

Our Daily Poison: Chemical Contamination of Our Food, Farmland, Rivers and Seas

How the global pesticides industry has been allowed silently to destroy life

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Many of these lovely creatures in South Wales have been poisoned by Roundup

Our Daily Poison: Chemical Contamination of Our Food, Farmland, Rivers and Seas

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

Marie-Monique Robin is an award-winning French journalist, author and filmmaker. She is the patron of the Monsanto Tribunal and on the Steering 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 across Latin America, Africa, Europe and Asia, receiving thirty awards. She wrote the best-selling documentary (and book by the same name), *"The World to According Monsanto,"* which has been broadcast on fifty international television stations, and translated into 22 languages.

Her new book: ***Our Daily Poison: From Pesticides to Packaging, How Chemicals Have Contaminated the Food Chain and Are Making Us Sick.***¹

"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*

Is glyphosate carcinogenic? While scientists argue about this, U.S. lawsuits against Monsanto for Roundup causing cancer and evidence of how they tried to conceal it is increasing

On 21 March 2016: Baroness Chisholm of Owlpen (Con) ² **announced in the House of Lords**

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.

How industry dealt with Dr Peter Infante, American Epidemiologist (page 107, Our Daily Poison)

Peter Infante directed, at Occupational Safety and Health Administration (OSHA), the Office of Carcinogen Identification and Classification from 1978-1983, then the Office of Standards Review from 1983 to 2002. He nearly lost his job when Ronald Reagan came into office with deregulation. Al Gore contested a dismissal notice to Peter Infante involving the Formaldehyde Institute and the recent declaration by IARC that formaldehyde was a carcinogen.

¹ <http://thenewpress.com/books/our-daily-poison>

² Food safety:glyphosate: <http://www.publications.parliament.uk/pa/ld201516/ldhansrd/text/160321-0001.htm>

Fast forward to 16/09/2016 when Public comments invited on the Scientific Advisory Panel of FIFRA (Federal Insecticide, Fungicide and Rodenticide Act) on the US EPA Glyphosate Issue Paper: Evaluation of Carcinogenic Potential³

August 24 2016: CropLife America (CLA) wrote a warning letter to EPA before 16/09/2016⁴
This is a very aggressive letter from CLA⁵ 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 “in the public interest,” and does not contain members with inappropriate special interests”*

Monsanto wrote on August 26 2016⁶ backing CropLife America and repeated CLA’s requests for members that have no conflicts of interest.

Croplife America wrote again after the opening of the public docket on 4 October⁷

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.*⁸ It emphasizes that those who have pronounced before should be excluded, specifically mentioning IARC scientists and the Consensus Statement on Glyphosate⁹ 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 did EPA suddenly delay the FIFRA SAP meeting?

Carey Gillam¹⁰ suggests it was because CropLife America wrote again to EPA to object to **Dr Peter Infante** being included on the list of members of the SAP.¹¹ It produced 5 pages of spurious allegations that he would be biased against glyphosate. Gillam said: “The EPA did as the industry asked, but the ousting did not sit well with **Infante**, who had spent long hours studying the data EPA sent the panel members in advance. In part to defend his reputation, and also to offer his analysis, a somewhat disgruntled **Infante** showed up at the EPA meetings anyway, telling the SAP members there is “impressive evidence” of glyphosate ties to NHL that should not be ignored. *“There is clearly the evidence for the risk of non-Hodgkin lymphoma related to glyphosate exposure,”* **Infante** said in an interview after he addressed the panel.”¹²

³ <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0094>

⁴ <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0005>

⁵ CLA - US trade association representing the major manufacturers, formulators and distributors of crop protection and pest control products.

⁶ <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0011>

⁷ <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0005>

⁸ <https://www.theguardian.com/environment/2016/may/17/unwho-panel-in-conflict-of-interest-row-over-glyphosates-cancer-risk>

⁹ <http://ehjournal.biomedcentral.com/articles/10.1186/s12940-016-0117-0>

¹⁰ http://www.huffingtonpost.com/carey-gillam/epa-bows-to-chemical-indu_b_12563438.html

¹¹ <http://191hmt1pr08amfq62276etw2.wpengine.netdna-cdn.com/wp-content/uploads/2016/01/CLA-Comments-on-SAP-Disqualification-10-12-16.pdf>

¹² http://www.huffingtonpost.com/carey-gillam/cancer-questions-controve_b_13679052.html

The US EPA FIFRA SAP meeting failed to come to an agreement about glyphosate¹³

Many Panel members believe that the EPA did not provide convincing evidence of a lack of carcinogenic effects. These Panelists agreed that the four findings listed above are adequate to reject the Issue Paper's conclusion of "*not likely to be carcinogenic to humans*" and **support a conclusion of "*suggestive evidence of carcinogenic potential*"** under these Guidelines.

On 15/03/2017 European Chemicals Agency declared that glyphosate wasn't a carcinogen¹⁴

However, Jack de Bruijn, in charge of risk assessment, explained that ECHA's role is in the labelling and classification of chemicals. "*We only look at the hazardous properties of a chemical,*" he said, "*not at the risks that occur when you use a chemical.*"

European Legislation was set up for the benefit of the agrochemical industry: exchanges between Monsanto Europe and the Health Commissioner confirm this

Monsanto Europe replied to Health Commissioner Andriukaitis on 04/04/2016 to say that the 24 Glyphosate Task Force GTF members were prepared to grant very limited access to the data.¹⁵

From this very revealing letter we learn that the current EU legislation is set up to "*protect intellectual property and confidential information from public disclosure....All confidential data ...shall be deleted or redacted (Regulation 1107/2009, Article 63).*" Much of the industry data submitted to the German Rapporteur Member State was redacted.

US Judge Threatens to Sanction Monsanto for Secrecy in Roundup Cancer Litigation¹⁶

Carey Gillam US Right to Know veteran journalist and Research Director reported 10/03/2017:

"The litigation against Monsanto has been filed by people from around the United States who allege that exposure to Monsanto's Roundup herbicide caused them or their loved ones to develop non-Hodgkin lymphoma, a type of cancer that originates in the lymphatic system and has been on the rise in recent decades. While those lawsuits are being handled together as "multi-district litigation" (MDL) in San Francisco, hundreds of other plaintiffs are making similar allegations in multiple state courts as well. And the teams of lawyers involved say they are continuing to meet with prospective additional plaintiffs. [The transcript of a recent court hearing](#) reveals that [Judge Vince Chhabria](#), the federal judge who is overseeing a combination of more than 55 lawsuits filed against Monsanto in the U.S. District Court for the Northern District of California, warned Monsanto that many documents it is turning over in discovery will not be kept sealed despite the company's pleas for privacy. He threatened to impose sanctions if Monsanto persists in "overbroad" efforts to keep relevant documents out of public view.

March 2017 Monsanto Roundup Cancer US Lawsuits Filed This Week—Tops 700 Cases¹⁷

The lawsuits allege that Monsanto championed falsified data and attacked legitimate studies that revealed the dangers of Roundup in order to prove that Roundup was safe, while also leading a prolonged campaign of misinformation to convince government agencies, farmers, and the general population that Roundup wasn't dangerous.

Key documents that were uncovered by the Courts are here¹⁸

Jess Rowlands US EPA allegedly bragged he could kill off the cancer risk

¹³ https://www.epa.gov/sites/production/files/2017-03/documents/december_13-16_2016_final_report_03162017.pdf

¹⁴ <https://echa.europa.eu/-/glyphosate-not-classified-as-a-carcinogen-by-echa>

¹⁵ <https://dl.dropboxusercontent.com/u/6366131/letter%20to%20Commissioner%20Andriukaitis.pdf>

¹⁶ <http://www.huffingtonpost.com/entry/58c2de66e4b0c3276fb78433>

¹⁷ <https://www.baumhedlundlaw.com/monsanto-roundup-cancer-lawsuits-filed-missouri/>

¹⁸ <https://usrtk.org/pesticides/mdl-monsanto-glyphosate-cancer-case-key-documents-analysis/>

It included emails in which an [Environmental Protection Agency](#) official Jess Rowlands who was in charge of evaluating the cancer risk of [Monsanto Co.](#)'s Roundup allegedly bragged to a company executive that he deserved a medal if he could kill another agency's investigation into the herbicide's key chemical.

