

New tests show that weed killer products are more toxic than their active ingredients

New tests show that weed killer products are more toxic than their active ingredients, but no-one has ever tested them: only the active product, glyphosate, has been tested

After more than 40 years of widespread use, new scientific tests show formulated weed killers have higher rates of toxicity to human cells.¹

[Carey Gillam](#) Tue 8 May 2018 06.00 BST

“US government researchers have uncovered evidence that some popular weedkilling products, like Monsanto’s widely-used Roundup, are potentially more toxic to human cells than their active ingredient is by itself. These “formulated” weed killers are commonly used in agriculture, leaving residues in food and water, as well as public spaces such as golf courses, parks and children’s playgrounds.”

*“The [tests](#) are part of the US National Toxicology Program’s (NTP) **first-ever examination of herbicide formulations** made with the active ingredient glyphosate, but that also include other chemicals.² While regulators have previously required extensive testing of glyphosate **in isolation**, government scientists have not fully examined the **toxicity of the more complex products sold to consumers, farmers and others.**”*

Major Pesticides Are More Toxic to Human Cells Than Their Declared Active Principles³

In [the only study](#) where nine formulated pesticides were tested on human cells at levels well below agricultural dilutions, the research scientists found that eight of the nine formulations were several hundred times more toxic than their respective active ingredients. The researchers stated:

Adjuvants in pesticides are generally declared as inerts, and for this reason they are not tested in long-term regulatory experiments. It is thus very surprising that they amplify up to 1000 times the toxicity of their AP [active principle] in 100% of the cases where they are indicated to be present by the manufacturer.”

Toxicity of formulants and heavy metals in glyphosate-based herbicides and other pesticides⁴

Defarge et al: *“The comparative effects of glyphosate alone and 14 of its formulations were studied. Petroleum-based compounds in herbicides were highly more toxic than glyphosate. We identified arsenic, chromium, cobalt, lead and nickel in pesticide formulations.”*

[Question asked by the Countess of Mar in the House of Lords on 22/01/2018:](#)⁵ *“To ask Her Majesty’s Government what assessment they have made of the findings of Defarge et al in [Toxicity of formulants and heavy metals in glyphosate-based herbicides and other pesticides](#) published in Toxicology Reports, volume 5, about the use of so-called inert ingredients in those chemical formulations.”* Lord Gardiner, Under-Secretary of State for Defra in the House of Lords replied: ***“The current system for regulating pesticides does assess the impacts of both active substances and formulated products.”*** Lord Gardiner is mistaken. This is a catastrophic error for human health and the environment.

The Monsanto Papers reveal that Roundup has never been tested by the company

¹ https://amp.theguardian.com/us-news/2018/may/08/weedkiller-tests-monsanto-health-dangers-active-ingredient?CMP=share_btn_tw&_twitter_impression=true

² <https://ntp.niehs.nih.gov/results/areas/glyphosate/index.html>

³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3955666/>

⁴ <https://www.sciencedirect.com/science/article/pii/S221475001730149X>

⁵ <https://www.theyworkforyou.com/wrans/?id=2018-01-08.HL4486.h&p=12904>

In the Monsanto papers, (internal company emails dating back 16 years, which emerged in a court case last year) offer a glimpse into the company's view. In one [2003 internal company email](#), a Monsanto scientist stated: "You cannot say that Roundup is not a carcinogen ... we have not done the necessary testing on the formulation to make that statement. The testing on the formulations are not anywhere near the level of the active ingredient."⁶ [Another internal email](#), written in 2010, said: "With regards to the carcinogenicity of our formulations we don't have such testing on them directly."⁷ And an [internal Monsanto email](#) from 2002 stated: "Glyphosate is OK but the formulated product ... does the damage."⁸

The European Chemicals Agency classified glyphosate as a substance causing serious eye damage and being toxic to aquatic life with long-lasting effects⁹

"On 15 March 2017 ECHA's Committee for Risk Assessment (RAC) agrees to maintain the current harmonised classification of glyphosate as a substance causing serious eye damage and being toxic to aquatic life with long-lasting effects. RAC concluded that the available scientific evidence did not meet the criteria to classify glyphosate as a carcinogen, as a mutagen or as toxic for reproduction."

On numerous occasions in 2017 I challenged Geert Dancet about ECHA's classification and asked why the European Commission and EFSA were prepared to relicence such a toxic chemical

I told him our nature reserve had been poisoned by Roundup, salmon and trout had disappeared from certain Welsh Rivers when Roundup had been sprayed on Giant Hogweed and the waiting list for cataract surgery in the England had doubled in 4 years. This was his final reply on 20/09/2017.

----- Forwarded Message -----

Subject:RE: US Lawsuit against Monsanto causing cancers

Date:Wed, 20 Sep 2017 06:34:28 +0000

From:DANCET Geert <Geert.DANCET@echa.europa.eu>

To:R MASON <rosemary.mason01@btinternet.com>

Dear Ms Mason,

Thank you for your email to ECHA dated 6 September.

As noted in our previous response, ECHA can only respond to glyphosate-related comments which concern the harmonised classification and labelling (CLH) process. We again stress that in the CLH process ECHA does not assess the risks of substances, only their hazards, in accordance with the provisions of the CLP Regulation. Hence ECHA is not in a position to respond to issues relating to the assessment of the risks associated with the use of glyphosate. ECHA is also not involved in the approval of the active substances used in plant protection products – the relevant decision-making process is ongoing in the European Commission.

ECHA's responses can only be restricted to issues which are within the remit of our Agency. The issues which you have raised in your email are either not within ECHA's remit or have been addressed in previous correspondence. To avoid repeating the same message, I wish to inform you that we will not be responding any correspondence received from you in future unless it raises any issues on which ECHA considers it has responsibility.

⁶ <https://usrtk.org/wp-content/uploads/2017/08/27-Internal-Monsanto-Email-You-Cannot-Say-That-Roundup-is-not-a-Carcinogen.pdf>

⁷ <https://usrtk.org/wp-content/uploads/2017/08/28-Internal-Email-Monsanto-Regarding-Lack-of-Testing-of-Carcinogenicity-of-Roundup-Formulation-1.pdf>

⁸ <http://baumhedlundlaw.com/pdf/monsanto-documents/37-Monsanto-Executive-Admits-Studies-Demonstrate-Formulated-Roundup-Does-the-Damage.pdf>

⁹ <https://echa.europa.eu/-/glyphosate-not-classified-as-a-carcinogen-by-echa>

Yours sincerely,

Geert Dancet

Executive Director

European Chemicals Agency

Annankatu 18, P.O. Box 400, FI-00120 Helsinki, Finland

Tel. +358 9 6861 8200

geert.dancet@echa.europa.eu

Koffi Dogbevi from Wisconsin-Madison Law School US and lawyer for the **International Monsanto Tribunal presented the case: ECOCIDE LAW AND MONSANTO PAST AND PRESENT ACTIVITIES.** ¹⁰

