

A Letter from America about the dangers of GM Crops and glyphosate

March 2

2016

An Open Letter from America was sent on 11 November 2014, warning countries in Europe and EU regulators not to authorize GM crops because of the devastating effects on human health and the environment. 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 ignored it as well and have continued to approve GM Crops for growing and for food and feed in the EU. Defra dismissed the complaints of Crop-sprayed rural residents in the UK of ill health: cancers, neurological conditions, allergies etc. just as the Argentinian Government dismissed the health complaints of rural communities in Crop-sprayed towns. In their re-assessment the RMS, EFSA and the European Glyphosate Task Force excluded papers from Latin America where cancers, birth defects, infertility and DNA changes were shown. Exposure of the brains of unborn and young children in the UK to chemicals is reflected in OECD PISA figures for declining educational achievement in 2013. A 2016 study also shows that in England the young have lower basic skills than their counterparts in Europe. The global élite may be able to survive by eating organic food, but not by 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. The chemical industry has created a toxic environment from which none can escape. The devastating effects of these silent killers in 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. Many people in the UK are no longer reaching the biblical age of three-score-years-and ten because they are dying of cancers.

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

CONTENTS

COLLUSION OF THE BRITISH GOVERNMENT, THE DEPARTMENT OF HEALTH, PUBLIC HEALTH ENGLAND, THE WELLCOME TRUST AND THE MEDIA <u>WITH</u> THE AGROCHEMICAL INDUSTRY AND <u>AGAINST</u> THE PUBLIC	1
UK SCIENCE MEDIA CENTRE IS SPONSORED BY CORPORATIONS: IT IS HOSTED BY THE WELLCOME TRUST AND PREACHES THE GOSPEL ACCORDING TO 'SAINT MONSANTO'	6
CONFLICTS OF INTEREST AND LOBBYING IN THE RE-ASSESSMENT OF GLYPHOSATE IN THE EU	7
INDEPENDENT SCIENTISTS HAVE PROOF THAT GLYPHOSATE, ITS CO-FORMULANTS AND FORMULATIONS ARE ENDOCRINE DISRUPTING CHEMICALS. WIDESPREAD AND INCREASING USE WILL EVENTUALLY DESTROY ALL LIFE FORMS. IT HAS DELETERIOUS EFFECTS ON HUMANS AND ANIMALS ALIKE. IT DAMAGES THE LIVER AND KIDNEYS CAUSES CANCERS, BIRTH DEFECTS AND HAS ANTIBIOTIC AND MINERAL CHELATING ACTIONS. THE BODY IS DEPRIVED OF MICRONUTRIENTS AND AMINOACIDS ESSENTIAL FOR METABOLISM. WHEN EXPOSED, THE DEVELOPING FOETUS, INFANTS AND CHILDREN ARE MOST AT RISK TO CHRONIC DISEASES IN LATER LIFE. FINALLY THE REGULATORY AUTHORITIES DO NOT ASSESS GLYPHOSATE IN COMBINATION WITH THE HUNDREDS OF OTHER CHEMICALS APPLIED TO THE SOIL BY FARMERS. (SEE APPENDIX PAGE 32)	12
STATEMENT OF BRITISH MEDICAL ASSOCIATION ON GM FOODS	17
STATEMENTS ON EXPOSURE TO CHEMICALS DURING EMBRYONIC, FOETAL AND INFANT LIFE	18
THE PROMOTION OF THE AGROCHEMICAL INDUSTRY BY THE BBC	21
THE WEEK IN SCIENCE: 22–29 FEBRUARY 2016	23
WHAT IS THE DIFFERENCE BETWEEN PESTICIDES AND CHEMICAL WEAPONS?	28
MONSANTO TO BE PUT ON TRIAL AT INTERNATIONAL CRIMINAL COURT IN THE HAGUE	30
APPENDIX	32

Second Open Letter to the British Medical Association

COLLUSION OF THE BRITISH GOVERNMENT, THE DEPARTMENT OF HEALTH, PUBLIC HEALTH ENGLAND, THE WELLCOME TRUST AND THE MEDIA WITH THE AGROCHEMICAL INDUSTRY AND AGAINST THE PUBLIC

The BMA failed to reply to my first Open Letter in June 2015. In July 2015 the BMA Science Committee informed me that they did not 'have the capacity' to consider the WHO/IARC statement on glyphosate as a 2A carcinogen

However, countries around Europe have announced bans (see below). The President of the Portuguese Medical Association, José Manuel Silva, has called for a Global ban on Glyphosate,

over the many health concerns surrounding the chemical.¹ The International Society of Doctors for the Environment (ISDE) made an Appeal: *“To immediately and permanently ban, with no exceptions, the production, trade and use in all EU territory of glyphosate-based herbicides and the four insecticides assessed by IARC”*.²

The BMA stands isolated in Europe and wonders why the UK National Health Service is failing compared with the rest of Europe.

The Soil Association’s Campaign NOT IN OUR BREAD:³ the UK’s position ‘is anomalous’ Meeting on 15 July 2015 in London between the Soil Association and a Scientific Panel⁴

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

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

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

Glyphosate is also in beer⁵ whisky and wine⁶ and the majority of our non-organic foods⁷

The Munich Environmental Institute (Umweltinstitut München) has released shocking results on 25/02/2016 of laboratory testing it has completed on 14 of the most sold beers in Germany. The probable carcinogen and World’s most used herbicide – glyphosate – was found in all of the 14 beers tested. The UK Chemicals Regulation Directorate (CRD) has authorised more than 300 pesticides to be applied to crops and the National Farmers’ Union (NFU) leaders continue defend their use.

