detected in both.

Glyphosate disrupts the endocrine system and the balance of gut bacteria, it damages DNA and is a driver of mutations that lead to cancer.

In the present study, US government databases were searched for GE crop data, glyphosate application data and disease epidemiological data. Correlation analyses were then performed on a total of 22 diseases in these time-series data sets. The Pearson correlation coefficients are highly significant ($< 10^{-5}$) between glyphosate applications and hypertension ($R = 0.923$), stroke ($R = 0.925$), diabetes prevalence ($R = 0.971$), diabetes incidence ($R = 0.935$), obesity ($R = 0.962$), lipoprotein metabolism disorder ($R = 0.973$), Alzheimer’s ($R = 0.917$), senile dementia ($R = 0.994$), Parkinson’s ($R = 0.875$), multiple sclerosis ($R = 0.828$), autism ($R = 0.989$), inflammatory bowel disease ($R = 0.938$), intestinal infections ($R = 0.974$), end stage renal disease ($R = 0.975$), acute kidney failure ($R = 0.978$) cancers of the thyroid ($R = 0.988$), liver ($R = 0.960$), bladder ($R = 0.981$), pancreas ($R = 0.918$), kidney ($R = 0.973$) and myeloid leukaemia ($R = 0.878$).

The Pearson correlation coefficients are highly significant ($< 10^{-4}$) between the percentage of GE corn and soy planted in the US and hypertension ($R = 0.961$), stroke ($R = 0.983$), diabetes prevalence ($R = 0.983$), diabetes incidence ($R = 0.955$), obesity ($R = 0.962$), lipoprotein metabolism disorder ($R = 0.955$), Alzheimer’s ($R = 0.937$), Parkinson’s ($R = 0.952$), multiple sclerosis ($R = 0.876$), hepatitis C ($R = 0.946$), end stage renal disease ($R = 0.958$), acute kidney failure ($R = 0.967$), cancers of the thyroid ($R = 0.938$), liver ($R = 0.911$), bladder ($R = 0.945$), pancreas ($R = 0.841$), kidney ($R = 0.940$) and myeloid leukaemia ($R = 0.889$). The significance and strength of the correlations show that the effects of glyphosate and GE crops on human health should be further investigated.

In the US glyphosate and GM crops have high correlations with human diseases, including cancers.

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,⁹⁰ breast cancer,⁹¹ prostate cancer,⁹² malignant melanoma,⁹³ liver cancer,⁹⁴ myeloma,⁹⁵ and anal cancer.⁹⁶

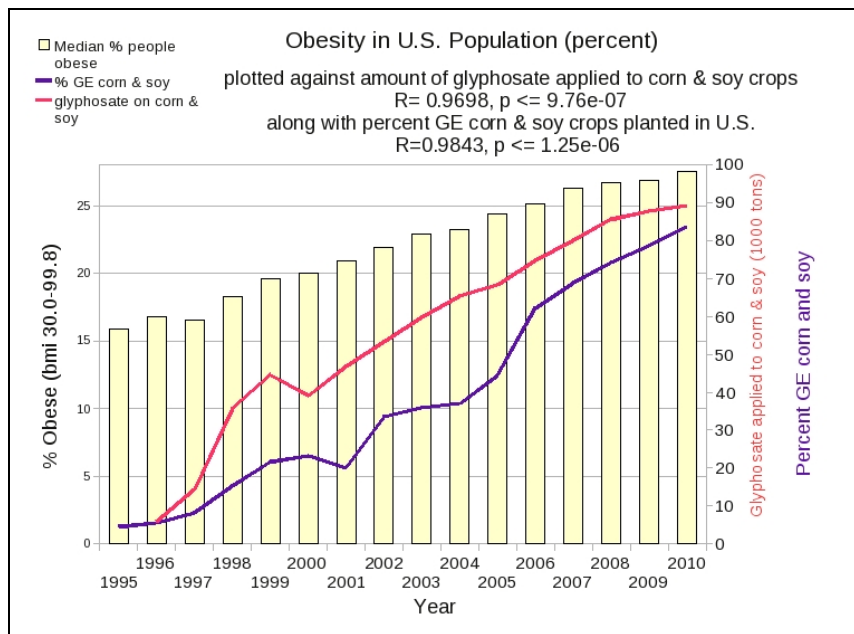
⁸⁸ <http://www.esciencecentral.org/journals/the-high-cost-of-pesticides-human-and-animal-diseases-2375-446X-1000132.php?aid=56471>