He wrote to me on 27 June 2017: *"It is interesting to see that ECHA's Committee for Risk Assessment (RAC) agreed to maintain the classification of glyphosate as a substance causing serious and irreversible effect on the eye (Eye Dam. 1, H318) and being toxic to aquatic life with long-lasting effects (Aquatic Chronic 2, H411), and at the same time reaching the conclusion that glyphosate is safe and non-hazardous. While this imbroglio seems to relate to the distinction between hazard (the intrinsic potential to cause harm) and risk (the probability of harm occurring at a given exposure), it is clear that any reasonable person would assert that a product causing an irreversible harm on the eye, and having a long-lasting toxicity impact on aquatic life, is likely a dangerous product."*

On 1 November 2014 Jean-Claude Juncker, President of the European Commission, wrote a letter of appointment to Frans Timmermans as First Vice President in charge of Better Regulation, Interinstitutional Relations, The Rule of Law and the Charter of Fundamental Rights.¹¹

More than 1 million citizens petitioned the European Commission for a glyphosate ban

This petition was launched in January 2017 and signed by 1,070,825 citizens. Commissioner Andriukaitis and Commissioner Timmermans listened to the European Citizens' Initiative on glyphosate.¹²

The European Commission renewed the license for glyphosate for 5 years on 12/12/2017

The Commission responds to European Citizens' Initiative and announces more transparency in scientific assessments. Despite this promise of future transparency, Commissioner Andriukaitis and Vice-President Timmermans declared the EU would renew the license for glyphosate for 5 years.

President Juncker signed the Commission Implementing Regulation renewing the approval of the active substance glyphosate¹³

*"In its opinion, the Committee for Risk Assessment of the Agency (European Chemicals Agency) concluded by consensus that on the basis of the information currently available, **no hazard classification for carcinogenicity is justified for glyphosate.**"* (Page 3).

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Why did President Juncker fail to state ECHA's risk assessment in full?

"On 15 March 2017 ECHA's Committee for Risk Assessment (RAC) agrees to maintain the current harmonised classification of glyphosate as a substance causing serious eye damage and being toxic to aquatic life with long-lasting effects." Jack de Bruijn and Geert Dancet of ECHA admitted this was the harmonised risk assessment reached in 2002, when glyphosate was last assessed.

¹⁰ https://www.academia.edu/29309281/ECOCIDE_LAW_AND_MONSANTO_PAST_AND_PRESENT_ACTIVITIES

¹¹ https://ec.europa.eu/commission/commissioners/2014-2019/timmermans_en

¹² http://europa.eu/rapid/press-release_IP-17-5191_en.htm

¹³

https://ec.europa.eu/food/sites/food/files/plant/docs/pesticides_glyphosate_commission_proposal_final_version.pdf

Why did the EU and Britain collude with Corporations that had made nerve gases in WW2 for chemical warfare and for use in the Nazi concentration camps?

They continued to use similar chemicals in agriculture to poison 'pests', that also poisoned beneficial insects, birds and people. This poisoning has finally come to pass.

I presume the Chemicals Regulation Division knew that Cancer Research UK was hijacked by the Agrochemical Industry in 2010 with the full knowledge of the UK government?

Michael Pragnell (CBE, awarded in 2016 for services to cancer) former Chairman of Cancer Research UK was founder of Syngenta and former Chairman of CropLife International.

This 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. Instead CRUK links cancer to life style choices: alcohol, obesity and smoking.

Cancer Research UK figures for 2015 and 2016 (that don't seem to have been published by the Corporate Media) shows the huge numbers of cancers that are killing people in the UK.

In Britain there were 13,605 new cases of Non-Hodgkin Lymphoma in 2015 (and 4,920 deaths in 2016) and each year the incidence is increasing despite the Francis Crick Institute's pledges¹⁴

41,804 new cases of bowel cancer in 2015 (and 16,384 deaths in 2016); 12,547 new cases of kidney cancer in 2015 (and 4,619 deaths in 2016); 5,736 new cases of liver cancer in 2015 (5,417 deaths in 2016); 15,906 new cases of melanoma in 2015 (2,285 deaths in 2016); 3,528 new cases of thyroid cancer in 2015 (382 deaths in 2016); 10,171 new cases of bladder cancer in 2015 (5,383 deaths in 2016); 8,984 new cases of uterine cancer in 2015 (2,360 deaths in 2016); 7,270 cases of ovarian cancer in 2015 (4,227 deaths in 2016); 9,900 new cases of leukaemia in 2015 (4,712 deaths in 2016); 55,122 new cases of invasive breast cancer in 2015 (11,563 deaths in 2016); 47,151 new cases of prostate cancer in 2015 (11,631 deaths in 2016); 9,211 new cases of oesophageal cancer in 2015 (8,004 deaths in 2016) and 5,540 new cases of myeloma in 2015 (3,079 deaths in 2016); 2,288 new cases of testicular cancer in 2015 (57 deaths in 2016); 9,921 new cases of pancreatic cancer in 2015 (9,263 deaths in 2016); 11,432 new cases of brain cancer in 2015 (5,250 deaths in 2016).

In the US in 2014 there were 24,050 new cases of myeloma.

Each year there are steady increases in the numbers of new cancers, and increases in deaths from the same cancers, with no treatments making any difference to the numbers.

The Francis Crick Institute with its 'world class resources' is failing to improve people's lives with its treatments, but is definitely strengthening the economy of the pesticides industry and the pharmaceutical industry¹⁵

"The Francis Crick Institute is a biomedical discovery institute dedicated to understanding the fundamental biology underlying health and disease. Its work is helping to understand why disease develops and to translate discoveries into new ways to prevent, diagnose and treat illnesses such as cancer, heart disease, stroke, infections, and neurodegenerative diseases.

An independent organisation, its founding partners are the Medical Research Council (MRC), Cancer Research UK, Wellcome, UCL (University College London), Imperial College London and King's College London. The Crick was formed in 2015, and in 2016 it moved into a brand new state-of-the-art building in central London which brings together 1500 scientists and support staff working collaboratively across disciplines, making it the biggest biomedical research facility under a single roof in Europe.

The Francis Crick Institute will be world-class with a strong national role. Its distinctive vision for excellence includes commitments to collaboration; to developing emerging talent and exporting it to

¹⁴ <http://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/non-hodgkin-lymphoma>

¹⁵ <https://www.crick.ac.uk/about-us/>

the rest of the UK; to public engagement; and to helping turn discoveries into treatments as quickly as possible to improve lives and strengthen the economy.”