Monsanto sought academics to sign a ghost-written Report

They cited an email from a Monsanto executive proposing to ghost-write parts of the 2013 report, saying, "*we would be keeping the cost down by us doing the writing*" while researchers "*would just edit & sign their names so to speak.*"

A letter written by the late Marion Copley US EPA toxicologist to her colleague Jess Rowland ¹⁹

It's been four years since Marion Copley, a toxicologist who had worked for 30 years for the EPA, wrote this letter to her then-colleague, Jess Rowland, accusing him of conniving with Monsanto to bury the agency's own hard scientific evidence that it is "*essentially certain*" that glyphosate, the key ingredient in Monsanto's Roundup weed killer, causes cancer. The date of the letter comes after Copley left the EPA in 2012 and shortly before she died from breast cancer at the age of 66 in January 2014. She accuses Rowland of having "*intimidated staff*" to change reports to favor industry, and writes that research on glyphosate, the key ingredient in Monsanto's Roundup, shows the pesticide should be categorized as a "*probable human carcinogen.*"

"Jess,

Since I left the agency with cancer [breast] I have studied the tumor process extensively and I have some mechanism comments which may be very valuable to CARC based on my decades of pathology experience. Glyphosate was originally designed as a chelating agent and I strongly believe that is the identical process involved in tumor formation."

In a 1-page letter Dr Copley makes 14 observations about chelators and/or glyphosate, including that they are endocrine disruptors, suppress the immune system, damage the kidneys or pancreas which can lead to clinical chemistry changes that favor tumor growth; glyphosate kills bacteria in the gut, the gastrointestinal system is 80% of the immune system making the body susceptible to tumors.

She goes on to say: "***It is essentially certain that glyphosate causes cancer.***"

Dr Copley ends with the statement: "*I have cancer, and I don't want these serious issues in HED [EPA's Health Effects Division] to go unaddressed before I go to my grave. I have done my duty.*"

*Marion Copley
March 4, 2013"*

A letter received from the Office of Pesticide Programs (OPP) on June 19 2014 said that "*Monsanto has not informed us of these claims that you make [that Monsanto holds four patents on glyphosate], and to date such claims have not been supported by any rigorous scientific studies.*"

California: the first US state to list glyphosate under Proposition 65 as known to cause cancer ²⁰

Mar 28, 2017 The Office of Environmental Health Hazard Assessment (OEHHA) has determined that *glyphosate* (CAS No. 1071-83-6) will be added to the list of chemicals known to the state to cause cancer for purposes of Proposition 65. The effective date of this listing will be determined following a decision from the Court of Appeal regarding a request for a stay in the pending case *Monsanto v OEHHA*.

¹⁹ <https://www.organicconsumers.org/sites/default/files/marioncopleyletter.pdf>

²⁰ https://oehha.ca.gov/proposition-65/cnr/glyphosate-be-listed-under-proposition-65-known-state-cause-cancer#_ftn5

Some farmers in the UK have been spraying pesticides on crops since WW2. This has caused long-term destruction of biodiversity (ecocide). Ecocide could become a crime against humanity according to the International Criminal Court in The Hague²¹

The Pesticide Conspiracy: 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*:²² “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 (RCEP) 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.²³ 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.” and the Royal Commission created under Royal Warrant in 1970, was closed down in 2011 as part of the Coalition Government’s spending cuts. Britain still uses aerial spraying as derogation from the EU recommendations.

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.’²⁴ 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

²¹ <https://www.theguardian.com/global/2016/sep/15/hague-court-widens-remit-to-include-environmental-destruction-cases>

²² Van den Bosch, R. *The Pesticide Conspiracy*: USA Doubleday & Company (1978): Dorchester, UK: Prism Press (1980).

²³ Industry’s Statistics: British Agrochemical Association London 1976

²⁴ <http://www.thetimes.co.uk/tto/environment/article4528297.ece>

spraying wheat could result in traces of glyphosate ending up in bread sold in supermarkets but the amount was well below the maximum residue level set by the EU. A Defra spokesman said: *“There are extensive regulations in place so that people and the environment are protected from pesticides. The approval of glyphosate for use across Europe is being reviewed by the EU Commission.”*

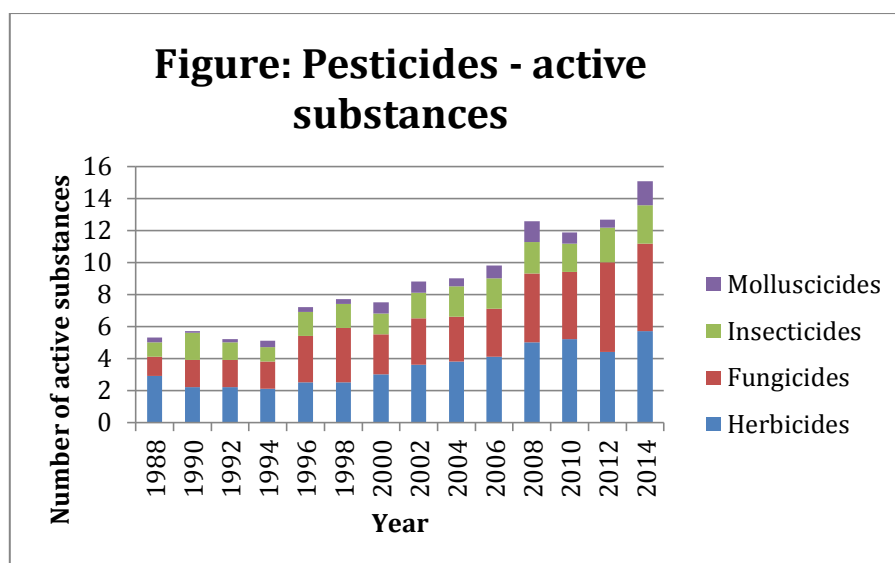


Fig. 1 PESTICIDES: Number of active substances used on Oil Seed Rape in the UK between 1988 and 2014: By kind permission of John Hoar, Hampshire Beekeeper's Spray Liaison Officer. Figures supplied by FERA

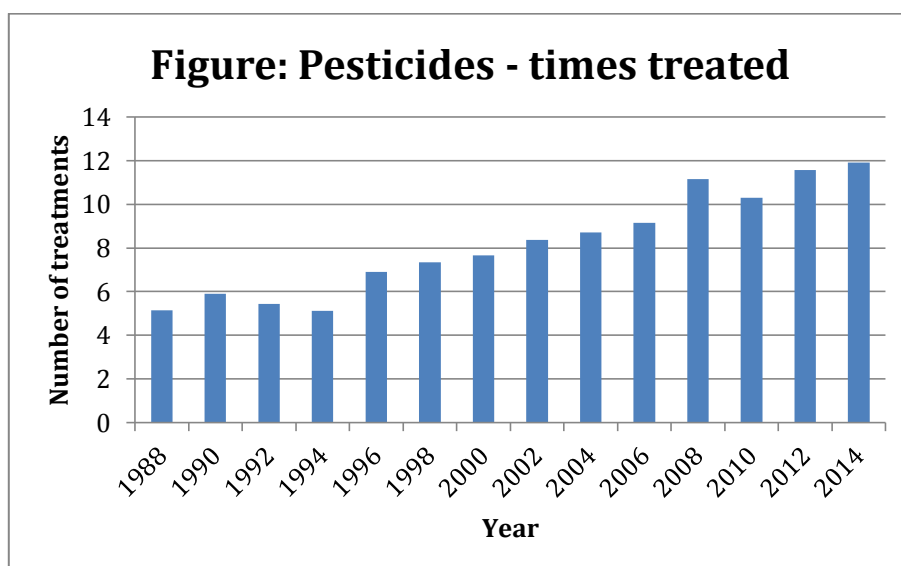


Fig. 2 PESTICIDES TIMES TREATED: used on Oil Seed Rape in the UK between 1988 and 2014: By kind permission of John Hoar, Hampshire Beekeepers Spray Liaison Officer. Figures supplied by FERA

The State of Nature Report 2016 compiled by 50 organisations²⁵

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*

²⁵ http://www.rspb.org.uk/Images/State%20of%20Nature%20UK%20report_%2020%20Sept_tcm9-424984.pdf

Eaton. *"The index gives an idea of where we have got to over the centuries, and we are pretty knackered."*

Biodiversity Intactness Index correlates with pesticide usage

This is a link to an animated pictorial representation but it is not easily findable.²⁶

"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.

The USDA and the USDA ARS (Agricultural Research Service) are allowing Monsanto and DuPont's GM crops to produce biological deserts – surely they must have noticed?

Craig Childs confirms it in his book *Apocalyptic Planet: Field Guide to the Future of the Earth*.²⁷ The State of Iowa was just one area in which the US Geological Survey (US GS) reported widespread contamination of soil, air, rainwater and river water with glyphosate and its longer-acting metabolite AMPA (α -amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid).²⁸

Grundy County Iowa was where Craig Childs spent a long weekend in a monoculture of GM

"Roundup® Ready" corn looking for wildlife. "I listened and heard nothing, no bird, no click of insect. Mr Owen was the farmer who had given us permission to backpack across his cornfields. He grew a combination of DuPont and Monsanto stock. We were in DuPont now. It didn't look any different to me."