Is the BMA part of the Government and Agrochemical Industry plans to get GM crops into Britain?

GeneWatch UK using requests under the Freedom of Information Act and the Environmental Information Regulations (known as Fols) showed that a secret meeting was held with the Agrochemical Industry in June 2012 to try to get GM crops into Britain⁸ and in May 2014 that the UK Government and the GM industry were colluding to promote GM crops and foods, undermine

¹ <http://sustainablepulse.com/2016/02/09/portuguese-medical-association-president-calls-for-global-ban-on-glyphosate/#.Vr81wtCG7wx>

² http://isde.org/Appeal_glyphosate_IARC.pdf

³ <http://www.soilassociation.org/notinourbread>

⁴ <http://www.soilassociation.org/news/newsstory/articleid/8110/soil-association-calls-for-ban-on-glyphosate-the-world-s-most-widely-sold-weedkiller>

⁵ <http://sustainablepulse.com/2016/02/25/german-beer-industry-in-shock-over-probable-carcinogen-glyphosate-contamination/>

⁶ <http://www.grainfarmers.co.uk/seeddownloads/Roundup%20on%20seed%20%20milling%20and%20malting.pdf>

⁷ [http://www.pan-uk.org/files/Pesticides%20in%20Your%20Daily%20Bread%20guide%20-%20FINAL%20\(1\).pdf](http://www.pan-uk.org/files/Pesticides%20in%20Your%20Daily%20Bread%20guide%20-%20FINAL%20(1).pdf)

⁸ <http://www.genewatch.org/article.shtml?als%5Bcid%5D=569457&als%5Bitemid%5D=571449>

<http://tinyurl.com/9jbc4g> <http://tinyurl.com/8ahylza> <http://tinyurl.com/92rrain>

consumer choice and ignore environmental harm.⁹ They: *“Reveal how foreign multinational GM companies are running the Government’s Public Relations (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.*

This was similar to the strategy in the United States: “when Hillary Clinton served as Secretary of State, State Department officials were actively using taxpayer money to promote Monsanto’s controversial GMO seeds around the world.¹⁰ According to one released Wikileaks cable from 2009, the embassy in Spain sought *“high-level U.S. government intervention”* at the *“urgent request”* of Monsanto to combat biotech crop *“opponents”*. Also under Hillary’s direction as Secretary of State, officials in the Clinton State Department targeted the actions of foreign activists at the request of Monsanto. And in at least 3 instances, the Clinton State Department fought national GMO labeling laws in Malaysia, Vietnam and Hong Kong.” Bill Clinton intervened on Monsanto’s behalf when Arpad Puzstai found that rats fed GM potatoes developed immune problems. *“Clinton rang Blair and Blair rang James”* (Professor James, Director of the Rowett Institute). *“There is no doubt he was pushed by Blair to do something. It was damaging the relationship between the USA and the UK, because it was going to be a huge blow for Monsanto.”* Dr Puzstai lost his job and his Laboratory in the Rowett Institute was closed down.

Corporations’ donations to the British Government and what they get in return for their money

CRUK is donating money (£450 million/year) to the Government’s Strategy for UK Life Sciences and AstraZeneca is providing 22 compounds to academic research to develop medicines.

Michael Pragnell MA MBA was the founder of Syngenta and CEO of Syngenta AG based in Switzerland (from its public listing in 2000 to the end of 2007). He was appointed a Trustee of Cancer Research UK (CRUK) in March 2010 and Chairman in November 2010. The CRUK website said about pesticides as a cause of cancer: *“For now, the evidence is not strong enough to give us any clear answers. But for individual pesticides, the evidence was either too weak to come to a conclusion, or only strong enough to suggest a “possible” effect. The scientific evidence on pesticides and cancer is still uncertain and more research is needed in this area.”*¹¹

Relationships between Syngenta, AstraZeneca and Defra/Fera

In 1997, Dr Peter Campbell went straight from being the Head of Ecotoxicology Branch at the Pesticides Safety Directorate in York into the post of Head of Ecological Sciences at Syngenta.¹² In 2009 Syngenta and BBSRC gave £1 million to fund Warwick University and Rothamsted Research *“to help to improve honeybee health”*.¹³ (Rothamsted had lost funding for its Bee Unit in 2006). Syngenta funded scientific assistants at Exeter University in 2012. Syngenta pioneered Operation Bumblebee in the UK and in 2010 announced expansion of programmes across Europe; up to €1 million over 5 years.¹⁴ Programmes included *“What Operation Bumblebee can do for your golf course?”* Syngenta had representatives on the Advisory Committee on Pesticides (ACP), the Committee on Toxicity of Chemicals in Foods, Consumer Products and the Environment (COT), on the Panel to choose the Pollinator Initiative Projects and on the Government’s Foresight Future of Farming Report.¹⁵ Syngenta’s parent company AstraZeneca previously had two representatives on COT.