The Francis Crick Institute is funded by the pesticides industry, the pharmaceutical industry and the British Government: Patrick Vallance from GSK appointed as UK Chief Scientific Officer

The election to the Royal Society in 2017 of Patrick Vallance from the pharmaceutical giant GlaxoSmithKline was astonishing. The former Editor of the *New England Journal of Medicine* Marcia Angell reported in 2008 that “*over the past two decades the pharmaceutical industry has gained unprecedented control over its own products.*”¹⁶ Drug companies now finance most clinical research over prescription drugs and there is mounting evidence they often skew the research they sponsor to make their drugs look better and safer.” On 2nd July 2012, GSK pleaded guilty to criminal charges and agreed to a \$3 billion settlement of the largest health-care fraud case in the U.S. and the largest payment by a drug company. “*The settlement is related to the company’s illegal promotion of prescription drugs, its failure to report safety data, bribing doctors, and promoting medicines for uses for which they were not licensed.*”¹⁷ In 2010 GSK Pandemrix vaccine was recommended by the British Government for swine flu. It caused severe narcolepsy in a significant number of patients.¹⁸ The government underwrote it so tax payers had to foot the bill. GSK donated the vaccine Cervarix to prevent cervical cancer to the Bill Gates’s vaccine programmes in India. The programme came under fire because after the vaccines were administered many girls started falling ill and there were seven deaths. Investigations of the scandal reported in the *Times of India* in 2014 revealed that the trial had been done without valid consent forms.¹⁹ I presume Patrick Vallance’s election to FRS was in preparation for his appointment as Chief Scientific Officer for the UK Government in March 2018, ‘to guide the UK through Brexit’.

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

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

Will Hutton wrote in *The Observer* on 1 January 2017: “*The British are in the midst of a critical health epidemic. In the 12 months to June 2016, the number of deaths jumped by the biggest absolute and relative amount since 1940 – a rise of 52,400. And this appears not solely to be an effect of a growing and ageing population, since the increase is spread across age groups. (Deaths rose by 12% among those aged 90 and over; 10% for 85-89; 7% for 80-84; 5% for 75-70; and 3% for those aged 55-74.) This is unprecedented in peacetime.*”²⁰

UK Mortality rates from 2014 the highest for 50 years: they continue to rise²¹

The period July 2014 to June 2015 saw an additional 39 074 deaths in England and Wales compared with the same period the previous year. While mortality rates fluctuate year-on-year, this was the largest rise for nearly 50 years and the higher rate of mortality has been maintained throughout 2016 and into 2017.

¹⁶ <https://ethicalnag.org/2009/11/09/neim-editor/>

¹⁷ <https://www.justice.gov/opa/pr/glaxosmithkline-plead-guilty-and-pay-3-billion-resolve-fraud-allegations-and-failure-report>

¹⁸ http://www.naturalnews.com/050767_swine_flu_vaccine_GlaxoSmithKline_Pandemrix.html

¹⁹ http://articles.economictimes.indiatimes.com/2014-08-31/news/53413161_1_hpv-vaccine-cervarix-human-papilloma-virus

²⁰ <https://www.theguardian.com/commentisfree/2017/jan/01/good-health-good-society-we-are-suffering>

²¹ <http://jech.bmj.com/content/71/11/1068>

Why are genetic defects increasing over such a short time? Gene changes must be due to environmental causes. Death rates are rising in Britain but experts are offering genetic testing, gene therapy and designer babies²²

“The race is on to sequence hundreds of thousands of genomes around the world, to help us more fully understand how our DNA makes us who we are. Meanwhile, gene therapies are finally making it into the clinic, and CRISPR gene editing promises to give us unprecedented control over our own genetic code. But to what extent are we defined by our genomes, and how should we use DNA sequence data to shape our lives?”

DDT, Agent Orange, Dioxins, PCBs, organochlorines and Roundup all cause genetic defects and are persistent in the environment

Monsanto set up a factory in Newport, Wales in 1949 where they manufactured toxic chemicals, including PCBs. In 1968 US documents showed that Monsanto tried to decide whether or not to come clean about the dangers of PCBs. Monsanto and the UK Government came to an agreement on PCBs in Wales. They stopped making PCBs in Anniston US in 1971 because of scandals about PCBs on the health of the population and wildlife. However, the British government led by Ted Heath agreed to ramp up production at their Monsanto plant in Newport. The UK government, which knew of the dangers of PCBs in the environment in the 1960s, allowed their production in Wales until 1977.²³

Alabama is more than 50 million square miles: Wales is 8,000 square miles. The toxic waste was illegally dumped at Brofiscin Quarry west of Cardiff (and in 5 other quarries in Wales). According to engineering company WS Atkins, in a report prepared for the agency and the local authority in 2005 **but never made public**, Brofiscin Quarry contains at least 67 toxic chemicals. Seven PCBs have been identified, along with vinyl chlorides and naphthalene. The unlined quarry is still leaking, the report says. *“Pollution of water has been occurring since the 1970s, the waste and groundwater has been shown to contain significant quantities of poisonous, noxious and polluting material, pollution of ... waters will continue to occur.”*²⁴

CONTAMINATION: The results of WWF-UK’s Bio-monitoring Survey November 2003²⁵

WWF visited 13 locations in England, Northern Ireland, Scotland and Wales in the summer of 2003 and took blood samples from 155 volunteers. Lancaster University analysed the samples for 78 chemicals: 12 organo-chlorine pesticides (including DDT and lindane), 45 PCB congeners and 21 polybrominated diphenyl ethers (PBDE) flame retardants, including those found in the commercially traded penta-, octa- and deca-BDEs. WWF believes that this survey provides the first data on the concentrations of PCBs, organo-chlorine pesticides and PBDEs in the UK population’s blood serum. Further, these results form the most comprehensive and largest data-set of organo-halogen chemical concentrations in humans in the UK in the last 10 years at least. In addition, the survey is the first that tries to link findings of chemical contamination to people’s lifestyles.

PCB and other organochlorine residues in the people of Wales

Duarte-Davidson *et al* studied PCBs and other organochlorines in 75 adipose tissue samples from human cadavers throughout 1990 and early 1991 from Welsh populations.²⁶ They commented on

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<http://view.e.newscientist.com/?qs=f00d496416a6fae50eafa492139af434d2e6d97302583b449ff420da99f0cc993c06b4068b94f1d7a84e242a1cbe04a826b0d91fde03f2876503399b8ee084e1657bf2ee2ca7a339154f624d0bccbd6f91752c95cae56bc9>

²³ <https://www.theguardian.com/guardian/2007/feb/12/frontpagenews.uknews>

²⁴

http://www.theecologist.org/The_Brofiscin_Monsanto_Files/777777/burying_the_truth_the_organic_ecologist_investigation_into_monsanto_and_brofiscin_quarry.html

²⁵ <http://www.wwf.org.uk/filelibrary/pdf/biomonitoringresults.pdf>

²⁶ <https://www.ncbi.nlm.nih.gov/pubmed/15091726>

the: *“little changes in the concentrations of these compounds in the Welsh population over the last decade, despite reduction in their use that came into force in the 1970s.”*

But they weren't aware that the Whitehall government had only reluctantly banned them in 1977 and had allowed Monsanto to stockpile the wastes in quarries all over Wales. In the study by WWF-UK in 2003, although it was small, a single person tested in Cardiff had: the highest level of chemicals (3105 ng/g lipid) tested for; the highest level of organochlorine pesticides tested for; and the highest level of total DDT and metabolites.