⁸⁹ http://www.organic-systems.org/journal/92/JOS_Volume-9_Number-2_Nov_2014-Swanson-et-al.pdf

⁹⁰ <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/thyroid/incidence/>

Proof that obesity is a problem related to glyphosate: a study showed that by 2025, the UK will have the highest obesity rates among both men and women in Europe, at 38%: in contrast in France women have had virtually no increase in BMI over 40 years

A study on obesity published in the Lancet in March 2016 says: “About a fifth of all adults around the world and a third of those in the UK will be obese by 2025, with potentially disastrous consequences for their health”.⁹⁷ The Lancet Study says there is zero chance that the world can meet the target set by the UN for halting the climbing obesity rate by 2025. “Over the past 40 years, we have changed from a world in which underweight prevalence was more than double that of obesity, to one in which more people are obese than underweight,” said senior author Prof Majid Ezzati from the School of Public Health at Imperial College London. “The English-speaking world is particularly badly affected. **The UK will have the highest obesity among both men and women in Europe, at 38%.** In contrast: “Against the trend of steadily rising weight, women in some countries had virtually no increase in BMI over the 40 years – in Singapore, Japan, and a few European countries including Czech Republic, Belgium, **France**, and Switzerland.”



Graph 1 US data for % GE corn and soy crops planted and glyphosate applied to corn & soy plotted against % of U.S. population who are obese (BMI 30.0-99.8). Crop and glyphosate data from the USDA; obesity data from U.S. CDC. By kind permission of Dr Nancy Swanson.

⁹¹ <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/breast/incidence/#trends>

⁹² <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/prostate/incidence/uk-prostate-cancer-incidence-statistics#trends>

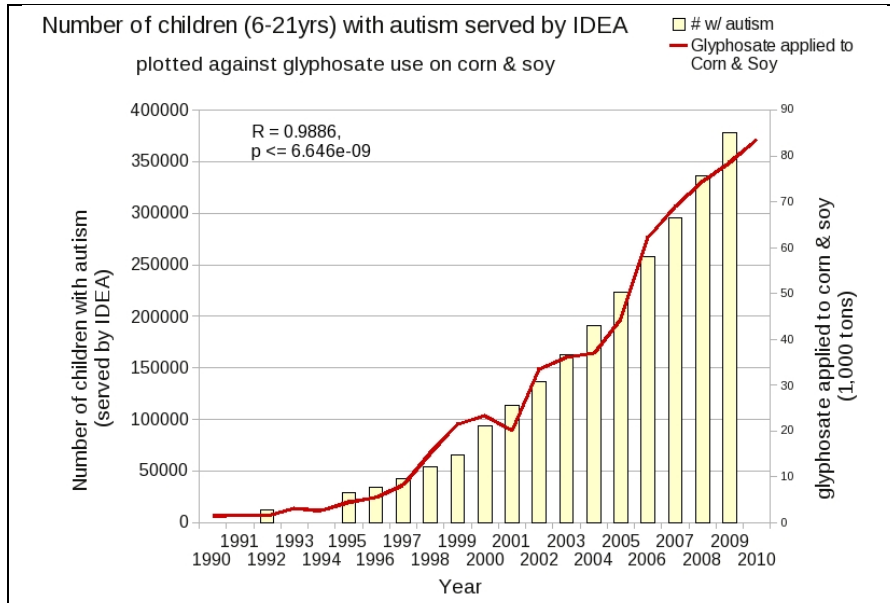
⁹³ <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/skin/incidence/uk-skin-cancer-incidence-statistics#trends>

⁹⁴ <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/liver/incidence/#trends>