⁹ http://www.genewatch.org/uploads/f03c6d66a9b354535738483c1c3d49e4/Fol_summary_May14.pdf

¹⁰

http://action.fooddemocracynow.org/sign/tell_Hillary_to_Dump_Monsantos_money_and_keep_Monanto_lobbyists_out_of_her_WhiteHouse/?t=1&akid=1814.1141284.OgObCQ

¹¹ <http://www.cancerresearchuk.org/cancer-info/healthyiving/cancercontroversies/pesticides/>

¹² <http://uk.linkedin.com/pub/peter-campbell/4/283/6ba>

¹³ <http://www.bbsrc.ac.uk/news/archive/2009/091001-pr-1million-award-honeybee-decline.aspx>

¹⁴ <http://www.bbsrc.ac.uk/news/archive/2009/091001-pr-1million-award-honeybee-decline.aspx>

¹⁵ <http://www.bis.gov.uk/assets/foresight/docs/food-and-farming/11-546-future-of-food-and-farming-report.pdf>

Does the BMA know how many and how often pesticides are sprayed on our food?

UK Food and Environment Research Agency (FERA) survey of pesticides 1988 to 2014 confirms that Pesticide Residues on British food are increasing annually

A survey of pesticide (active substances) usage on Oil Seed Rape (OSR) 1988-2014¹⁶ 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.¹⁷ 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**. This excludes the unknown amount of glyphosate sprayed in the Amenity Sector,¹⁸ by private companies and in the home. In Wales, Estate Agents require that house sellers eradicate Japanese knotweed, an invasive weed, before they can put the house on the market. Councils are unaware that Japanese knotweed has become a glyphosate- resistant super weed, as in the US with GM crops which are 'Roundup-Ready'.

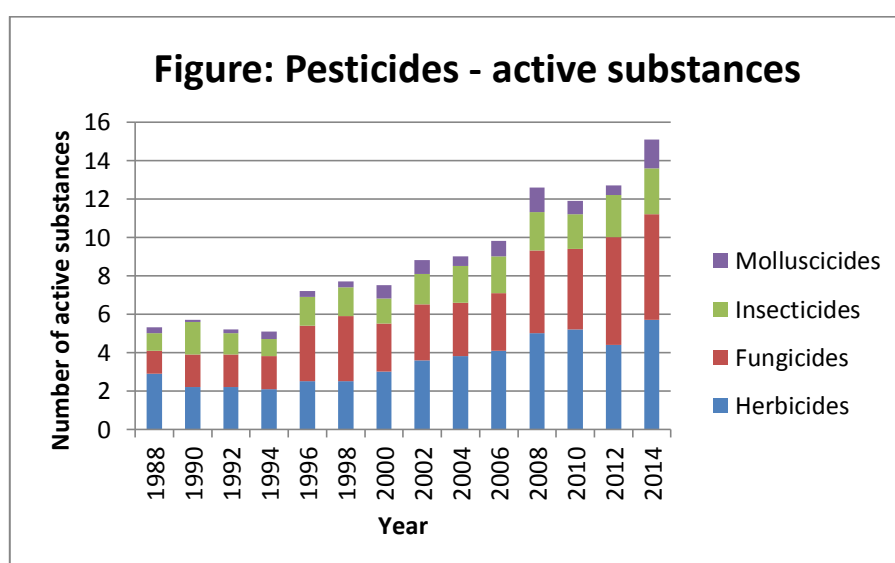


Fig. 1 PESTICIDES: Number of active substances used on Oil Seed Rape in the UK between 1988 and 2014: By kind permission of John Hoar, Hampshire Beekeeper's Spray Liaison Officer. Figures supplied by FERA

¹⁶ Pesticide usage on oilseed rape 1988-2014. John Hoar; (Hampshire BKA Spray Liaison Officer) using data published by Fera; Beecraft. February 2015 Volume 98 No 2, page 14.

¹⁷ <https://secure.fera.defra.gov.uk/pusstats/surveys/documents/arable2014v2.pdf>

¹⁸ Amenity_Pesticide_Report_Final Feb 2011.pdf

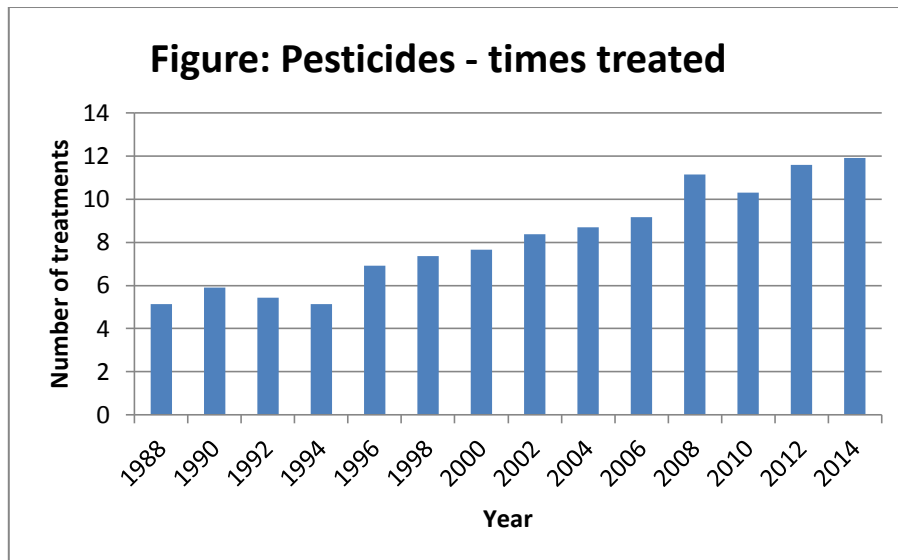


Fig. 2 PESTICIDES TIMES TREATED: used on Oil Seed Rape in the UK between 1988 and 2014: By kind permission of John Hoar, Hampshire Beekeepers Spray Liaison Officer. Figures supplied by FERA

How many pesticides are being authorised in the UK?