Biocides Regulations in the European Union makes a lot of money for ECHA

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. *“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.”*

A global industry has emerged to advise on Biocides Regulation. The British Government is making a lot of money out of it because BiocidesHub and the Yordas Groups are both 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.

There appears to be so much demand for places on REACH training courses that a new 'hub' has been set up in Lancaster. *“Originally founded as ‘The REACH Centre’ in 2007, the Company was set up to meet the needs of industry to comply with the EU REACH Regulation. From its inception, substantial re-investment allowed the business to rapidly expand and develop capacity in a wealth of new scientific and regulatory disciplines. Chemtrac, our globally renowned on-line product stewardship management system was introduced in 2011. In order to reflect the increasingly diverse nature of our business and research activities, the Company was re-branded as ‘Yordas Group’ and from 01/11/2017 is based in Lancaster Environment Centre.”*²⁷ According to Chemical Watch's Training Manager, they run separate training courses for REACH but sometimes they run training courses together which Chemical Watch organise and facilitate. **BIOCIDES HAVE NO PLACE IN AGRICULTURE. A BIOCIDES IS A SUBSTANCE THAT IS KILLING ALL LIFE.** Biocides are also used in industrial processes.

The Letter from America in 2014²⁸

Why did the EU regulators, Defra and David Cameron, on behalf of the British Government, ignore the Letter from America, from nearly 60 million citizens, warning them not to authorize GM Crops and Roundup because of their toxicity to human health and the environment?

Where have all the insects and birds gone as a result of chemically intensive agriculture?

The UK, Germany, France, Denmark and Canada are rapidly losing biodiversity. The US Farmland growing GM Roundup Ready crops has become a biological desert.

²⁷ <https://www.yordasgroup.com/about-us>

²⁸ <https://www.theletterfromamerica.org>

Living Rivers Council, Napa Valley, California submits expert comments on glyphosate and its 'inert' substances in formulation to the US EPA²⁹ Patrick Higgins Consulting Fisheries Biologist

"While the U.S. EPA studies the health and ecological effects of pure glyphosate, numerous studies show that binders can increase harmful effects and lethality. These substances can act with glyphosate but may also be toxic when acting alone."

"It is time that the U.S. EPA gave greater emphasis to consideration of ecological impairment (Vera et al. 2012). The chemicals you are setting up to reauthorize under this review are killing the bees that pollinate plants, the frogs and aquatic biota, and worms and other soil organisms that create living soils. In short, allowing continuing use of these chemicals is killing the ecosystems and soils that support agriculture and human life. The impending agricultural collapse brought on by this chemically dependent monoculture will have huge consequences in terms of human suffering and possibly put our survival as a species at risk. I became extremely well versed in the use of pesticides and herbicides and their ecological impact while working on the Salinas River for the Monterey Coastkeeper and the Stanford Environmental Law Center (Higgins 2009). I found that the synergistic effects of pesticides and herbicides were driving Pacific salmon species extinct in the San Joaquin River and causing the ecological collapse of the San Francisco Bay-Delta ecosystem. I urge you not to re-authorize the license for the use of Roundup and make the company pay for monitoring of AMPA and POEA in the environment. If the amount of heavy metals in glyphosate-based herbicides found by Defarge et al. (2018) is routine, then the U.S. EPA must move immediately to have them prevent such toxic contaminants and issue appropriate fines for current heavy metal pollution attendant with use of Roundup."

A court case against Monsanto for mislabelling Roundup and thus poisoning the public

In April 2017 in the US, two organisations Beyond Pesticides and the Organic Consumers' Association, initiated a Court Case against Monsanto on behalf of the public, claiming that the company is deceiving the public with a safety claim on its Roundup (formulated glyphosate) label.³⁰ Its advertising and labelling claim that Roundup 'targets an enzyme found in plants but not in people or pets' is false, given the devastating harm that glyphosate has on beneficial bacteria in the gut biome. The disruption of the gut biome is associated with a host of 21st century diseases, including asthma, autism, bacterial vaginosis, cardiovascular disease, cancer, Crohn's disease, dementia, depression, inflammatory bowel disease, leaky gut syndrome, multiple sclerosis, **obesity**, Type 1 and 2 diabetes, and Parkinson's Disease.'

Monsanto asked that the case be dismissed, but the judge has given leave for the Court case to go ahead (May 2018).³¹ This means that he believes they have a strong chance of Monsanto being convicted for false labelling.

Genetically-engineered crops, glyphosate and the deterioration of health in the United States of America. Swanson et al.³²

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.

²⁹ <http://winewaterwatch.org/2018/05/living-rivers-council-submits-expert-comments-on-glyphosate-and-its-inert-substances-in-formulation-to-the-epa/>

³⁰ https://www.organicconsumers.org/sites/default/files/roundup_dc_complaint_final_1.pdf

³¹ https://sustainablepulse.com/2018/05/07/us-judge-gives-green-light-to-misleading-roundup-label-lawsuit-against-monsanto/?utm_source=newsletter&utm_medium=email&utm_campaign=gmos_and_pesticides_global_breaking_news&utm_term=2018-05-09#.WvQeGi97F0s

³² http://www.organic-systems.org/journal/92/JOS_Volume-9_Number-2_Nov_2014-Swanson-et-al.pdf

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.*

Roundup used for desiccation of crops since 1980 in Britain

In the UK, some farmers have been spraying Roundup on crops pre-harvest at the suggestion of a Monsanto Scientist since 1980.³³ In 1980 UK ADAS³⁴ (at that time the science and advisory branch of Ministry of Agriculture, Fisheries and Food (MAFF) but now privatised) was recommending that arable farmers use pre-harvest application of Roundup on cereal crops.

Total weight of glyphosate (Roundup) applied in 2016 to crops in the UK, ten times that in 1990

FERA Science³⁵ (privatised in 2015 with a 75% stake from Capita, a private firm that collapsed in 2017) statistics show total weight applied in 2016 to all crops in the UK was **2,240,408 kg**. In 1990, it had been **226,782 kg**, an almost 10-fold increase since then.