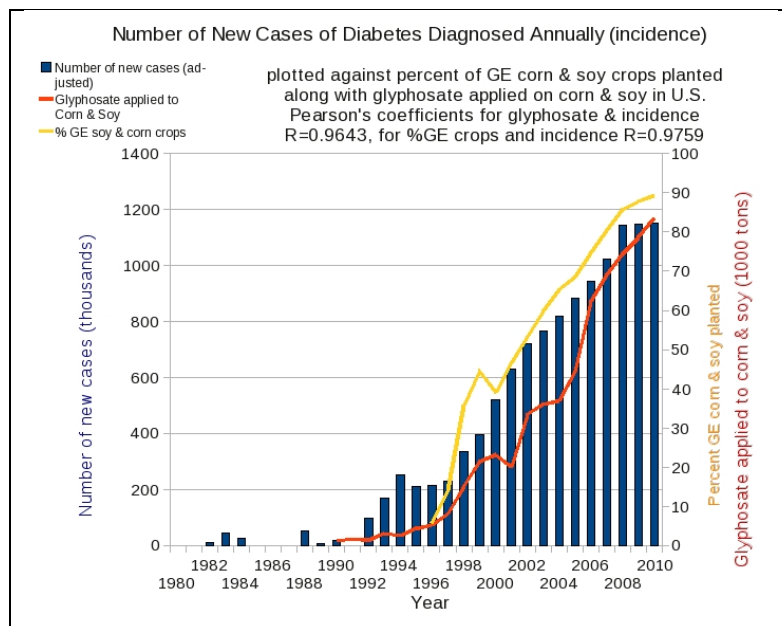
⁹⁵ <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/myeloma/incidence/#trends>

⁹⁶ <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/anal-cancer/Incidence/#Trends>

⁹⁷ <http://www.theguardian.com/society/2016/mar/31/one-fifth-of-worlds-adults-will-be-obese-by-2025-study-predicts>



Graph 2 Number of children with autism plotted against glyphosate use on GE corn and soy. Autism data were obtained from the U.S. Department of Education, which keeps track of school age children receiving services under the Individuals with Disabilities Education Act (IDEA). This plot is shown using data from USDE for the number of autistic children receiving services. By kind permission of Dr Nancy Swanson.



Graph 3 US data for % GE corn and soy crops planted and glyphosate applied plotted against the number of new cases of diabetes (adjusted) diagnosed annually. Crop and glyphosate data from the United States Department of Agriculture; diabetes data from U.S. Centers for Disease Control (CDC).

The Agrochemical Industry controls the US EPA

In 1991 US EPA Health Effects Division colluded with Monsanto: glyphosate to be changed from a Group C carcinogen to Group E (evidence of non-carcinogenicity for humans)⁹⁸

⁹⁸ http://www.epa.gov/opp00001/chem_search/cleared_reviews/csr_PC-103601_30-Oct-91_265.pdf

Members of US EPA's Toxicology Branch of the Hazard Evaluation Division Committee, in a consensus review on March 4 1985, had classified glyphosate as a Group C carcinogen, based on the incidence in rats/mice of renal tumours, thyroid C-cell adenomas and carcinomas, pancreatic islet cell adenomas, hepatocellular adenomas and carcinomas in males, but on June 26 1991 the Health Effects Division Carcinogenicity Peer Review Committee met to discuss and evaluate the weight of evidence on glyphosate with particular emphasis to its carcinogenic potential. In a review of the data the Committee concluded that glyphosate should be classified as Group E (evidence of non-carcinogenicity for humans). However, three of the Committee refused to sign and wrote: **DO NOT CONCUR**.

The US EPA had Monsanto's secret sealed studies: Monsanto knew that glyphosate caused cancer in animals but manipulated the data

Monsanto has known since the 1970s that glyphosate causes cancer, according to this paper by researchers Anthony Samsel and Stephanie Seneff. Samsel is the first independent researcher to examine Monsanto's secret toxicology studies on glyphosate. He obtained the studies through a request to his Senator. With Dr Stephanie Seneff of MIT, he reviewed Monsanto's data. Samsel and Seneff wrote paper IV on Glyphosate: Glyphosate, pathways to modern diseases IV: cancer and related pathologies⁹⁹ and concluded that: *"significant evidence of tumours was found during these investigations"*.

Extract from IV: Glyphosate has a large number of tumorigenic effects on biological systems, including direct damage to DNA in sensitive cells, disruption of glycine homeostasis, succinate dehydrogenase inhibition, chelation of manganese, modification to more carcinogenic molecules such as N-nitrosoglyphosate and glyoxylate, disruption of fructose metabolism, etc. Epidemiological evidence supports strong temporal correlations between glyphosate usage on crops and a multitude of cancers that are reaching epidemic proportions, including breast cancer, pancreatic cancer, kidney cancer, thyroid cancer, liver cancer, bladder cancer and myeloid leukaemia.

Comments on the US EPA Glyphosate Issue Paper: Evaluation of Carcinogenic Potential¹⁰⁰

In a 277-page document US EPA concluded that glyphosate was not carcinogenic. The following comments on the docket reveal that Agrochemical Industry is controlling the US EPA.