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

The President of the National Farmers’ Union replied to my 13-page Open Oetter on 17/11/2015¹⁹ but it probably won’t be distributed to all NFU members

The President of the NFU wrote to defend the right of farmers to use chemicals to protect their crops **even though I had informed him that they were damaging the brains of children in Britain.** *“The NFU firmly believes that technologies such as advanced plant breeding, biotechnology and chemical crop protection are a positive and essential part of British farming and food production. There are significant challenges inherent in providing safe, affordable and high quality food in a sustainable way in the context of growing populations, pressure on resources, volatility and a changing climate. We must therefore have all the tools in the box to source solutions to these challenges. The NFU is committed to basing its policies on the most robust scientific evidence and expertise from scientists and regulatory authorities around the world.”*

I had asked for my Open Letter to be sent to all members of the NFU. However, in a reply from Defra on 6/11/2015 Ref DWOE000388966 on the instructions of Kevin Woodhouse, the Customer Contact Unit wrote: *“We acknowledge the issues that you have raised. However it will be for the NFU to consider whether they wish to disseminate your letter.”*

Many diseases in the UK and the US are spiralling out of control

Many diseases in the UK and the US are spiralling out of control; obesity, diabetes, congenital anomalies, cancers, etc. The Government and the NHS blame the people, but chemicals and corporations are to blame. Increasing obesity, autism, Alzheimer’s, Diabetes, liver failure, kidney failure, heart disease, mental disorders, depression, suicide, hypercholesterolaemia and cancers have been acknowledged. They have been blamed on public lifestyle (such as overeating, lack of

¹⁹ https://www.academia.edu/17144792/Open_Letter_to_the_National_Farmers_Union

exercise, alcoholism and smoking), failures of GPs, isolation or global warming. The rest have been ignored. Congenital anomalies, Parkinson's, Motor Neurone Disease, multiple sclerosis, Brain Tumours, lymphomas, leukaemia, infertility, cataracts, inflammatory bowel disease, degenerative joint disease are amongst the medical conditions that are increasing in Britain and the US, whose farming systems depend on chemicals. Britain must be the only country in the EU where the citizens haven't been told that glyphosate has been declared a probable carcinogen to humans, according to WHO International Agency for Research into Cancer (IARC).²⁰

Evidence of chemical brain drain in children in Britain compared with those in Europe

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.²¹ It is done with a view to improving education policies and outcomes. It measures problem solving and cognition in daily life. PISA was first performed in 2000 and then repeated every three years. In 2000 the UK was ranked 4th. By 2013 the UK failed 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. The UK has made little progress and remains among the average, middle-ranking countries, in 26th place for mathematics and 23rd for reading, broadly similar to three years ago.

In 2016 an OECD study showed that in England the young have lower basic skills than their counterparts in Europe.²² 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)."*

UK SCIENCE MEDIA CENTRE IS SPONSORED BY CORPORATIONS: IT IS HOSTED BY THE WELLCOME TRUST AND PREACHES THE GOSPEL ACCORDING TO 'SAINT MONSANTO'

Colin Macilwain, a science policy writer from Edinburgh who has worked as a reporter and an editor from both sides of the Atlantic²³ wrote about plans to replicate Britain's Science Media Centre (SMC) in the United States, which he said was *"fraught with danger."*

Extracts: *"The London SMC was set up because UK scientific leaders were upset that environmentalists had successfully fought the introduction of genetically modified food; they felt that the UK media were too susceptible to environmental scare stories about new technologies. Despite the fears of the SMC founders, the British press — led by the BBC, which treats the Confederation of British Industry with the deference the Vatican gets in Rome — is overwhelmingly conservative and pro-business in its outlook. It is quite unperturbed by the fact that SMC sponsors include AstraZeneca, BP, Coca-Cola, L'Oreal, Monsanto, Syngenta (as well as Nature Publishing Group) but not a single environmental non-governmental organization (NGO) or trade union. Fiona Fox, the SMC's director, says that the centre operates independently of its sponsors and points out that none (except its host, the Wellcome Trust) accounts individually for more than 5% of its income."* (However, examination of the Funding for 2014²⁴ shows that the total funding from industry and trade bodies (27% from 29 Organizations) exceeds any other source of funding apart

²⁰ [http://www.thelancet.com/pdfs/journals/lanonc/PIIS1470-2045\(15\)70134-8.pdf](http://www.thelancet.com/pdfs/journals/lanonc/PIIS1470-2045(15)70134-8.pdf) Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate.

²¹ [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)

²² <http://www.oecd.org/unitedkingdom/building-skills-for-all-review-of-england.pdf>

²³ <http://magz.elibraries.eu/ul/1826/Nature%20Magazine%207389%20-%202012-03-15.pdf>

www.nature.com/klnuna World View Nature 15th March 2012

²⁴ <http://www.sciencemediacentre.org/about-us/funding/>

from the Government & the Wellcome Trust). “She adds that no NGOs are involved because it was their public-relations skills that the founders of the SMC sought to match.”

Macilwain goes on to say: “But the perception that the environmental group Friends of the Earth constitutes a bigger threat to scientific truth-telling than some of the corporate names on the SMC’s sponsorship list is not one the US media would accept. Some of those considering a US centre share these concerns. They think that their funding model will have to rely on charitable trusts, not companies or government agencies.