The Royal Society of Medicine Conference on pesticides safety in November 2017

At the Royal Society of Medicine Conference on pesticide safety the Soil Association presented alarming figures. Under FOI request FERA Science (previously a government agency, now privatized) provided figures that showed that the number of active ingredients applied to wheat had risen **12-fold** from 1.7 in 1974 to 20.7 in 2014; that those applied to potatoes had risen **5.8** times from 5.3 in 1975 to 30.8 in 2014; that those applied to onions and leeks had risen **18-fold** from 5.3 in 1975 to 30.8 in 2014? Pesticides are tested individually but no one tests the cocktail of pesticides to which humans and the environment are exposed. **The Chief Scientist for Defra Professor Ian Boyd** pointed out that once a pesticide is approved there is no follow up.

Dr Michael Antoniou, head of the Gene Expression and Therapy Group at King's College London, told the Royal Society of Medicine conference that the adjuvants in commercial pesticide formulations can be toxic in their own right and in some cases more toxic than the declared active ingredients. Yet only the active ingredients are tested and assessed for long-term health effects in the regulatory process. Dr Antoniou also said that research on hormone-disrupting chemicals, including pesticides, shows that very low realistic doses can be more toxic than higher doses. Professor Carl Leifert talked

³³ <http://www.hgca.com/media/185527/is02-pre-harvest-glyphosate-application-to-wheat-and-barley.pdf>

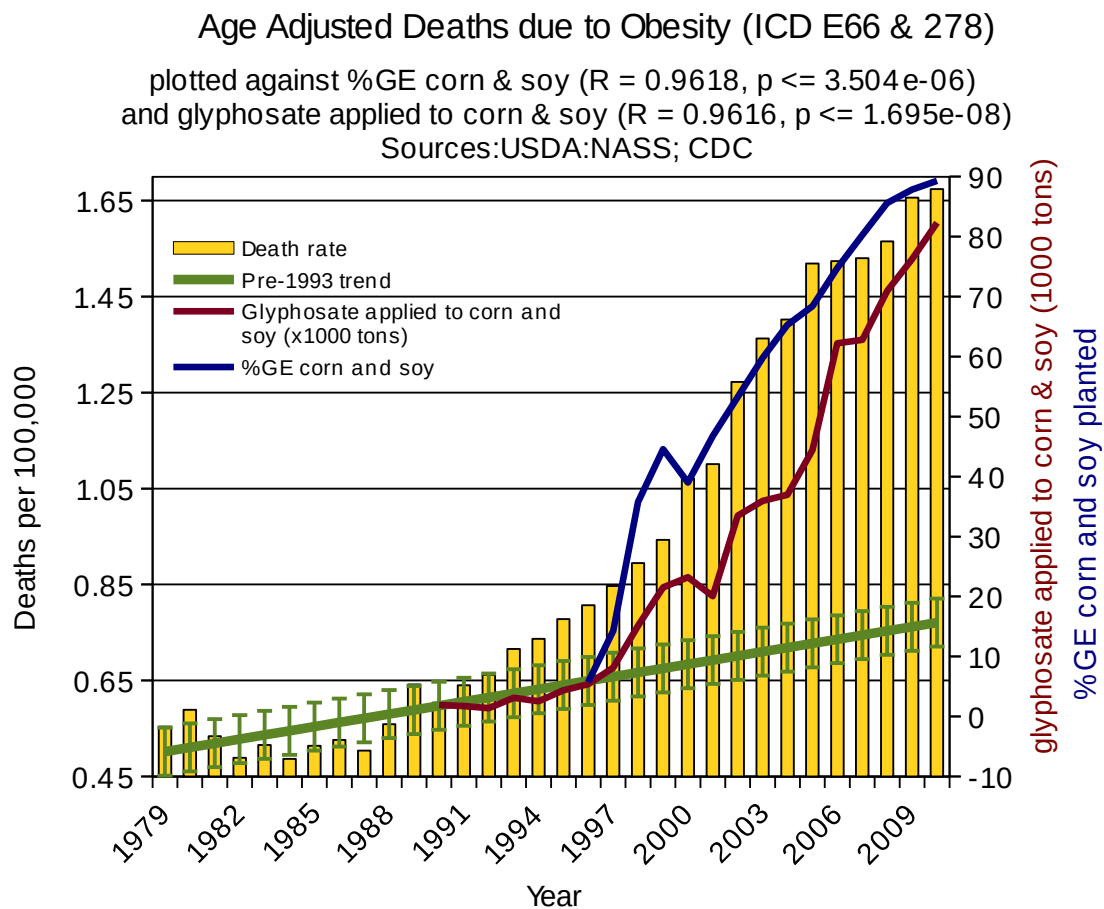
³⁴ ADAS is now the UK's largest independent provider of agricultural and environmental consultancy, rural development services and policy advice; formerly a branch of Ministry of Agriculture, Fisheries & Food. (MAFF)

³⁵ <https://secure.fera.defra.gov.uk/pusstats/myresults.cfm>

about pesticides linked to low sperm quality. In a recent study, published in JAMA Internal Medicine, Harvard researchers followed 325 women at an infertility clinic and found that women who regularly ate pesticide-treated fruits and vegetables had lower success rates getting pregnant with IVF, while women who ate organic food had reduced risk of pregnancy loss and increased fertility.³⁶ However, Dave Bench Head of UK Chemicals Regulation Division described the regulatory system for pesticides, “*as robust and as balancing the risks of pesticides against the benefits to society.*”

Correlations between GE Crops, glyphosate and many 21st century diseases³⁷

The three graphs below (out of 22) are reproduced by kind permission of Dr Nancy Swanson from their paper *Genetically-engineered crops, glyphosate and the deterioration of health in the United States of America* to illustrate the strong correlations between glyphosate (Roundup) and health problems. The full list is on page 8.

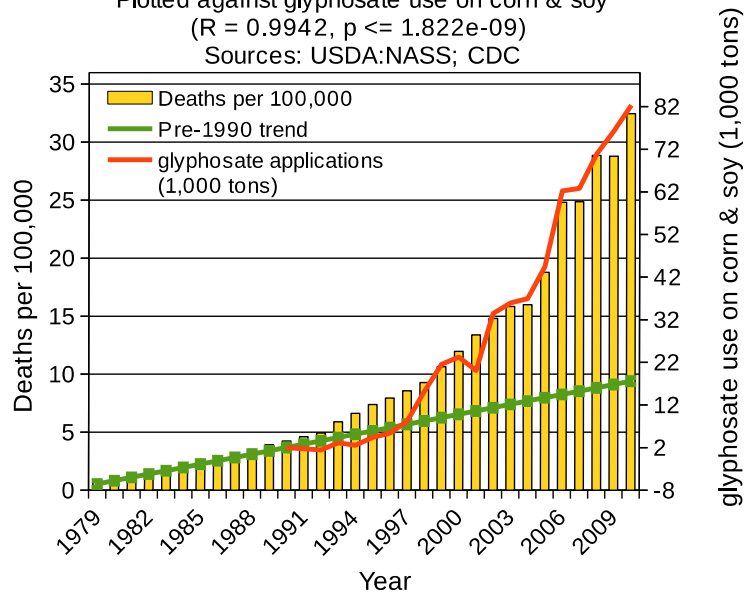


³⁶ <https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2659557>

³⁷ http://www.organic-systems.org/journal/92/JOS_Volume-9_Number-2_Nov_2014-Swanson-et-al.pdf