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) docket for glyphosate

It had 128,764 comments, the majority condemning the re-licensing of glyphosate, but only displayed 286 of them. Are they rotated around? That would account for the appearance and disappearance of various key submissions, but the industry ones always seem to stay.

August 24 2016: CropLife America wrote a warning letter to EPA before 16/09/2016¹⁰¹

This is a very aggressive letter from CLA¹⁰² calling for cancellation of the FIFRA meeting in October. *"What's more, the ability of EPA to gather scientists more qualified than those engaged by FAO/WHO and the JMPR to once again review the scientific literature is unlikely.... The Federal Advisory Committee Act (FACA) imposes strict conflict of interest requirements on the FIFRA SAP selection process. EPA must ensure that the FIFRA SAP acts*

⁹⁹

https://www.academia.edu/17751562/Glyphosate_pathways_to_modern_diseases_IV_cancer_and_related_pathologies

¹⁰⁰ <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0094>

¹⁰¹ <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0005>

¹⁰² CLA - US trade association representing the major manufacturers, formulators and distributors of crop protection and pest control products.

“in the public interest,” and does not contain members with inappropriate special interests” Monsanto wrote on August 26 2016¹⁰³ backing CropLife America and repeated CLA’s requests for members that have no conflicts of interest.

These are interesting statements and requests from CLA and Monsanto: the Chairman of FAO/WHO/JMPR was also Vice Chairman of an organization that had received money from Monsanto and the CLA

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. The following report was from Guardian journalist Arthur Neslen.¹⁰⁴ *“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.¹⁰⁵ 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.

Croplife America wrote again after the opening of the public docket on 4 October¹⁰⁶

It objected to formulations being studied (it should only be active glyphosate) and said: **“Convening a Meeting of the FIFRA SAP to Review the Carcinogenicity of Glyphosate is Unnecessary and an Inappropriate Use of EPA Resources”**. The letter reiterates: *“The most recent report of the FAO/WHO Special Session of the JMPR, “Pesticides in Food 2016,” in its in-depth review found that glyphosate is unlikely to pose a carcinogenic risk to humans via exposure from diet” but doesn’t say that the Chairman’s organization was paid in advance by CLA and Monsanto*. It emphasizes that those who have pronounced before should be excluded, specifically mentioning IARC scientists and the Consensus Statement on Glyphosate¹⁰⁷ written by 16 scientists. *“Finally, the FIFRA SAP should also exclude scientists who have a direct stake in final determinations of the FIFRA SAP on this issue...It is EPA’s charge to ensure the credibility of its determinations, particularly where the question regards a topic of great interest to the public health and environmental community”*.

Why was Monsanto so aggressive and impatient in its letter of August 26?

¹⁰³ <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0011>

¹⁰⁴ <https://www.theguardian.com/environment/2016/may/17/unwho-panel-in-conflict-of-interest-row-over-glyphosates-cancer-risk>

¹⁰⁵ http://whqlibdoc.who.int/publications/2006/9241665203_eng.pdf?ua=1

¹⁰⁶ <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0005>

¹⁰⁷ <http://ehjournal.biomedcentral.com/articles/10.1186/s12940-016-0117-0>

Monsanto had just had an invitation¹⁰⁸ to attend the International Monsanto Tribunal launched by civil society to be held in The Hague October 14-16 2016. A selection of Monsanto's victims and their lawyers were going to appear before five judges (one of whom had been a judge in the International Criminal Court) and describe how Monsanto had violated their human rights.

Dow AgroSciences wrote a comment also on 4 October¹⁰⁹

It mentions the same study that Monsanto and CLA had paid for: *"Moreover, WHO's own Joint FAO/WHO Meeting on Pesticide Residues (JMPR) in May 2016 also concluded that glyphosate is unlikely to pose a carcinogenic risk to humans."* It also misquotes Bradford Hill, intended for use by doctors...to weigh the evidence between causality and disease...e.g. smoking and lung cancer. *"The modified Bradford's hill (sic) criteria (Hill, 1965) is a widely accepted guideline in the scientific community for investigating causal relationship between a cause and an effect. This criteria evaluates multiple lines of evidence for strength, consistency, dose response, temporal concordance and biological plausibility"*.