There are Science Media Centres in Japan, Canada, Australia and New Zealand

Ms Fox took this as evidence that the 10-year-old centre was fulfilling its remit to prevent a repeat of incidents such as the uncritical reporting in 1998 of the claim - heavily criticised by the scientific community - made by Árpád Pusztai, a former researcher at the Rowett Research Institute in Aberdeen, that rats fed on GM potatoes had stunted growth and a repressed immune system.²⁵ She said that the relatively muted coverage in the UK contrasted with how the story was reported in other countries, particularly France, where it was “*front-page news everywhere*”, prompting the French government to launch an inquiry into the study’s findings. According to Ms Fox, the Science Media Centre’s ability to gather a lot of expert comment quickly was particularly valuable in this instance because journalists who were shown the paper in advance of its publication were required to sign a highly unusual agreement that prevented them from sharing it with third parties. Critics claimed that this minimised the time journalists had to gather potentially negative commentary.

CONFLICTS OF INTEREST AND LOBBYING IN THE RE-ASSESSMENT OF GLYPHOSATE IN THE EU

The French press and the European Professional Beekeepers are fully aware that the German Rapporteur Member State has industry members involved in glyphosate’s reassessment

Le Monde revealed that one third of the Members of the BFR Commission on Pesticides and their Residues are directly employed by the chemical industry; others came from the ‘dubious’ Bee Institutes. The satirical comment from *Le Monde* was, that in Germany: “*people from the pesticide industry give expert safety advice on their own products.*”²⁶

Walter Haefeker President of the European Professional Beekeepers’ Association (EPBA) confirmed this: “Federal authority for Consumer Protection and Food Safety: BVL (Bundesamt für Verbraucherschutz und Lebensmittelsicherheit), during a presentation in 2015, in Berlin, at the world’s largest agricultural products fair, ‘Die Grüne Woche’, the Director of the Department for the Admission of Plant Protection (Pesticide Regulation Authority), Dr. Karsten Hogardt, stated that the BVL sees itself as: ‘*a service for its clients, the plant protection industry*’. In this role it is ‘*advised*’ by an expert group of ‘*risk managers*’ including many from the pesticide industry. It is shocking and disgraceful, that no independent scientists are allowed in the regulation, or licensing, of pesticides in Germany.”²⁷

This was precisely what independent scientists from the Institute of Science in Society discovered

Dr Nancy Swanson and Dr Mae Wan Ho of the Institute of Science in Society (I-SiS) after detailed examination of the 15-volume, 3,744-page RAR said:²⁸ “*BfR and its federal agency partners did not actually review the published toxicology studies. Instead they relied on a summary provided to them by the Glyphosate Task Force (GTF). And the GTF consists of Monsanto and a consortium of*

²⁵ <https://www.timeshighereducation.com/news/research/research-intelligence-shock-troops-check-poor-gm-study/421361.article>

²⁶ FOUCART, S. 2015. Noire semaine pour l’expertise. *Le Monde (Paris)* article 30.III.2015 http://www.lemonde.fr/idees/article/2015/03/30/noire-semaine-pour-expertise_4605627_3232.html?xtmc=neonicotinoïdes&xtcr=1

²⁷ <http://podcasts.haefeker.org/?p=132>

²⁸ http://www.i-sis.org.uk/Scandal_of_Glyphosate_Reassessment_in_Europe.php

chemical companies all over Europe, including Syngenta UK and Dow Italy, with an odd one from Taiwan thrown in for good measure (see pp. 9-13 of Vol. 1 of the RAR [13]). Although the BfR added comments here and there, all the assessments of the toxicological studies were from the GTF. **Hence Monsanto and other companies who stood to gain from selling glyphosate herbicides were given free rein to pronounce glyphosate effectively even safer than before, hence the increase in ADI...** Consequently, the rapporteur member state (RMS) has accepted, without question, virtually all of the unpublished reports given to them by the chemical companies. Much of the information is blacked out (author, report title, laboratory) but the sponsoring company is named (Monsanto, Syngenta etc.) and the reports are referred to by a number...

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

The German Rapporteur Member State recommended re-approval of glyphosate to the European Food Safety Authority (EFSA)

In a Press Release in March 2014, The President of the German Federal Institute of Risk Assessment (BfR), Prof Dr Dr Andreas Hensel, on the basis of evaluation of 150 new studies and an additional 900 studies from the scientific journals, was quoted as having said on behalf of BfR: *These new studies do not suggest that glyphosate has carcinogenic or embryo-damaging properties or that it is toxic to reproduction in test animals. The data do not warrant any significant changes in the limit values of the active ingredient...*²⁹

The President of the BfR also said that glyphosate did not affect humans and animals

In the second part of the Press Release the President went on to say: *Worldwide, glyphosate is one of the most common active ingredients in pesticides used to prevent unwanted plant growth in plant cultivation or to accelerate the ripening process of crops (desiccation). Glyphosate inhibits an enzyme which is essential for the biosynthesis of certain amino acids. This enzyme is not found in animals and humans. The statement by BfR is incorrect: glyphosate poisons humans in the same way as it poisons plants. Humans and animals have exactly the same pathway as in plants; mammals can only absorb nutrients via the bacteria in their gut; the gut microbiome. The gut microbiome is the collective genome of organisms inhabiting our body.*³⁰ Chatelier, E.L. *et al.* Richness of human gut microbiome correlates with metabolic markers *Nature* 29 August 2013; **500**: 541-550.³¹ *"We are facing a global metabolic health crisis provoked by an obesity epidemic."* In a multi-author study of obese and non-obese individuals, those with *"low bacterial richness in the gut (23% of the population) are characterized by more marked overall adiposity, insulin resistance and dyslipidaemia and a more pronounced inflammatory phenotype when compared with those with high bacterial richness...Low richness of gut microbiota has been reported in patients with inflammatory bowel disorder...Also notable diversity differences were observed between the urban US population and rural populations from two developing countries"*. Current research is underway to try to find the links between obesity, type 2 diabetes and cancers.