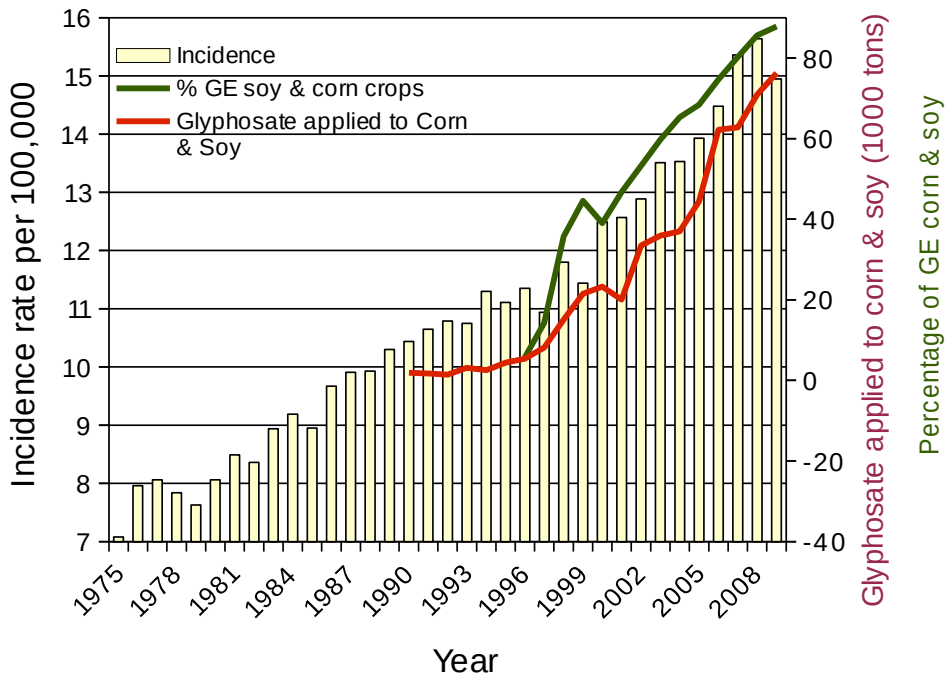
Age Adjusted Deaths from Senile Dementia (ICD F01, F03 & 290)

Plotted against glyphosate use on corn & soy
($R = 0.9942$, $p \leq 1.822e-09$)
Sources: USDA:NASS; CDC



Age Adjusted Kidney and Renal Pelvis Cancer Incidence

Plotted against glyphosate applied to corn & soy ($R = 0.9734$, $p \leq 1.98e-08$)
along with %GE corn and soy planted in U.S. ($R = 0.94$, $p \leq 1.978e-05$)
sources: USDA:NASS; SEER



The Countess of Mar chaired a meeting of the All-Party Parliamentary Group (APPG) on Agroecology in the Houses of Parliament in London on June 18, 2014 ³⁸

The meeting discussed the harm caused by the world's most popular herbicide – Roundup®. People from all round the world met to listen to four experts. The first expert to speak was Dr Don Huber, Plant scientist, Emeritus Professor Purdue University. He produced two crucial slides of facts about glyphosate (Roundup).

One was a picture of an octopus: each arm is used to describe the multiple actions of the biocide glyphosate: Mineral chelating agent (previously used for cleaning boilers) 'grabbing' minerals such as Boron, Ca, Co, Cu, Fe, K, Mg, Mn, Ni and Zn that are essential to metabolic processes and absorption of amino acids; Growth regulator; Antibiotic; Herbicide; Toxicant; Virulence enhancer; Organic phosphonate; Persistent in the environment.

The second was the epidemic of diseases in the US that have increased between 1995 and 2011 and are linked to glyphosate (Roundup): the incidence of the same diseases has increased in the UK over that time. Alzheimer's disease, Dementia, Autism, ADHD Bipolar, Diabetes (Type 2) Multiple sclerosis, Motor-neurone Disease, Obesity, Stroke, Hypertension, Cataracts & eye diseases, Inflammatory bowel disease, Birth defects, Colitis, Crohn's disease, Hypercholesterolaemia, Allergies, asthma, Atopic dermatitis, Miscarriage/ infertility, Renal disease/failure, Liver abnormalities, Coeliac disease, Gluten intolerance, Pancreatic abnormalities, Autoimmune diseases, Arthritis and **cancers**.

The meeting wasn't reported by the UK Corporate Media. Why are they protecting the British Government and the agrochemical industries? The BBC which has its license fee paid by the public is actually promoting GM crops. However, the BBC Complaints Unit rejects any complaints of bias!

Invertebrates are the canaries in the coal-mine

Canaries were formerly sited in coal mines, so that if they died, it was a warning that conditions were not suitable for humans. I reported to CRD/Defra and HSE from 2014 onwards that insects were being gradually poisoned by Roundup in our small nature reserve and biodiversity was slowly declining. I requested them to stop Swansea City and County Council from authorizing Complete Weed Control to spray Roundup/Dakar Pro on Japanese knotweed, but they refused because '*Roundup was still legal*'. Did Lord Gardiner the Under-Secretary of State for Defra know that only the active ingredient glyphosate was tested in the EU? From his reply to the Countess of Mar "***The current system for regulating pesticides does assess the impacts of both active substances and formulated products***" he had no idea that Monsanto had not fully tested Roundup. Defra must have provided him with his reply so they were clearly unaware.

Eventually I was invited to fill in an HSE incident form documenting events from 2014 to 2017 during which time our nature reserve was being poisoned by Roundup. This was their reply.

Subject:Concern submitted to HSE

Date:Mon, 13 Nov 2017 12:45:07 +0000

From:noreplyconcerns@hse.gov.uk

To:rosemary.mason01@btinternet.com

Dear Dr Mason,

Thank you for your concern about glyphosate use in Swansea dated 27 October 2017.

We have considered the information you have provided and consulted other colleagues in HSE. We will not be investigating as there doesn't appear to be any breach of legislation enforced by HSE.

³⁸ <https://sustainablepulse.com/2014/07/02/uk-parliamentary-meeting-brings-dangers-roundup-public-focus/#.WsjZe2bMygQ>

You have received HSE's comments and views about the product and its application in earlier correspondence.