Intertek 'Expert Panel' concludes glyphosate not carcinogenic or genotoxic

*"Intertek Scientific & Regulatory Consultancy, on behalf of an Expert Panel, hereby provides the publications pertaining to the Expert Panel's review of the carcinogenic potential of glyphosate."*¹¹⁰

Monsanto commissioned five reviews published in *Critical Reviews in Toxicology* and also funded them. *"As stated in the declarations of interest at the foot of each paper, all are funded by Monsanto via the industry consultancy firm Intertek. Many of the authors have links to Monsanto, other chemical companies, and industry consultancy firms."*¹¹¹ The Center for Public Integrity wrote: *"The journal in which the new papers appear, Critical Reviews in Toxicology, together with another journal, Regulatory Toxicology and Pharmacology, has been dubbed by critics a purveyor of junk science – "misleading, industry-backed articles that threaten public health by playing down the dangers of well-known toxic substances such as lead and asbestos. The articles often are used to stall regulatory efforts and defend court cases."*¹¹² *"You'd have to be delusional to not recognize that the issues they're dealing [with] and policies they're setting won't affect the profits of very powerful sources,"* said Canadian anti-asbestos activist Kathleen Ruff, who called both journals "egregious examples" of a deeper problem of industry influence. *"Creating doubt is an endless activity and, in the meantime, people die unnecessarily."*

Why did EPA suddenly delay the FIFRA SAP meeting?

US journalist Carey Gillam¹¹³ suggests it was because CropLife America wrote again to EPA to object to Peter Infante being included on the list of members of the SAP.¹¹⁴ It produced 5 pages of spurious allegations that he would be biased against glyphosate. It also called into question the presence of Kenneth Portier, Christopher Portier's (IARC) brother.

¹⁰⁸ http://www.monsanto-tribunal.org/upload/asset_cache/579350554.pdf

¹⁰⁹ <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0357>

¹¹⁰ <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0338>

¹¹¹ <http://gmwatch.org/news/latest-news/17253-surprise-monsanto-funded-papers-conclude-glyphosate-not-carcinogenic-or-genotoxic>

<https://www.publicintegrity.org/2016/02/18/19307/brokers-junk-science>

¹¹² <https://www.publicintegrity.org/2016/02/18/19307/brokers-junk-science>

¹¹³ http://www.huffingtonpost.com/carey-gillam/epa-bows-to-chemical-indu_b_12563438.html

¹¹⁴ <http://191hmt1pr08amfq62276etw2.wpengine.netdna-cdn.com/wp-content/uploads/2016/01/CLA-Comments-on-SAP-Disqualification-10-12-16.pdf>

The US EPA ignored all five of Samsel and Seneff's papers (I-V): Glyphosate pathways to modern diseases V: Amino acid analogue of glycine in diverse proteins ¹¹⁵

Abstract: Glyphosate, a synthetic amino acid and analogue of glycine, is the most widely used biocide on the planet. Its presence in food for human consumption and animal feed is ubiquitous. Epidemiological studies have revealed a strong correlation between the increasing incidence in the United States of a large number of chronic diseases and the increased use of glyphosate herbicide on corn, soy and wheat crops. Glyphosate, acting as a glycine analogue, may be mistakenly incorporated into peptides during protein synthesis. A deep search of the research literature has revealed a number of protein classes that depend on conserved glycine residues for proper function. Glycine, the smallest amino acid, has unique properties that support flexibility and the ability to anchor to the plasma membrane or the cytoskeleton. Glyphosate substitution for conserved glycines can easily explain a link with diabetes, obesity, asthma, chronic obstructive pulmonary disease (COPD), pulmonary edema, adrenal insufficiency, hypothyroidism, Alzheimer's disease, amyotrophic lateral sclerosis (ALS), Parkinson's disease, prion diseases, lupus, mitochondrial disease, non-Hodgkin's lymphoma, neural tube defects, infertility, hypertension, glaucoma, osteoporosis, fatty liver disease and kidney failure. The correlation data together with the direct biological evidence make a compelling case for glyphosate action as a glycine analogue to account for much of glyphosate's toxicity. Glufosinate, an analogue of glutamate, likely exhibits an analogous toxicity mechanism. There is an urgent need to find an effective and economical way to grow crops without the use of glyphosate and glufosinate as herbicides.