Diet rapidly and reproducibly alters the human gut microbiome³² *"Long-term dietary intake influences the structure and activity of the trillions of microorganisms residing in the human gut" ... In*

29

http://www.bfr.bund.de/en/press_information/2014/03/glyphosate_no_more_poisonous_than_previously_assumed_although_a_critical_view_should_be_taken_of_certain_co_formulants-188898.html

³⁰ <http://www.nature.com/nature/journal/v500/n7464/abs/nature12506.html>

³¹ <http://www.nature.com/nature/journal/v500/n7464/abs/nature12506.html>

³² <http://www.nature.com/nature/journal/vaop/ncurrent/full/nature12820.html>

concert, these results demonstrate that the gut microbiome can rapidly respond to altered diet, potentially facilitating the diversity of human dietary lifestyles.

Other information from France: Syngenta exposed for funding neonicotinoid research in Britain

On 23/09/2012, once again in the French newspaper *Le Monde*, Stéphane Foucart revealed that Dr James Cresswell a bee researcher at Exeter, who denied that neonicotinoids caused colony collapse in honeybees, was receiving funding from Syngenta, but had not revealed conflicts of interest.³³ Foucart said it didn't really matter for France because the French Government had already made a decision to ban Cruiser® (Thiamethoxam, made by Syngenta). A study (using mathematical models, statistics and computer simulations), published in the journal *Science* by Dr Helen Thompson of Britain's Food and Environment Agency together with Dr James Cresswell University of Exeter (both of whom are supported by industry) claimed that the results of the research from nine eminent bee scientists at the French National Institute for Agricultural Research (INRA)³⁴ was flawed.

The WHO/JMPR³⁵ was due to meet to make the final decision about the registration of glyphosate in September 2015 based on IARC's full report

Natural Resources Defense Council (NRDC) wrote to the World Health Organization (WHO) with the list of eight members of this Committee.³⁶ They complained that three members had conflicts of interest.³⁷ Angelo Moretti resigned in 2011 from EFSA after he had failed to declare conflicts of interest because he had shares in a company that helped companies needing to comply with EU Regulations. Prof Alan Boobis is Vice-President of the Board of Directors of the International Life Sciences Institute (ILSI) Europe, Vice Chairman of the Scientific Advisory Committee of ILSI Europe and a Member of the Board of Trustees. He had served as a WHO expert on Pesticides Residues on the WHO/JMPR Committee when glyphosate was granted approval in 2002.³⁸

Dr Roland Solecki, Head of the BfR, was one of the eight experts on the WHO/JMPR even though BfR had said:³⁹ *In BfR's opinion it would be inexpedient if BfR as the composer of the assessment report on glyphosate would comment on the IARC monograph.*

The Rt Hon Jeremy Hunt Minister of Health sings from the same industry hymn sheet as EFSA

My letter to Jeremy Hunt at the Department of Health (DoH), telling him why the NHS was failing, elicited a response which supported EFSA's justification for saying glyphosate was non-carcinogenic. Our ref: DE-1014811

Dear Ms Mason,

Thank you for your further correspondence of 1 February about glyphosate. I have been asked to reply. I note your concerns about glyphosate. As you will be aware, the approval for use of glyphosate in the EU expires on 30 June. The substance is currently being reviewed under the auspices of the European Food Safety Authority (EFSA). The Department of Health is working in collaboration with the Commission and other member states on this review.

The EFSA concluded that glyphosate is unlikely to pose a carcinogenic hazard to humans and the evidence does not support classification with regard to its carcinogenic potential according to EU classification and labelling rules for chemicals. This differs from the conclusion of the International Agency for Research on Cancer (IARC) that glyphosate is probably carcinogenic to humans.

³³ http://www.lemonde.fr/planete/article/2012/09/23/le-chercheur-l-agrochimiste-et-les-abeilles_1764022_3244.html

³⁴ <http://www.sciencemag.org/content/336/6079/348.abstract> Cresswell and Thompson comments on A Common Pesticide Decreases Foraging Success and Survival in Honey Bees

³⁵ WHO Expert Committee on Pesticide Residues held jointly with the FAO Panel of Experts on the Use of Pesticides in Agriculture

³⁶ http://www.who.int/foodsafety/areas_work/chemical-risks/list_of_experts1.pdf?ua=1

³⁷ http://docs.nrdc.org/health/files/hea_15061501a.pdf

³⁸ http://whqlibdoc.who.int/publications/2006/9241665203_eng.pdf?ua=1

³⁹ <http://www.bfr.bund.de/cm/349/bfr-contribution-to-the-eu-approval-process-of-glyphosate-is-finalised.pdf>

The two main differences between the EFSA and that the IARC reviews are that the EFSA's review was Nspecifically extended to consider in full the findings of the IARC and also included scientific information not assessed by IARC. **The EFSA's review focused on glyphosate itself, while the IARC focused on products containing glyphosate. The EFSA does not look at all glyphosate products because this assessment will be carried out by member states.** Those assessments would include the product and its components as well as the active substance.