Regards

Concerns Team

Health and Safety Executive

This is a no-reply email account. Replies will not be received at HSE

The BfR Renewal Assessment Report (RAR) on Ecotoxicity³⁹

The German Federal Institute for Risk Assessment (BfR) evaluation of peer-reviewed literature regarding ecotoxicity broadly concluded that glyphosate was not harmful to the environment. I disputed this with the European Food Safety Authority (EFSA) and the European Commission. But ECHA's Risk Assessment Committee classified glyphosate as a substance that caused severe eye damage and was **toxic to aquatic life with long lasting effects so BfR and EFSA were lying.**

Did Monsanto Europe instruct the European Commissioners not to reveal glyphosate's toxic effects on aquatic life? Indeed, President Juncker deviously signed the Commission Implementing Regulation renewing the approval of the active substance glyphosate without declaring this fact⁴⁰

*"In its opinion, the Committee for Risk Assessment of the Agency (European Chemicals Agency) concluded by consensus that on the basis of the information currently available, **no hazard classification for carcinogenicity is justified for glyphosate.**"*

The 27-year decline of coral cover on the Great Barrier Reef and its causes (published in 2013)⁴¹

Extracts: Based on the world's most extensive time series data on reef condition (2,258 surveys of 214 reefs over 1985–2012), we show a major decline in coral cover from 28.0% to 13.8% ($0.53\% \text{ y}^{-1}$), a loss of 50.7% of initial coral cover. Tropical cyclones, coral predation by crown-of-thorns starfish (COTS), and coral bleaching accounted for 48%, 42%, and 10% of the respective estimated losses amounting to $3.38\% \text{ y}^{-1}$ mortality rate. Importantly, the relatively pristine northern region showed no overall decline. Thus, reducing COTS populations, by improving water quality and developing alternative control measures, could prevent further coral decline and improve the outlook for the Great Barrier Reef.

Report by the Queensland Government in 2003 on water quality⁴²

"Regional assessments of coastal water quality condition found that sites in the Burdekin, Mackay/Whitsunday and south-east Queensland regions most commonly experienced poor water quality. Phosphorus and nitrogen were the two indicators contributing to this rating. Metals bioaccumulated in prawns, shellfish and other marine fauna were greatest in south-east Queensland waterways, particularly canals, and occasionally exceeded Australian food quality standards. In central and north Queensland, the persistence of pesticides and herbicides, including a number of banned substances, in sediment, seagrass and some marine mammals is an issue."

Herbicides: A new threat to the Great Barrier Reef⁴³

In 2009, researchers showed runoff of herbicides particularly associated with sugar cane cultivation in the adjacent catchment.

³⁹ Renewal Assessment Report Vol 3 Annex B9. Evaluation of peer-reviewed literature regarding ecotoxicity
⁴⁰

https://ec.europa.eu/food/sites/food/files/plant/docs/pesticides_glyphosate_commission_proposal_final_version.pdf

⁴¹ <http://www.pnas.org/content/109/44/17995.full>

⁴² <https://web.archive.org/web/20070614223713/http://www.epa.qld.gov.au/register/p01258bs.pdf>

⁴³ <https://www.sciencedirect.com/science/article/pii/S0269749109001304>

Abstract: The runoff of pesticides (insecticides, herbicides and fungicides) from agricultural lands is a key concern for the health of the iconic Great Barrier Reef, Australia. Relatively low levels of herbicide residues can reduce the productivity of marine plants and corals. However, the risk of these residues to Great Barrier Reef ecosystems has been poorly quantified due to a lack of large-scale datasets. Here we present results of a study tracing pesticide residues from rivers and creeks in three catchment regions to the adjacent marine environment. Several pesticides (mainly herbicides) were detected in both freshwater and coastal marine waters and were attributed to specific land uses in the catchment. Elevated herbicide concentrations were particularly associated with sugar cane cultivation in the adjacent catchment. We demonstrate that herbicides reach the Great Barrier Reef lagoon and may disturb sensitive marine ecosystems already affected by other pressures such as climate change.

Is global warming solely responsible for the bleaching events on the Great Barrier Reef?

"We've now seen four bleaching events (1998, 2002, 2016 and 2017) on the Great Barrier Reef with one degree (Celsius) of global average warming," said Prof Terry Hughes, Director of Coral Reef Studies at the James Cook University, Australia, in a Report published in April 2018.

No! The Great Barrier Reef has been poisoned as much by pesticide runoff as by global warming

Instructions for using Roundup Advance AG Herbicide by Monsanto include: "*Protection of Wildlife, Fish, Crustacea and Environment. Do not contaminate dam, river or stream with the product.*"⁴⁴

Clothianidin (Sumitomo Shield a long-acting systemic neonicotinoid insecticide) has been granted registration by APVMA for use on very low-lying sugar cane plantations.

Instructions: PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT⁴⁵

*DO NOT apply under weather conditions, or from spraying equipment, that may cause spray drift onto nearby or adjacent areas, particularly wetlands, water-bodies or watercourses. **This product is highly toxic to aquatic invertebrates.** DO NOT contaminate streams, rivers or waterways with the chemical or used containers. DO NOT apply when there are aquatic and wetland areas including aquacultural ponds or surface streams and rivers downwind from the application area and within the mandatory no-spray zone shown in table 1.*

Sustaining Life: How Human Health Depends on Biodiversity⁴⁶

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*"

Eric Chivian and Aaron Bernstein co-edited the above book, which includes contributions from more than 100 leading biodiversity and health scientists. It was published in June 2008 by Oxford University Press and was co-sponsored by the United Nations Development Programme, the United Nations Environment Programme, the Secretariat of the Convention on Biological Diversity and the World Conservation Union. None of these distinguished bodies appear to have any power, money or appetite to challenge the agrochemical corporations.

21/12/2017 Independent US Scientists sound alarm over global mass poisoning⁴⁷

Editorial: Regulating toxic chemicals for public and environmental health: Lisa Gross and Linda Birnbaum. Seven papers document failures of the system.