Robert Krulwich blog:²⁹ *Corn farmers champion corn. Anything that might eat corn, hurt corn, bother corn, is killed. Their corn is bred to fight pests. The ground is sprayed. The stalks are sprayed again. So, Craig wondered, "What will I find?" The answer amazed me. He found almost nothing. There were no bees. The air, the ground, seemed vacant. He found one ant 'so small you couldn't pin it to a specimen board.' A little later, crawling to a different row, he found one mushroom, 'the size of an apple seed.' Then, later, a cobweb spider eating a crane fly (only one). A single red mite 'the size of a dust mote hurrying across the barren earth, some grasshoppers, and that's it.' Though he crawled and crawled, he found nothing else. 'It felt like another planet entirely,' he said, a world denuded.*

USDA and FDA stop testing foods for glyphosate³⁰

The USDA has quietly decided against [testing for residues](#) of glyphosate herbicide in food, after having spent much of last year coordinating with the EPA and the FDA to do so.

While a [January 11 e-mail](#) obtained via a Freedom of Information Act request shows that the USDA still planned to test foods for glyphosate residue at the beginning of this year, a USDA spokesman told the [Huffington Post](#) this week that the testing would not be carried out.

The FDA glyphosate testing effort was suspended last fall, but not before one agency chemist found alarming levels of glyphosate herbicide in samples of U.S. [honey](#) and oatmeal.

²⁶ <https://ww2.rspb.org.uk/whatwedo/stateofnature2016>

²⁷ <http://houseofrain.com/bookdetail.cfm?id=1344621970977>

²⁸ <http://onlinelibrary.wiley.com/doi/10.1111/jawr.12159/abstract>

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

³⁰ <http://www.organicauthority.com/usda-drops-plan-to-test-for-glyphosate-herbicide-residue-in-food/>

The British Government and UK Media are colluding with Industry. Pesticides are never mentioned in the press. European NGOs say that UK citizens are being used as Lab Rats

The Industry hosted a secret meeting on 26/06/2012 to get GM into the UK³¹

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

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)³²

"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 Open Letter from America³³ 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 2014.³⁴

"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 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.³⁵...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

³¹ <http://tinyurl.com/9jbce4g> , <http://tinyurl.com/8ahylza> , <http://tinyurl.com/92rrain>

³² http://www.genewatch.org/uploads/f03c6d66a9b354535738483c1c3d49e4/Fol_summary_May14.pdf

³³ www.theletterfromamerica.org

³⁴ https://twitter.com/beyond_gm/status/532224079605288960

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.

The Chairman of Cancer Research UK (CRUK) works for the Agrochemical Industry

Michael Pragnell, Chairman of Cancer Research UK was founder of Syngenta and former Chairman of CropLife International. It was formed in 2001 from BASF, Bayer, Dow, DuPont, FMC Corp, Monsanto, Sumitomo and Syngenta. The CRUK website says that there is no convincing evidence that pesticides cause cancer. CRUK and Public Health England link cancer to lifestyle choices such as alcohol and obesity. Syngenta is a member of the **European Glyphosate Task Force (GTF)**, a consortium of companies joining resources and efforts in order to renew the European glyphosate registration with a joint submission, and of the International Life Sciences Institute (ILSI). ILSI represents Global Corporations (including the six Agrochemical Giants) with massive resources that are seeking to control the world's food supply. ILSI is an industry organisation based in Washington, DC, USA. It claims to be *"a non-profit, worldwide organization whose mission is to provide science that improves human health and well-being and safeguards the environment"* and allegedly has charity status.

Syngenta, AstraZeneca and the UK government have a mutually beneficial relationship with each other at the expense of the British people

One Corporation promotes cancer; the other Corporation tries to cure it.

By 2011 CRUK was donating money (£450 million/year) to the Government's Strategy for UK Life Sciences and AstraZeneca (Syngenta's parent company) was providing twenty two compounds to academic research to develop medicines in the UK.³⁵

AstraZeneca manufactures six different anti-cancer drugs mainly aimed at breast and prostate cancer. The Corporation has links in Asia, including Hospitals in China, Japan, Korea, and collaborators in Russia. In 2013 AstraZeneca's Oncology Website had the following portentous prediction: *"Cancer claims over 7 million lives every year and the number continues to rise. Deaths are estimated to reach 12 million by 2030."*³⁶

Glyphosate and other pesticides earn billions for the Pharmaceutical Companies with the sales of statins, anti-hypertensives, antidepressants, diabetic medication, anti-cancer drugs, weight - reducing drugs, vaccines and drugs to treat dementia etc.

Biocides Regulations in the European Union make a lot of money for European Regulators and the Pesticides Industry

REACH (Registration, Evaluation, Authorisation and Restriction of Chemical substances): The Biocidal Product Regulation (BPR, Regulation (EU) 528/2012) concerns the placing on the market and use of biocidal products, which are used to protect humans, animals, materials or articles against harmful organisms, like pests or bacteria, by the action of the active substances contained in the biocidal product.³⁷

³⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32457/11-1429-strategy-for-uk-life-sciences.pdf

³⁶ <http://www.astrazeneca.co.uk/medicines/oncology>

³⁷ <https://echa.europa.eu/regulations/biocidal-products-regulation>

*“REACH is a regulation of the European Union, adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals, while **enhancing the competitiveness of the EU chemicals industry**. It also promotes alternative methods for the hazard assessment of substances in order to reduce the number of tests on animals.”*

It came into force on 02/08/07.

Exponent Inc. is a company that helps chemical firms with **REACH** compliance.³⁸ It describes itself as *“a research and scientific consultant firm with clients from industry (including crop protection) and government.”* Exponent Inc. was employed by Bayer to criticise EFSA’s work on neonicotinoids and bees in 2013. It also contributed to a review by a Dow employee (Dow manufactures chlorpyrifos that is still authorised by CRD) that concluded that *“exposure to specific pesticides during critical periods of brain development and neurobehavioral outcomes is not compelling.”*³⁹ Dr Caroline Harris, a Vice-President of Exponent Inc. was on the UK Advisory Committee on Pesticides even before it became the Expert Committee on Pesticides (a conflict of interest).

A global industry has emerged to give advice on Biocides Regulation. The British Government is also making a lot of money out of it because BiocidesHub is based in the UK

As with the regulation of pesticides, it is controlled by the pesticides industry and based in the UK. Biocides Symposia are held regularly around the world to *“get up-to-speed on all that’s new in biocidal products regulation”* to *“stay one step ahead.”* Courses are from £300-400 per day to \$1585 for a Symposium. A multitude of firms have clients from *‘industry, crop protection and government’*. Chemical Watch **BiocidesHub** (Shrewsbury) offers 13 Events on Biocides Regulation in 2016, ranging from beginners courses to advanced courses.

BIOCIDES HAVE NO PLACE IN AGRICULTURE. A BIOCIDES IS A SUBSTANCE THAT IS KILLING ALL LIFE

Alcohol is linked with seven forms of cancer: this ‘alleged fact’ is endlessly reinforced by the UK media until people in the UK are brainwashed and believe it to be true

An article was published in the *British Medical Journal* on 9 April 2016⁴⁰ reporting a survey commissioned by **Cancer Research UK** *‘People lack awareness of link between alcohol and cancer.’* The Report produced by researchers at the University of Sheffield *‘comes ahead of the consultation closing on how well new drinking guidelines proposed by the UK’s Chief Medical Officers in January 2016, are communicated.’*⁴¹

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

Gilles-Éric Séralini, Professor of Molecular Biology at CRIIGEN (Independent Research and Information Committee on Genetic Engineering) founded on June 1, 1999, had worked on glyphosate/Roundup for 30 years

³⁸ <http://www.exponent.com/REACH/>

³⁹ <http://www.ncbi.nlm.nih.gov/pubmed/23777200>

⁴⁰ <http://www.bmj.com/content/353/bmj.i1881>

⁴¹ <http://www.cancerresearchuk.org/about-us/cancer-news/press-release/2016-04-01-9-in-10-dont-link-alcohol-and-cancer>

Monsanto only studied the effects of GM crops on rats for 90 days and EFSA had accepted it as an adequate period of time. Séralini's team had challenged this. The now famous Séralini study was published in 2012. It was a long-term toxicity study that found that two Monsanto products, a GM herbicide-tolerant maize (NK603) and the Roundup herbicide it was engineered to tolerate, had toxic effects on rats when fed over the long-term period of 2 years. Effects included liver and kidney damage. In addition, a trend of increased tumour rates was found in most treatment groups.

UK Science Media Centre announced immediately that the Séralini study was a fraud. As a result Séralini's research wasn't reported in the UK Media (apart from John Vidal in *The Guardian*)

A world-wide campaign was orchestrated by UK Industry sponsored Science Media Centre (in which the European Food Safety Authority was also complicit), Monsanto Scientists and other shadowy lobbyists when Prof Gilles-Eric Séralini and his team in France did a study on rats fed GM maize and Roundup; they developed liver and kidney damage and tumours. He was accused of fraud. After a year the Editor-in-Chief of *Food and Chemical Toxicology* asked him to withdraw his paper. It was later published in another journal.