The overall UK position on glyphosate will continue to be guided by the science, and what that says about its safety in use. If, following completion of the full review, approval is renewed by the Commission, the Department will re-assess all the products which contain glyphosate and will only authorise them if they too continue to meet the required standards of safety. If approval is not renewed, all glyphosate products will have to be withdrawn from the market. I hope this reply is helpful.

Note that the DoH claims it "is working in collaboration with the Commission and other member states" on this review... "If approval is renewed by the Commission the Department (of Health) will re-assess all the products which contain glyphosate and will only authorise them if they too continue to meet the required standards of safety."

What training does the DoH have in the assessment of the safety of chemicals?

When I wrote to the Regulatory Agencies in March 2011 about the effects of the systemic neonicotinoid insecticides on bees, the responses were almost identical. That was the point at which I knew that the Regulatory Agencies were in the hands of the Agrochemical Industry.

A global industry has emerged to advise on Biocides Regulation (= a substance that is KILLING LIFE) As with the regulation of pesticides, it is controlled by the pesticides industry

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.

REACH (Registration, Evaluation, Authorisation and Restriction of Chemical substances) is a 'European Community regulation to improve the protection of human health and the environment' which came into force in 2007. *Exponent Inc.* is a company that helps chemical firms with REACH compliance.⁴⁰ It describes itself as *"a research and scientific consultant firm with clients from industry (including crop protection) and government."* Exponent 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 that concluded that *"exposure to specific pesticides during critical periods of brain development and neurobehavioral outcomes is not compelling."*⁴¹

Lobbying by the National Farmers' Union (NFU), the Crop Protection Association (CPA) and Agricultural Industries Confederation (AIC)

They launched *Healthy Harvest – safeguarding the crop protection toolbox* in June 2014. The NFU and pesticide companies continually defend the use of pesticides for economic reasons and complain at any attempt to restrict the 320 at their disposal. One farmer defended aerial spraying of bracken with a herbicide.⁴² CPA, AIC and the NFU commissioned Andersons to write a Report: The effect of the loss of plant protection products (i.e. pesticides) on UK Agriculture and Horticulture that predicted dire economic effects on UK farming if pesticides were restricted.⁴³

⁴⁰ <http://www.exponent.com/REACH/>

⁴¹ <http://www.ncbi.nlm.nih.gov/pubmed/23777200>

⁴² https://www.nfuonline.com/healthyharvest_final_digital/ The impact of losing plant protection products on UK Food Production

⁴³ http://www.cropprotection.org.uk/media/89364/andersons_final_report.pdf

Why is the agricultural sector lobbying for a delay in identification of EDCs?

Because they know that glyphosate and atrazine are endocrine disrupting chemicals and are likely to be banned. Owen Paterson former UK Environment Minister wrote a secret letter to Syngenta about neonicotinoids (April 2013) in which EDCs were mentioned: ⁴⁴ *"You raise the point that this issue is one of several that impacts on the availability of pesticides in agriculture. We are well aware of this point and you will know that amongst other things, the UK has been arguing hard for a proportionate approach to regulating Endocrine Disrupting Chemicals."* Has Owen Paterson any idea what EDCs are, or what they do to humans and animals?

Lobbyists successfully get the ban on pesticides on golf courses lifted (22/05/2015)

*The EU has shelved plans to ban 31 different pesticides thought to responsible for foetal abnormalities, male infertility and a range of other diseases. Newly released documents suggest the proposal was dropped after pressure from the United States amid ongoing negotiations over the Transatlantic Trade and Investment Partnership (TTIP) – a deal between the US and Europe to promote free trade.*⁴⁵ Dr Michael Warhurst, Executive Director of the CHEM Trust, said: *"It's shocking that the chemical and pesticide industries - aided by the UK government - have been lobbying against rapid action on these hazardous chemicals."* Endocrine disrupting chemicals (EDCs) disrupt the functioning of the hormonal systems of humans and wildlife, and can be found in a variety of household objects as well as additives in foods.

But documents obtained by Pesticides Action Network (PAN) show that following a meeting between US and EU officials, plans to block the pesticides were dropped. A PAN spokesman said it looked as if "only trade and profit matter" during the TTIP talks.

The group argues that: "health standards already now do not sufficiently protect people and the environment and costs are already externalised massively to society in terms of health care".

In 2007 the campaign of protest mounted by the golf lobby was the same

*"A ban on the use of pesticides in the UK will have a considerable impact on golf courses and other sports turfs."*⁴⁶ *The introduction of a total pesticide ban to amenity turf would have devastating impact, not only to the golf course industry, but all sports and other managed amenity turf grass areas throughout the country. Negative economic impact – Golf Courses in the UK will not be able to compete with the other regions of the world in terms of producing high quality turf that golfers around the world now demand. The result will be a loss of the foreign golfer travelling to the UK to play golf. A ban of pesticides could result in no professional golf tournaments being played in the UK."*

In 2007, the Golf Clubs claimed: Golf EU ban will devastate golf business⁴⁷

"On behalf of nine national golf course owners associations, representing over 600 golf courses in Europe, EGCOA states that any proposal towards a ban on the use of pesticides on golf courses will have a serious negative effect on the golf industry in Europe... We hope that the European Parliament Environment Committee will consider this perspective during the process of ongoing refinements in regulation over pesticide and take this into account if considering the prohibition of pesticide use in the amenity and public spaces, and in sports and recreations grounds in particular."