Anthony Samsel gave a slide presentation lasting about an hour in June 2016 before the EPA, in a closed-door meeting along with other colleagues. According to him: *"There was silence and no questions."* The EPA filmed the meeting. He said: *"It was after that presentation that the EPA began referring to glyphosate as an amino acid."*

N-nitrosoglyphosate (NNG) is one of the many nitrosamines found in glyphosate

Anthony Samsel says that nitrosamines of secondary amines are in general known to be carcinogenic and that nitrosamines occur in all Monsanto glyphosate products and are also created *in vivo*, particularly NNG. He is waiting for just one 214 page un-redacted document on the Nitrosamines found in Glyphosate products. He says this is the only Monsanto document that he received from the US EPA where they redacted all identity of the nitrosamines except the NNG. Samsel already knows the other nitrosamines of glyphosate but it would be helpful if he could see the numbers. **How could Monsanto possibly conceal chemicals that are carcinogenic when the carcinogenicity of glyphosate is denied?**

The US EPA has been entrusted (September 2016) with Bayer and Syngenta's unpublished field trials on neonicotinoid insecticides showing their products cause serious harm to honeybees at high levels ¹¹⁶

These studies of neonicotinoid's harm to bees were obtained under FoI by Greenpeace. Syngenta had told Greenpeace in August 2016 that: *"none of the studies Syngenta has undertaken or commissioned for use by regulatory agencies have shown damages to the health of bee colonies"*. Prof Dave Goulson, a UK bumblebee researcher at the University of Sussex, said: *"That clearly contradicts their own study."*

¹¹⁵ <http://www.amsi.ge/jbpc/11616/03SA16A.pdf>

¹¹⁶ <https://www.theguardian.com/environment/2016/sep/22/pesticide-manufacturers-own-tests-reveal-serious-harm-to-honeybees>

Harm to honey bees was already established in 2011, at the Workshop on Pesticide Risk Assessment for Pollinators January 15-21 2011 SETAC Pellston Florida

The Executive Summary, written by David Fischer of Bayer CropScience and Tom Moriarty US EPA, came up with three admissions that, up to then, industry had denied

1. a) That the systemic neonicotinoid pesticides are harmful to bees.
2. b) That the tests and protocols that had allowed registration of the systemic pesticides were not adapted to assess potential hazard and risk from this type of pesticide.
3. c) Despite knowing all this, the Protection Agencies have allowed the pesticides industry to keep the neonicotinoids on the market.

That was more than five years ago, but Syngenta and Bayer are still denying it!

A lawsuit is in progress against the US EPA over the neonicotinoid insecticides

A lawsuit is currently on going brought by a commercial beekeeper against the US EPA.¹¹⁷ For 10 years the seed-coated neonicotinoid insecticides haven't been counted as pesticide use, because they were classified as a 'treated item', thus altering the statistics for insecticide use. *"During a summary judgment hearing Thursday, plaintiffs' attorney Adam Keats said the EPA only turned over 200 pages of internal emails and documents, many of which were "riddled with redactions," and withheld an additional 5,000 pages of germane material."*

We are drowning our world in unsafe and untested chemicals

The International Federation of Gynecology and Obstetrics (FIGO), a group representing OB-GYNs from 125 countries, released a report detailing the detrimental health effects caused by even small exposure to common chemicals like the ones found in pesticides, plastics, and air pollution.¹¹⁸ Documented links between prenatal exposure to environmental chemicals and adverse health outcomes span the life course and include impacts on fertility and pregnancy, neurodevelopment, and cancer. The global health and economic burden related to toxic environmental chemicals is in excess of millions of deaths and billions of dollars every year. On the basis of accumulating robust evidence of exposures and adverse health impacts related to toxic environmental chemicals, the International Federation of Gynecology and Obstetrics (FIGO) joins other leading reproductive health professional societies in calling for timely action to prevent harm. FIGO recommends that reproductive and other health professionals advocate for policies to prevent exposure. The health problems are even greater for babies exposed in the womb, who face increased risks of cancer, reduced cognitive function, and even miscarriage or stillbirth. The organization cited concerns about the sharp increase over the past four decades in chemical manufacturing, which continues to grow by more than 3 per cent every year. Some 30,000 pounds of chemicals were manufactured or imported for every person in the United States in 2012 alone—a whopping 9.5 trillion pounds in total. Annually, the FIGO authors write, chemical manufacturing leads to 7 million deaths and billions in health care costs.

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08/11/2016

See also my document: 'Background information to my Open Letter to the National Assembly for Wales about PISA tests and Ecocide.pdf' ... <http://tinyurl.com/hdxk7gz>

¹¹⁷ <http://www.allgov.com/news/controversies/epa-accused-of-withholding-documents-in-lawsuit-alleging-breach-of-pesticide-regulation-161106?news=859726>

¹¹⁸ http://www.figo.org/sites/default/files/uploads/News/Final%20PDF_8462.pdf