Prof Séralini won an award for his rat feeding studies on GMOs, glyphosate and tumours

On 16 October 2015 Prof Gilles-Eric Séralini was awarded Whistleblower of the Year by German Scientists for his work on GMOs and Glyphosate. Citation: *"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."*⁴² It was a shared award.

France tables an EU wide non-agricultural ban 28/03/2017⁴³

France became the first EU country to take this step with the Labbé law in 2014. In force since January this year, the first stage of the law forbids the use of pesticides by the French state, local authorities and public bodies for the maintenance of public spaces, forests and roadsides. Derogations exist for cemeteries and sports grounds.

The International Monsanto Tribunal: Judges Verdict on 18 April 2017: The legal opinion will be addressed to Monsanto and to the United Nations

The Verdict of the International Monsanto Tribunal will be announced on April 18 2017

The Tribunal is to deliver a legal opinion on questions related to:⁴⁴

- human rights violations such as the right to health, to information, to a healthy environment, and of scientific freedom,
- allegations of complicity of war crimes (Agent Orange – Vietnam war),
- the crime of ecocide (still to be shaped and consecrated in international law).
- "[The legal opinion] *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*

⁴² http://neu.vdw-ev.de/wp-content/uploads/2015/10/Presseinformation-Whistleblower-Preisverleihung-2015_150917_eng.pdf

⁴³ <https://www.euractiv.com/section/agriculture-food/news/france-tables-eu-wide-non-agricultural-pesticide-ban/>

⁴⁴ http://en.monsantotribunal.org/main.php?obj_id=215662171

the international law will take into consideration new issues such as the ones related to ecocide.”

- In case of a Monsanto merger, make sure Bayer takes full legal responsibility - letter to EU antitrust commission.⁴⁵ This [letter](#) by the organisers of the Monsanto Tribunal asks the antitrust committee to take the findings of the international judges' council into account in their decision-making processes.

“The implication of the judge’s opinion could be that new liability cases will be filed against Monsanto in regular courts. However, we have seen in the past that companies use mergers to evade their legal responsibilities. The Bhopal case in India stands out as a particularly troubling example. Till this day the Dow Chemical Company does not accept full responsibility for the disaster, which took place in 1984, although it merged in 2001 with Union Carbide Corporation, responsible for the deadly gas leak in Bhopal. We urge you to make sure that in case of a possible merger Bayer will take full responsibility for all acts and consequences of products, production methods and pollution caused by Monsanto and its products on health and environment, in existing and upcoming liability cases.”

THE MONSANTO TRIBUNAL: CONTRIBUTING TO THE DEVELOPMENT OF INTERNATIONAL LAW

The goal of the Monsanto Tribunal is to evaluate whether or not Monsanto's activities are complying with international law. Through the case of Monsanto, the Tribunal considers an example of a multinational corporation whose behavior ignores the damages their decisions cause to health, environment and scientific independence. The aim of the Tribunal is to give a legal opinion on the environmental and health damage caused by the multinational Monsanto. This process will use existing international law but also contribute to the international debate to include the crime of ecocide into international criminal law. It will also give people all over the world a well-documented legal file to be used in lawsuits against Monsanto and similar chemical companies.

Extract from Claire Robinson’s (Editor of GM Watch) account at the International Monsanto Tribunal of events surrounding the publication and retraction of the Séralini study⁴⁶

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

Professor Séralini, who has studied glyphosate for 30 years, says that Roundup is an endocrine disruptor and a nervous system disruptor (ENDs).⁴⁷

“Abstract: Roundup and other glyphosate-based herbicides are the most widely used pesticides in the world; their residues are among the main pollutants in surface waters. Their use has increased through the spraying of 80% of edible agricultural GMOs, which also contain high levels of their residues. They are composed of glyphosate (35–40% in general) and adjuvants that are around 1,000 times more toxic than glyphosate alone, and are also endocrine disruptors below toxic thresholds. All endocrine disruptors (ED) are also nervous system disruptors (ND), because they act as “spam” for cell–cell communication, in the sense that they are spurious messages (or molecules) sent to a group of organisms or cells, impeding and slowing down, and in some cases accelerating, the physiological communication system. Therefore, they should be called ENDs (endocrine and nervous system disruptors). From 0.1 ppb in chronic tests in vivo, Roundup is highly tumorigenic, provoking hormone-dependent tumours, other hormonal imbalances, and important liver and kidney toxicities. Pesticide adjuvants play the same role in other pesticide formulations. The declared active principles often appear to be by far the least toxic compounds after water in formulations. Unfortunately for public health, they are the only substances tested by companies for regulatory purposes over the long term

⁴⁵ http://en.monsantotribunal.org/upload/asset_cache/607464510.pdf?rnd=liomq6

⁴⁶ http://gmwatch.org/files/MON_Tribunal.pdf

⁴⁷ <http://www.amsi.ge/jbpc/31515/15-3-abs-3.htm>

in vivo. Thus, the acceptable daily intakes deduced from these tests are 1000–10 000 times too high. In regulatory tests the deleterious effects in rats are compared with historical data on rat pathologies. Analysis of laboratory rodent feeds sourced from five continents reveals that they are so contaminated by pollutants that comparison to these hence inappropriate controls generally masks the chronic pathologies provoked by the pesticides and other chemicals tested. The disputes with industry representatives and lobby groups that arose in the course of this research are also summarized in this short review. Finally, potential methods of improving transparency and advancing scientific knowledge are recommended.”

Nnimmo Bassey (Nigerian architect, environmental activist, author, poet and co-winner of the Right To Livelihood Award) said: *“Being an ambassador to this Tribunal is like being an ambassador to mother Earth. If mother Earth could speak, Monsanto ought to be in jail long before now. Food is a celebration, it is culture, it is life. This is a struggle not against one multinational corporation, it is a struggle for life, it is a struggle for liberty. A struggle to stop big companies from colonizing our food systems, colonizing our agriculture, holding mother Earth as a slave for their profits.”*

Global Agricultural Corporations are severely criticised by Hilal Elver the UN Special Rapporteur on the right to food⁴⁸

The Report presented to the UN human rights council on 08/03/2017 is severely critical of the global corporations that manufacture pesticides, accusing them of the *“systematic denial of harms”, “aggressive, unethical marketing tactics”* and heavy lobbying of governments which has *“obstructed reforms and paralysed global pesticide restrictions”*.

The report authored by Hilal Elver the UN Special Rapporteur on the right to food and co-authored by Baskut Tuncak, the UN’s special rapporteur on toxics, says pesticides have *“catastrophic impacts on the environment, human health and society as a whole”*, including an estimated 200,000 deaths a year from acute poisoning. Its authors said: *“It is time to create a global process to transition toward safer and healthier food and agricultural production.”*

“It is a myth,” said Hilal Elver. *“Using more pesticides is nothing to do with getting rid of hunger.”⁴⁹ According to the UN Food and Agriculture Organisation (FAO), we are able to feed 9 billion people today. Production is definitely increasing, but the problem is poverty, inequality and distribution.”* Elver said many of the pesticides are used on commodity crops, such as palm oil and soy, not the food needed by the world’s hungry people: *“The corporations are not dealing with world hunger, they are dealing with more agricultural activity on large scales.”*

The Report says: *“excessive use of pesticides are very dangerous to human health, to the environment and it is misleading to claim they are vital to ensuring food security.”* Chronic exposure to pesticides has been linked to **cancer, Alzheimer’s and Parkinson’s diseases, hormone disruption, developmental disorders and sterility.** Farmers and agricultural workers, communities living near plantations, indigenous communities and pregnant women and children are particularly vulnerable to pesticide exposure and require special protections. The experts warn that certain pesticides can persist in the environment for decades and pose a threat to the entire ecological system on which food production depends. The excessive use of pesticides contaminates soil and water sources, causing loss of biodiversity, destroying the natural enemies of pests, and reducing the nutritional value of food. The impact of such overuse also imposes staggering costs on national economies around the world. The experts say the use of neonicotinoid pesticides is particularly worrying because they are accused of being responsible for a systematic collapse in the number of bees around the world. **For example, heavy use of these insecticides has been blamed for the 50 per cent decline over 25 years in honeybee populations in both the United States and the United**

⁴⁸ <http://www.pan-uk.org/site/wp-content/uploads/United-Nations-Report-of-the-Special-Rapporteur-on-the-right-to-food.pdf>

⁴⁹ <https://www.theguardian.com/environment/2017/mar/07/un-experts-denounce-myth-pesticides-are-necessary-to-feed-the-world>

Kingdom of Great Britain and Northern Ireland. Such a collapse, they say, threatens the very basis of agriculture as 71% of crop species are bee-pollinated.