"By the time President Gerald Ford signed the United States Toxic Substances Control Act in the fall of 1976, tens of thousands of synthetic chemicals had entered world markets with no evidence of their safety..." Ford's signing statement described a law giving the Environmental Protection Agency (EPA)

⁴⁴ <http://websvr.infopest.com.au/LabelRouter?LabelType=L&ProductCode=70096>

⁴⁵ http://www.sumitomo-chem.com.au/sites/default/files/pdf/labels/shield_label.pdf

⁴⁶ <https://global.oup.com/academic/product/sustaining-life-9780195175097?cc=gb&lang=en&>

⁴⁷ [PLOS Biology Explores Gaps between Environmental Health Science and Policy | PLOS Blogs Network](#)

broad regulatory authority to require toxicity testing and reporting to determine whether the chemicals posed risks. "If a chemical is found to present a danger to health or the environment," Ford promised, "appropriate regulatory action can be taken before it is too late to undo the damage." That's not what happened. The 60,000-plus chemicals already in commerce were grandfathered into the law on the assumption that they were safe. And the EPA faced numerous hurdles, including pushback from the chemical industry that undermined its ability to implement the law. Several articles explore the failure of regulations to keep hazardous chemicals from polluting our food, air, and drinking water. Maricel Maffini and her colleagues describe the failure of regulators to account for health risks associated with the thousands of chemicals introduced into the food system since 1958, when Congress authorized the Food and Drug Administration to ensure the safety of substances added to food. Chemicals from agriculture, industry, and other commercial uses routinely enter drinking water supplies."⁴⁸

Neurotransmitter changes in the brain from exposure to Glyphosate-based herbicides: The Glyphosate Task Force excluded papers from South America where GM Roundup Ready crops have been grown since 1996

Behavioral impairments following repeated intranasal glyphosate-based herbicide administration in mice.⁴⁹ *Taken together, our findings demonstrate that intranasal (IN) exposure to commercial Glyph-BH produces alterations in locomotor activity, anxiety and memory in adult mice. These observations could be a consequence of alterations in neurotransmission systems comprising the GABAergic, dopaminergic, serotonergic and/or cholinergic systems."* In this research paper there are references to many papers from around the world that confirm the glyphosate-based herbicides are damaging to the development of the foetal brain and that repeated exposure is toxic to the adult human brain and may result in alterations in locomotor activity, feelings of anxiety and memory impairment.

Martínez, M. A., Ares, I., Rodríguez, J. L., Martínez, M., Martínez-Larrañaga, M. R., & Anadón, A. (2018). Neurotransmitter changes in rat brain regions following glyphosate exposure. *Environmental Research*, 161, 212-219.⁵⁰

Highlights:

- Glyphosate oral exposure caused neurotoxicity in rats.
- Brain regions were susceptible to changes in CNS monoamine levels.
- Glyphosate reduced 5-HT, DA, NE levels in a brain regional- and dose-related manner.
- Glyphosate altered the serotonergic, dopaminergic and noradrenergic systems.

Mechanisms underlying the neurotoxicity induced by glyphosate-based herbicide in immature rat hippocampus: Involvement of glutamate excitotoxicity.⁵¹

Violent Behavior: A Solution in Plain Sight

Why is there an increasing incidence in unsociable behaviour, disorder, aggression, gun crime, and brutality in the US and the UK? This paper by Sylvia Onusic, PhD, CNS, LDN, seeks reasons for the increase in violent behaviour in America, especially among teenagers. She identifies malnutrition, vitamin and micronutrient deficiency as potent causes of aberrant behaviour, crime and the spectrum of autistic diseases. She says: *"Some children have been corrected by a proper diet free of junk food."*⁵² These are precisely the effects of exposure to glyphosate and other chemicals in food.

⁴⁸ <http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.2004814>

⁴⁹ <https://www.sciencedirect.com/science/article/pii/S0892036217301526>

⁵⁰ <https://www.sciencedirect.com/science/article/pii/S0013935117316730>

⁵¹ <https://www.sciencedirect.com/science/article/pii/S0300483X14000493>

⁵² <http://www.westonaprice.org/environmental-toxins/violent-behavior-a-solution-in-plain-sight/pdf>

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

Prof T Colin Campbell also identifies our “neglect of the remarkable ability of nutrition to promote health and decrease illness.”⁵³ He quotes Hippocrates: “Let food be thy Medicine.” “Can diet cure disease, and not just prevent it? Scientific evidence is accumulating that diets which emphasize consumption of plants and which avoid meat and dairy products can rapidly reverse common and life-threatening chronic diseases such as diabetes and heart disease. For these and other common diseases research is showing that a diet-based cure is much more effective than current medical treatments which are largely ineffectual, expensive, and plagued by side effects. These important facts about the power of nutrition are not widely known, however. **That is because they simultaneously challenge the food industry, the pharmaceutical industry, and the medical profession.**” Professor Campbell also asked why cancer research has stalled.⁵⁴

“The non-mutagenic nutrition effects we observed in our research on cancer development closely resemble the nutrition-based effects known to dramatically reverse other diseases, including advanced coronary heart disease and diabetes (Esselstyn 2014 and Barnard 2009). These nutrition-based effects have been observed as a result of the dietary lifestyle composed of whole plant-based foods without added oil and refined carbohydrates. The benefits are truly remarkable, broad in scope, and surprisingly rapid in response (Campbell and Campbell 2005; Campbell 2013).”

Paul Ehrlich biologist confirms the collapse of civilization and the sixth mass extinction⁵⁵

Damian Carrington interviews Professor Paul Ehrlich: “A shattering collapse of civilisation is a “near certainty” in the next few decades due to humanity’s continuing destruction of the *natural world that sustains all life on Earth*, according to biologist Prof Paul Ehrlich.” ...there is an increasing toxification of the entire planet by synthetic chemicals that may be more dangerous to people and wildlife than climate change. Ehrlich also says an unprecedented redistribution of wealth is needed to end the over-consumption of resources, but “the rich who now run the global system – that hold the annual ‘world destroyer’ *meetings in Davos* – are unlikely to let it happen”. Ehrlich is also concerned about chemical pollution, which has already reached the *most remote corners of the globe*. “The evidence we have is that toxics reduce the intelligence of children, and members of the first heavily influenced generation are now adults.”

He treats this risk with characteristic dark humour: “The first empirical evidence we are dumping down Homo sapiens were the Republican debates in the US 2016 presidential elections – and the resultant *kakistocracy*. On the other hand, toxification may solve the population problem, since *sperm counts are plunging*.”

Few will escape these silent killers; they are in our food, water, rainfall and the air we breathe

Few can avoid the pollution of water, soil and air by genotoxic and teratogenic herbicides, insecticides and other industrial chemicals. Governments and Regulators only measure a small fraction of them. Human health depends on biodiversity. Food depends on natural pollinators. The devastating effects of these silent killers on us and our environment do not distinguish between farmers or city dwellers, the wealthy or the poor, between media moguls, editors or their reporters, Monsanto or Syngenta Executives, Prime Ministers or Presidents. Humans and the environment are being silently poisoned by thousands of untested and unmonitored chemicals.

Rosemary Mason 14 May 2018

⁵³ <http://www.independentsciencenews.org/health/the-healthcare-doctors-forgot-ordinary-food-will-be-the-new-medicine>

⁵⁴ <https://www.independentsciencenews.org/health/why-cancer-research-has-stalled/>

⁵⁵ <https://www.theguardian.com/cities/2018/mar/22/collapse-civilisation-near-certain-decades-population-bomb-paul-ehlich>