Some human health issues with glyphosate and GM crops

Multimomics reveal non-alcoholic fatty liver disease in rats following chronic exposure to an ultra-low dose of Roundup herbicide.⁵⁰

Overall, metabolome and proteome disturbances showed a substantial overlap with biomarkers of non-alcoholic fatty liver disease and its progression to steatohepatitis and thus confirm liver functional dysfunction resulting from chronic ultra-low dose Glyphosate-Based Herbicide (GBH) exposure. The study is the first ever to show a causative link between consumption of Roundup at a real-world environmentally relevant dose and a serious disease.

Genetically-engineered crops, glyphosate and the deterioration of health in the United States of America. Swanson *et al.*⁵¹

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.

Cane sugar contains glyphosate residues; linked to chronic kidney disease amongst workers

Glyphosate [N-(phosphonomethyl) glycine], a nonselective systemic herbicide, has been utilized since 1980 as a sugarcane ripener in Louisiana sprayed by air six weeks before harvest.⁵²

"Little noticed by the rest of the world, chronic kidney disease (CKD) is cutting a swath through one of the world's poorest populations, along a stretch of Central America's Pacific Coast that spans six

⁵⁰ <http://www.nature.com/articles/srep39328>

⁵¹ http://www.organic-systems.org/journal/92/JOS_Volume-9_Number-2_Nov_2014-Swanson-et-al.pdf

⁵² http://etd.lsu.edu/docs/available/etd-11072012-134904/unrestricted/Orgeron_diss.pdf

countries and nearly 700 miles. Its victims are manual laborers, mostly sugarcane workers.” A growing community of researchers is calling for recognition of a new illness not yet included in medical manuals: "Mesoamerican nephropathy," "endemic agricultural nephropathy" or "sugarcane nephropathy." The director of El Salvador's national CKD program has written of a "Mesoamerican Regional Nephropathy" that would one day be internationally recognized.⁵³

How glyphosate damages human metabolism by suppressing metabolic pathways

Samsel A and Seneff S (2013) Glyphosate's suppression of Cytochrome P450 enzymes and amino acid biosynthesis by the gut microbiome: Pathways to Modern Diseases.⁵⁴

Abstract: *Glyphosate, the active ingredient in Roundup®, is the most popular herbicide used worldwide. The industry asserts it is minimally toxic to humans, but here we argue otherwise. Residues are found in the main foods of the Western diet, comprised primarily of sugar, corn, soy and wheat. Glyphosate's inhibition of cytochrome P450 (CYP) enzymes is an overlooked component of its toxicity to mammals. CYP enzymes play crucial roles in biology, one of which is to detoxify xenobiotics. Thus, glyphosate enhances the damaging effects of other food borne chemical residues and environmental toxins. Negative impact on the body is insidious and manifests slowly over time as inflammation damages cellular systems throughout the body. Here, we show how interference with CYP enzymes acts synergistically with disruption of the biosynthesis of aromatic amino acids by gut bacteria, as well as impairment in serum sulfate transport. Consequences are most of the diseases and conditions associated with a Western diet, which include gastrointestinal disorders, obesity, diabetes, heart disease, depression, autism, infertility, cancer and Alzheimer's disease. We explain the documented effects of glyphosate and its ability to induce disease, and we show that glyphosate is the "textbook example" of exogenous semiotic entropy: the disruption of homeostasis by environmental toxins.*

Glyphosate, pathways to modern diseases II: Celiac sprue and gluten intolerance.⁵⁵

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

⁵³ <http://lab.org.uk/thousands-of-sugar-cane-workers-die-as-wealthy-nations-stall-on-solutions>

⁵⁴ <http://www.mdpi.com/1099-4300/15/4/1416>

⁵⁵ <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3945755/>

agricultural workers in Central America. We conclude with a plea to governments to reconsider policies regarding the safety of glyphosate residues in foods.

Glyphosate, pathways to modern diseases III: Manganese, neurological diseases, and associated pathologies⁵⁶

Abstract: *Manganese (Mn) is an often overlooked but important nutrient, required in small amounts for multiple essential functions in the body. A recent study on cows fed genetically modified Roundup®-Ready feed revealed a severe depletion of serum Mn. Glyphosate, the active ingredient in Roundup®, has also been shown to severely deplete Mn levels in plants. Here, we investigate the impact of Mn on physiology, and its association with gut dysbiosis as well as neuropathologies such as autism, Alzheimer's disease (AD), depression, anxiety syndrome, Parkinson's disease (PD), and prion diseases. Glutamate overexpression in the brain in association with autism, AD, and other neurological diseases can be explained by Mn deficiency. Mn superoxide dismutase protects mitochondria from oxidative damage, and mitochondrial dysfunction is a key feature of autism and Alzheimer's. Chondroitin sulfate synthesis depends on Mn, and its deficiency leads to osteoporosis and osteomalacia. Lactobacillus, depleted in autism, depends critically on Mn for antioxidant protection. Lactobacillus probiotics can treat anxiety, which is a comorbidity of autism and chronic fatigue syndrome. Reduced gut Lactobacillus leads to overgrowth of the pathogen, Salmonella, which is resistant to glyphosate toxicity, and Mn plays a role here as well. Sperm motility depends on Mn, and this may partially explain increased rates of infertility and birth defects. We further reason that, under conditions of adequate Mn in the diet, glyphosate, through its disruption of bile acid homeostasis, ironically promotes toxic accumulation of Mn in the brainstem, leading to conditions such as PD and prion diseases.*

Glyphosate, pathways to modern diseases IV: cancer and related pathologies⁵⁷

Abstract: *Glyphosate is the active ingredient in the pervasive herbicide, Roundup, and its usage, particularly in the United States, has increased dramatically in the last two decades, in step with the widespread adoption of Roundup®-Ready core crops. The World Health Organization recently labelled glyphosate as "probably carcinogenic." In this paper, we review the research literature, with the goal of evaluating the carcinogenic potential of glyphosate. 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. Here, we support these correlations through an examination of Monsanto's early studies on glyphosate, and explain how the biological effects of glyphosate could induce each of these cancers. We believe that the available evidence warrants a reconsideration of the risk/benefit trade-off with respect to glyphosate usage to control weeds, and we advocate much stricter regulation of glyphosate.*

Glyphosate pathways to modern diseases V: Amino acid analogue of glycine in diverse proteins⁵⁸

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*

⁵⁶ http://www.surgicalneurologyint.com/temp/SurgNeurolInt6145-4381109_121011.pdf

⁵⁷

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

⁵⁸ <http://www.amsi.ge/jbpc/11616/03SA16A.pdf>

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.

One of Monsanto's own long term studies in rats in 1990⁵⁹ showed an increased risk of cataracts following exposure to Roundup® as well as cancers

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.⁶⁰ 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:⁶¹ '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 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 Monsanto⁶² and on grassland in 1985 on the advice of another Monsanto scientist.⁶³

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".⁶⁴ 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

⁵⁹ 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)

⁶⁰ <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955650/>

⁶¹ http://apps.who.int/iris/bitstream/10665/204585/1/9789241565196_eng.pdf

⁶² 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.

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

⁶⁴ <http://www.theguardian.com/society/2016/mar/31/one-fifth-of-worlds-adults-will-be-obese-by-2025-study-predicts>

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%.***

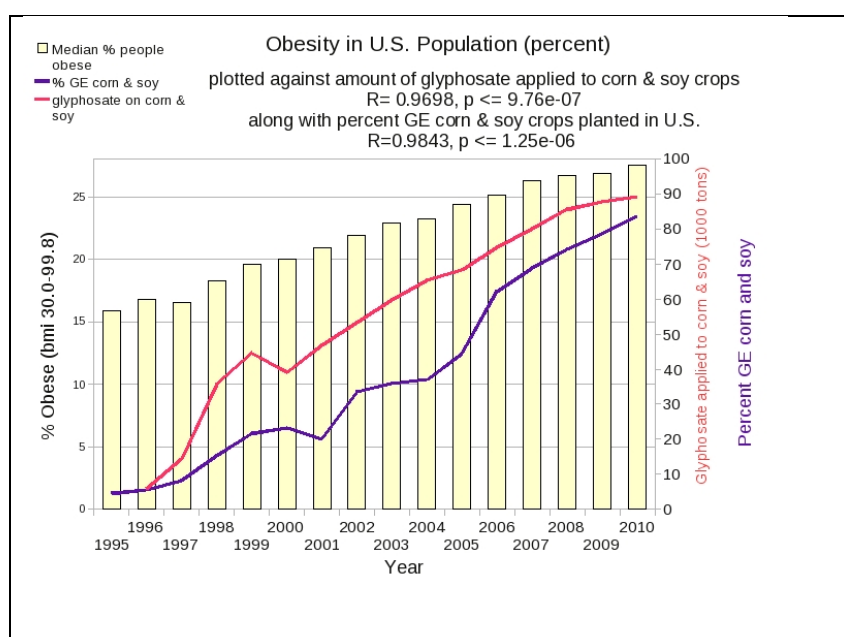
In contrast: *“Against the trend of steadily rising weight, women in some countries had virtually no increase in BMI over the 40 years – in Singapore, Japan, and a few European countries including Czech Republic, Belgium, **France**, and Switzerland.”*

Overweight and obesity in mid-life: Evidence from the 1970 British Cohort Study⁶⁵

The Centre for Longitudinal Studies based at the Institute of Education University of London published their latest report on 9 November 2013.

Their key findings of the cohort at age 42 were that:

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



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.

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.⁶⁶ 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.

⁶⁵ [Overweight and obesity in mid-life: Evidence from the 1970 British Cohort Study at age 42](#)

⁶⁶ [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)

In 2016 an OECD study showed that in England the young have lower basic skills than their counterparts in Europe.⁶⁷ But adults approaching retirement age (55-65 year-olds) in England compare reasonably well with their counterparts in other countries.

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

Neurobehavioural effects of developmental toxicity⁶⁸

*"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.

Increase in cancers in children: in 15-24 year olds cancers have increased 40% since 1998⁶⁹

The Telegraph Science Editor Sarah Knapton put her head above the parapet to mention 'pesticides' although it is absent from the headline. *"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."*

UK cancer survival rates trail 10 years behind other European countries

Cancer survival rates in the UK are still lagging more than two decades behind those achieved in many European countries, according to new analysis by campaigners on 25th March 2015.⁷⁰ The Concord-2 global study looked at survival rates in 67 countries for patients diagnosed with lung, breast, colon and stomach cancers in 1995 to 1999, compared with levels in 2005 to 2009.

Human health depends on biodiversity

Dr Eric Chivian founded the Center for Health and the Global Environment at Harvard Medical School in 1996 *"To help people understand that our health, and that of our children, depends on the health of the environment and that we must do everything we can to protect it"*. He and Aaron Bernstein co-edited a book: *Sustaining Life. How Human Health Depends On Biodiversity* that included contributions from more than 100 leading biodiversity and health scientists and co-sponsored by the

⁶⁷ <http://www.oecd.org/unitedkingdom/building-skills-for-all-review-of-england.pdf>

⁶⁸ [http://www.thelancet.com/pdfs/journals/lanneur/PIIS1474-4422\(13\)70278-3.pdf](http://www.thelancet.com/pdfs/journals/lanneur/PIIS1474-4422(13)70278-3.pdf)

⁶⁹ <http://www.telegraph.co.uk/science/2016/09/03/modern-life-is-killing-our-children-cancer-rate-in-young-people/>

⁷⁰ <http://www.theguardian.com/society/2015/mar/24/uk-cancer-survival-rates-trail-10-years-behind-those-in-european-countries>

United Nations Development Programme, the United Nations Environment Programme, the Secretariat of the Convention on Biological Diversity and the World Conservation Union.

England has used Wales to store and test Monsanto's most toxic chemicals

Chemical herbicides manufactured by the agrochemical industry have created invasive weeds; repeated applications make the weeds become resistant

Japanese knotweed *Reynoutrie japonica* (syn. *Polygonum cuspidatum*) was introduced into Europe in the mid-16 Century by an amateur botanist from the Netherlands, Van Reynoutrie (syn. Karel van Sint Omaars).⁷¹ For 500 years it caused no problems. In 1969 in the UK it was still being promoted as a plant suitable for large gardens (as was a member of the Balsam species *Impatiens glandulifera* (*royalei*)).⁷² Glyphosate was introduced in 1974 and by 1981 both plants were classified in the Wildlife and Countryside Act as invasive species.⁷³ In the US, the first confirmed Glyphosate-Resistant weed, rigid ryegrass was reported in 1998 within two years of Genetically-Modified (GM) Roundup® Ready crops being grown. Super-weeds in the US in GM cropping systems are now a massive problem. Between 1996 and 2011, as a result of GM technology, 22 Glyphosate-Resistant super-weeds had developed.

In 2016, Charles Benbrook says: "Since 1974 in the U.S., over 1.6 billion kilograms of glyphosate active ingredient have been applied, or 19 % of estimated global use of glyphosate (8.6 billion kilograms). Globally, glyphosate use has risen almost 15-fold since so-called "Roundup Ready," genetically engineered glyphosate-tolerant crops were introduced in 1996. Two-thirds of the total volume of glyphosate applied in the U.S. from 1974 to 2014 has been sprayed in just the last 10 years."⁷⁴

UK 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'.⁷⁵ 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 (see page 5).

South Wales has Japanese knotweed growing in old mining areas where the ground has been excavated: Swansea has been dubbed 'the Japanese knotweed capital of Europe'

So Swansea is a testbed for the long term effects of Roundup, which has been used freely in unknown and unmonitored quantities. Estate agents demand that Japanese knotweed is eradicated before a house goes on the market. The Wildlife Law Feb 2014: Control of Invasive Non-native Species gives statutory powers to the relevant body to enter land for the purposes of species control. It was impossible to obtain figures for the amount of Roundup that must have been used over many years, not just for eradicating Japanese knotweed, but for all the other urban uses that Monsanto's: *Agronomic Benefits of Glyphosate in Europe* recommends.⁷⁶ The document outlined at least 16 use areas (p 3) from vegetation control on land throughout agricultural production, on GM

⁷¹ Van Reynoutrie (or Karel van Sint Omaars) (1533-1569) H. Wille: The discovery of the scientific heritage of Karel van Sint Omaars (1533-1569). The Libri Picturati a 16-30 in the Jagiellon Library in Krakow. Scientiarum Historia 22 (1996) 2 67.

⁷² Marshall Cavendish Illustrated Encyclopaedia of Gardening 1969.

⁷³ <http://www.legislation.gov.uk/ukpga/1981/69>

⁷⁴ <http://enveurope.springeropen.com/articles/10.1186/s12302-016-0070-0>

⁷⁵ <http://www.thetimes.co.uk/tto/environment/article4528297.ece>

⁷⁶ <http://www.monsanto.com/products/Documents/glyphosate-background-materials/Agronomic%20benefits%20of%20glyphosate%20in%20Europe.pdf>

Roundup® Ready Crops and on non-agricultural land “around structures on farms, amenity and industrial areas and on railways” (p 4). The document states on page 3: “Since its discovery in the early 1970s the unique herbicidal active ingredient glyphosate has become the worlds’ most widely used herbicide because it is efficacious, economical and environmentally benign” Glyphosate has an “excellent safety profile to operators, the public and the environment.”

Theo Colborn’s crucial research in the early 1990s into the chemicals that were changing humans and the environment was ignored

The late Theo Colborn⁷⁷ (1927-1914) was the first to research and write about EDCs, man-made chemicals that became widespread in the environment after WW II. In a book published in 1996, Our Stolen Future: How Man-made Chemicals are Threatening our Fertility, Intelligence and Survival, Colborn, Dumanoski and Peters revealed the full horror of what was happening to the world as a result of contamination with EDCs.⁷⁸ There was emerging scientific research about how a wide range of man-made chemicals disrupt delicate hormone systems in humans. These systems play a critical role in processes ranging from human sexual development to behaviour, intelligence, and the functioning of the immune system. At that stage, polychlorinated biphenyls (PCBs), pesticides DDT, chlordane, lindane, aldrin, dieldrin, endrin, toxaphene, heptachlor, dioxin, atrazine and dacthal were identified as EDCs. Colborn illustrates the problem by constructing a diagram (page 105) of the journey of a PCB molecule from a factory in Alabama into a polar bear in the Arctic. Colborn says: “The concentration of persistent chemicals can be magnified millions of times as they travel to the ends of the earth...Many chemicals that threaten the next generation have found their way into our bodies. There is no safe, uncontaminated place.”

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

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

From 2006 to 2010 we documented 143 different species of moth, four species of bush-cricket, 20 species of butterfly, six species of bumblebee and numerous dragonflies, damsel flies, grass-hoppers, many beetles including ladybirds and the rare oil-beetle, many forms of hover flies and solitary bees, vigorous pond life including whirligig beetles, water boatmen, giant diving beetles and bats (see photos on page 1). In 2013 biodiversity began to decline both in species and in numbers. I sent a written Testimony to the judges of the International Monsanto Tribunal.

We sent our two photo-journals to the three pesticide regulators in Europe challenging their conclusion that glyphosate was not toxic to the environment

Two failed to reply. The European Chemicals Agency (ECHA) which acknowledged our photo-journals explained that ECHA's role is in the labelling and classification of chemicals. “We only look at the hazardous properties of a chemical,” he said, “not at the risks that occur when you use a chemical.”

Swansea City and County Council revealed in November 2016 “a war on weeds”

An item from the *Swansea Leader* November 2016: “The Council has already treated 1,500 km of roadside around the city over the summer with weed-killer to keep unwanted plants at bay. And in the autumn the council treated them all over again in an effort to prevent them returning in the spring.” I wrote to Martin Temple Chairman of the Health & Safety Executive December 9 2016 attaching the FOI request to tell him that 518 kg Dakar Pro had been sprayed over the pavements of

⁷⁷ <http://endocrinedisruption.org/about-tedx/theo-colborn>

⁷⁸ Our Stolen Future: How Man-made Chemicals are Threatening our Fertility, Intelligence and Survival: Colborn, Myers and Dumanoski: Little, Brown and Company, New York. 1996.

3,000 km roads in Swansea and information that there will still 26 wards that hadn't been completed. I asked him to instruct the Council to stop spraying. We said that the biodiversity in our nature had been wiped out by Roundup and many of us had developed cataracts and macular degeneration during 2016.⁷⁹ The area in the vicinity of Roundup spraying is a hotspot for aggressive cancers (breast, prostate, lung (often in non-smokers) pancreas, ovary, colon, kidney, bladder, liver, uterus (including sarcoma), oesophagus, myeloma, non-Hodgkin's lymphoma, carcinoid, malignant melanoma, brain tumour, mostly glioblastoma, and neurological disorders (multiple sclerosis, Parkinson's, Dementia and MND). Dan Manghai for HSE replied 20/12/2016: *"The Council's duty in this case is to use pesticide products which are authorised in the UK and to comply with the rules on use of pesticides. In doing this, it is for the Council to decide how it chooses to control weeds in its area not HSE."*

Roundup and neonicotinoid insecticides have destroyed recreational fishing in Wales

Both chemicals have hazard notices warning of dangers to aquatic invertebrates on which fish feed. In 1996, the Attorney General of the State of New York, Consumer Frauds and Protection Bureau, Environmental Protection Bureau found Monsanto guilty of false advertising by Monsanto with regard to the safety of Roundup® herbicide (glyphosate). In particular, in many advertisements, Monsanto implied that Roundup® could be used safely in aquatic environments. However, the US EPA-approved label said: *Do Not Contaminate water...minute amounts of this herbicide can cause severe damage or destruction to the crop, plants or other areas on which the treatment was not intended.*⁸⁰ But the false claim from Monsanto has not been corrected and many countries now use glyphosate freely on invasive aquatic species.⁸¹ The assertion that it could be used in water was repeated again in their 2010 document to European Farmers. The agronomic benefits of glyphosate in Europe [2010].⁸²

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

The US EPA Glyphosate Position Paper Evaluation of Carcinogenic Potential EPA's OPP September 12 2016. The US EPA states: "All pesticide products provide critical information about how to safely and legally handle and use pesticide products. Pesticide labels are legally enforceable and all carry the statement 'it is a violation of Federal law to use this product in a manner inconsistent with its labeling.' In other words, the label is law. As a result, a key function of the pesticide product label is to manage the potential risk from pesticides."⁸³ However, in many cases labels are unreadable out of doors.

With invertebrate declines in rivers, 2016 was a disastrous year for salmon and trout in Wales⁸⁴

Leading fisheries charity, Salmon & Trout Conservation UK (S&TC UK) has brought forward its programme of river invertebrate monitoring on three rivers in Wales to support efforts by Natural Resources Wales (NRW), who are investigating the unprecedented threats facing rivers and salmon stocks in Wales. Shockingly, a recent report identifies that 61 per cent of Wales' water bodies do not meet 'Good Ecological Status' as required under the Water Framework Directive (WFD). Earlier this

⁷⁹ 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). Quoted in ⁷⁹ <https://people.csail.mit.edu/seneff/SamselSeneffGlyphosateIV.pdf>

⁸⁰ <http://www.mindfully.org/Pesticide/Monsanto-v-AGNYnov96.htm>

⁸¹

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

⁸² <http://www.monsanto.com/products/Documents/glyphosate-background-materials/Agronomic%20benefits%20of%20glyphosate%20in%20Europe.pdf>

⁸³ <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0094>

⁸⁴ <http://www.salmon-trout.org/river-invertebrates-could-hold-the-key-to-abysmal-state-of-rivers-in-wales/news/403>

year, S&TC UK's Riverfly Census in England, revealed that many rivers and chalk streams across the country were in a poor state because of pollution caused by human pressure, ranging from sewage treatment works, septic tanks and agricultural run-off to abstraction and degraded river habitats. .

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

There was an NRW document about the River Usk.⁸⁵ On page 12 it described the problem of another invasive weed, Giant Hogweed. *"Five spray teams are working on the project from Environment Agency Wales (now Natural Resources Wales). Extensive control work has continued in the growing season along the river between Crickhowell and Newbridge-on-Usk since 2006. A number of Forum events have been organised periodically to update and involve local riparian owners and river users on the progress of the project."* This was presumably Roundup/Dakar Pro.

On Page 55 of another NRW document there was a paragraph marked Evidence Gaps:⁸⁶

"Impacts of new and emerging chemicals and substances, such as neonicotinoid pesticides, nanoparticles and pharmaceuticals, on water quality and ecology."

Neonicotinoid insecticides are not new. They were introduced in 1994. There is plenty of independent evidence that seeds coated with these insecticides act by causing virtually irreversible blockage of postsynaptic nicotinic acetylcholine receptors (nAChRs) in the central nervous systems of insects.⁸⁷

19/12/2016 At least 1,000 fish have been killed following pollution of the River Teifi in Ceredigion, Natural Resources Wales has said.⁸⁸



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

Environmental officers said the water has been discoloured and believe the source was an agricultural site in the Tregaron area. Salmon and sea trout are among the dead fish and NRW said the number was "rising". Control measures have been put in place to stop the pollution spreading. The pollution was first reported on Saturday, with work ongoing to assess its extent. The group Sea Trout Wales said salmon and sea trout were "already at critically low levels" in the river.

31/03/2017 River Teifi salmon shortage reaching 'crisis point': coracle fishermen have said they will start returning any salmon they catch because of concerns about fish stocks.⁸⁹

⁸⁵ http://www.naturalresources.wales/media/679394/2016_updated_usk_catchment_summary_nrw.pdf

⁸⁶ <http://www.naturalresources.wales/media/679427/annex-chapter-3-final-for-publication.pdf>

⁸⁷ Tennekes, H.A. *The Systemic Insecticides: a Disaster in the Making* (2010).

⁸⁸ <http://www.bbc.co.uk/news/uk-wales-mid-wales-38366208>

Natural Resources Wales figures show a decline in numbers, with just over 40 declared net catches on the river in 2015 compared to about 115 in 2014. Declared rod catches were down from 300 in 2014 to just over 200 in 2015. An NRW spokesman said the situation was approaching crisis point.

Monsanto has dumped toxic chemical waste at several sites in Wales. When PCBs were banned in the US for causing ill health in Anniston, Alabama, the Heath Government agreed to ramp up production in a Monsanto-owned factory in Wales in 1971

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

Polychlorinated biphenyls (PCBs) were manufactured by Monsanto from 1930-1977 primarily for insulating fluids in heavy-duty electrical equipment in plants. They were toxic and persistent in the environment and were EDCs. *"The Anniston and other scandals led to the banning of PCB production in America in 1971. During that period – and up until 1977, when the UK government reluctantly followed suit – PCB production was ramped up at Newport, creating even more wastes. While Brofiscin and Maendy quarries took the bulk of these, five other quarries across Wales and into the north of England were also used as Monsanto dumping grounds. It is not clear that any were prepared (lined and sealed) to accept such wastes. Both Brofiscin and Maendy certainly weren't and both are porous: Brofiscin being limestone, and Maendy sandstone, which means that the wastes slowly and inevitably leach into the waterways, groundwater, and major aquifers. Of particular concern today is that Brofiscin stands above an underground reservoir that might well in the future be used as a public water supply."*⁹⁰ The UK government, which knew of the dangers of PCBs in the environment in the 1960s, allowed their production in Wales until 1977.⁹¹

*"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."*⁹² *More alarming still, the waters of the stream that flowed around the quarry began to turn vivid orange...The investigation revealed that a Monsanto-owned plant in Newport (a city near Groesfaen) had paid contractors to illegally dump thousands of tons of cancer-causing chemicals - among them PCBs, dioxins and Agent Orange derivatives - into the Brofiscin quarry between 1965 and 1972. These chemicals, which had corroded their containers and were leaching into the soil, not only endangered the lives of the local villagers but also those of the more than 350,000 residents of Cardiff, since the chemicals were coming into contact with a major underground aquifer that was (and still is) destined to be the city's main water supply."*

The Environment Agency - a government agency concerned with flooding and pollution – was hired to clean up the site in 2005.

"Firstly, the Agency repeatedly failed to hold Monsanto accountable for its role in the pollution (a role that Monsanto denied from the outset). Secondly, the Agency consistently downplayed the dangers of the chemicals themselves, even claiming that they offered no "identifiable harm or immediate danger to human health" in their official report." In 2007⁹³ 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

⁸⁹ <http://www.bbc.co.uk/news/uk-wales-south-west-wales-39445368>

⁹⁰ http://www.theecologist.org/investigations/politics_and_economics/269077/exclusive_how_the_environment_agency_is_gagging_one_eyewitness_to_what_is_potentially_one_of_the_uk's_biggest_environmental_crimes.html

⁹¹ <https://www.theguardian.com/guardian/2007/feb/12/frontpagenews.uknews>

⁹² http://www.naturalnews.com/044009_Monsanto_Brofiscin_environmental_damage.html

⁹³ <https://www.theguardian.com/environment/2007/feb/12/uknews.pollution1>

naphthalene. The unlined quarry is still leaking, the report says. *"Pollution of water has been occurring since the 1970s, the waste and groundwater has been shown to contain significant quantities of poisonous, noxious and polluting material, pollution of ... waters will continue to occur."* Douglas Gowan, a pollution consultant who produced the first official report into the Brofiscin quarry in 1972 after nine cows on a local farm died of poisoning, said: *"The authorities have known about the situation for years, but have done nothing. There is evidence of not only negligence and utter incompetence, but cover-up, and the problem has grown unchecked. The documents show that in 1953, company chemists tested the PCB chemicals on rats and found that they killed more than 50% with medium-level doses. However, it continued to manufacture PCBs and dispose of the wastes in South Wales until 1977, more than a decade after evidence of widespread contamination of humans and the environment was beyond doubt."*

In 2013 an association was found between PCB serum levels and non-Hodgkin lymphoma (NHL).

How does the area of Alabama (PCBs) and Idaho (Glyphosate) States compare with that of Wales?

Alabama is more than 50 million square miles.

Idaho is more than 83 thousand square miles.

Wales is 8,000 square miles.

England has grandiose delusions that it is still ruling an Empire and the Welsh are its slaves.

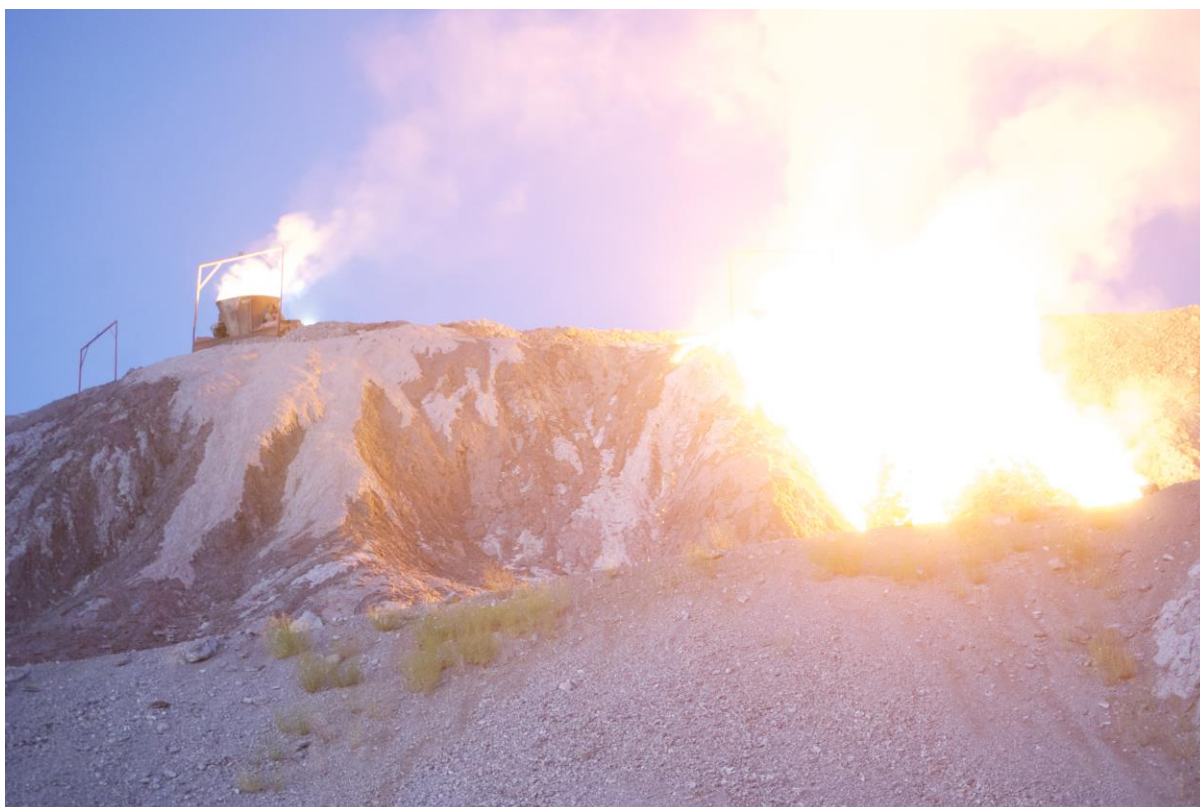
Monsanto's Soda Springs plant in phosphorus mines Southeast Idaho has been operating since the 1950s. It was given toxic waste site designation in 1990 by the US EPA: it is currently active

Bart Elmore, an assistant professor of environmental history at the Ohio State University and a Carnegie Fellow at New America wrote the following account:⁹⁴ *"I obtained files from the EPA via a Freedom of Information Act request that tell the story of Roundup's origins at a Superfund hazardous waste site. These documents show that there are disturbing environmental and human health concerns at the beginning, not just at the end, of Roundup's lifecycle. Monsanto's weedkiller comes from beneath the soil. The active ingredient in Roundup is glyphosate, which is ultimately derived from elemental phosphorous extracted from phosphate rock buried below ground. Monsanto gets its phosphate from mines in Southeast Idaho near the town of Soda Springs, a small community of about 3,000 people. The company has been operating there since the 1950s...This dumping happened about every fifteen minutes, lighting up the night sky. Horses grazed in a field just a few dozen yards away, glowing in the radiating rays coming from the lava-like sludge. Rows of barley, for Budweiser beer, * waved in the distance. Monsanto's Soda Springs plant is currently an active Superfund site, having achieved that toxic waste site designation in 1990. The EPA offered a disheartening conclusion: "Monitoring trends indicate that the groundwater performance standards will not be met in the foreseeable future." Harmful onsite pollutants include cadmium, selenium, and radioactive radium all of which can cause serious health problems in humans in high concentrations."*

*Glyphosate residues were found in 14 German beers.⁹⁵

⁹⁴ https://www.dissentmagazine.org/online_articles/monsanto-roundup-production-superfund-sites-radioactive

⁹⁵ <http://sustainablepulse.com/2016/02/25/german-beer-industry-in-shock-over-probable-carcinogen-glyphosate-contamination/>



Slag dumping at Monsanto's Soda Springs facility Idaho. By kind permission of Jon Zadra

Predictions for the future of farming with biocides in the UK and the US

- People born after 1960 will have a one in two chance of getting cancer during their lifetime.
- On June 12/13th 2013, an autism conference was held in Edinburgh.⁹⁶ Dr Martha Herbert, an expert on autism from Harvard Medical School, believes the culprit is an environmental toxin in autistic children that interferes with nutrient absorption. In 1970, the incidence of autism in the US was 1:10,000. In 2007 it was 1:150. In 2009 it was 1:100. In 2013 it is 1:50 and by 2025 it will be 1:2, i.e. 50%.
- By 2050 the incidence of people with vision loss from cataracts and macular degeneration will be doubled.
- Obesity: 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.
- Diabetes: WHO said worldwide in 1980 108 million people had diabetes; in 2014, this had risen to 422 million. This is predicted to rise steeply.
- Dementia: There are 850,000 people with dementia in Britain and this figure is expected to reach 1 million by 2025. Last year, dementia overtook heart disease as the leading cause of death in England and Wales.⁹⁷

Rosemary Mason MB ChB FRCA 05/04/2017

⁹⁶ <http://www.scotsman.com/lifestyle/autism-unlocking-a-generation-1-2944710>

⁹⁷ https://www.theguardian.com/society/2017/feb/21/long-winded-speech-could-be-early-sign-of-alzheimers-says-study?utm_source=esp&utm_medium=Email&utm_campaign=GU+Today+main+NEW+H+categories&utm_term=214221&subid=5939743&CMP=EMCNEWEML6619I2