"The Value of Crop Protection" Report, November 2010

Sean Rickard, a well-known economist from Cranfield University, wrote the present Government's

⁴⁴ <http://www.guardian.co.uk/environment/interactive/2013/apr/29/environment-secretary-letter-syngenta-in-pesticide-ban>

⁴⁵ <http://www.express.co.uk/news/world/579365/European-Union-drops-plan-ban-toxic-pesticide-illnesses>

⁴⁶ <http://www.stri.co.uk/research/impact-of-pesticide-ban-to-golf-courses/>

⁴⁷ <http://www.golfbusinessnews.com/news/management-topics/eu-ban-will-devastate-golf-business/>

Agricultural manifesto and is currently an academic adviser to the government. His Report: *The Value of Crop Protection*⁴⁸ (commissioned by the Crop Protection Association and first appeared on the CPA website on 07/12/2010) examines the economic benefits of Plant Protection Products (PPPs, the new term for pesticides) to the food supply. His message was apocalyptic and it was widely reported in the press in similar terms. Sean Rickard warned that if the EU banned pesticides, food costs could soar up to 40% in the UK and could add £70 billion to the country's food bill.

Corporate Europe Observatory and Stéphane Horel Report: A Toxic Affair: How the Chemical Lobby Blocked Action on Endocrine Disrupting Chemicals⁴⁹

"Brussels nowadays is the second capital of corporate lobbying in the world – after Washington DC. An estimated 20,000-30,000 lobbyists populate the EU quarter, the large majority of whom represents corporations. All big corporations have their own lobby offices and in-house lobbyists."

Commission delays further by consulting the public on criteria to identify Endocrine Disruptors⁵⁰
The Commissioners launch a consultation on 29 September 2014 with closing date 15 January 2015.

INDEPENDENT SCIENTISTS HAVE PROOF THAT GLYPHOSATE, ITS CO-FORMULANTS AND FORMULATIONS ARE ENDOCRINE DISRUPTING CHEMICALS. WIDESPREAD AND INCREASING USE WILL EVENTUALLY DESTROY ALL LIFE FORMS. IT HAS DELETERIOUS EFFECTS ON HUMANS AND ANIMALS ALIKE. IT DAMAGES THE LIVER AND KIDNEYS, CAUSES CANCERS, BIRTH DEFECTS AND HAS ANTIBIOTIC AND MINERAL CHELATING ACTIONS. THE BODY IS DEPRIVED OF MICRONUTRIENTS AND AMINOACIDS ESSENTIAL FOR METABOLISM. WHEN EXPOSED, THE DEVELOPING FOETUS, INFANTS AND CHILDREN ARE MOST AT RISK TO CHRONIC DISEASES IN LATER LIFE. FINALLY THE REGULATORY AUTHORITIES DO NOT ASSESS GLYPHOSATE IN COMBINATION WITH THE HUNDREDS OF OTHER CHEMICALS APPLIED TO THE SOIL BY FARMERS (SEE APPENDIX PAGE 32)

EFSA's Conclusion on the peer review of the pesticide risk assessment of the active substance glyphosate states:⁵¹ *In contrast to the IARC evaluation, the EU peer review experts, with only one exception, concluded that glyphosate is unlikely to pose a carcinogenic hazard to humans ...*

Open letter: Review of the Carcinogenicity of Glyphosate by EFSA and BfR⁵²

Prof Christopher Portier, Chairman of IARC's Working Group and a group of more than 90 independent scientists wrote an Open Letter to the European Health and Food Safety Commissioner, Vytenis Andriukaitis on 27/11/2015, strongly challenging EFSA's decision and the BfR report that it was based on.

They express deep concern that BfR assesses the widely used herbicide glyphosate as "unlikely to pose a carcinogenic hazard to humans".

They consider the BfR evidence point by point and the two most disturbing statements were that:

⁴⁸ http://www.cropprotection.org.uk/media/1903/cpa_the_value_of_crop_protection_rickard_report.pdf

⁴⁹ <http://corporateeurope.org/food-and-agriculture/2015/05/toxic-affair-how-chemical-lobby-blocked-action-hormone-disrupting>

⁵⁰ http://europa.eu/rapid/press-release_IP-14-1057_en.htm?locale=en

⁵¹ <http://www.efsa.europa.eu/en/efsajournal/pub/4302>

⁵² http://www.efsa.europa.eu/sites/default/files/Prof_Portier_letter.pdf

- BfR used historical controls (*When using historical control data, they should be from studies in the same timeframe, for the same exact animal strain, preferably from the same laboratory or the same supplier and preferably reviewed by the same pathologist*).
- The BfR Addendum dismisses the IARC Working Group (WG) finding that “*there is strong evidence that glyphosate causes genotoxicity*” by suggesting that unpublished evidence not seen by the IARC WG was overwhelmingly negative and that, since the studies that were reviewed were not done under guideline principles, they should get less weight. To maintain transparency, IARC reviews only publicly available data. Thus the use of confidential data submitted to the BfR makes it impossible for any scientist not associated with BfR to review this conclusion with scientific confidence. Further skewing their interpretation, the BfR did not include evidence of chromosomal damage from exposed humans that was highlighted in the IARC Monograph.

Since then several exchanges have taken place between IARC and EFSA. EFSA has replied to criticism of the EU assessment of glyphosate that was overseen by the Authority last year.

Bernhard Url, EFSA’s Executive Director, has sent a detailed reply to Prof Portier that addresses the points raised in his letter on 13 January 2016.⁵³ Dr Wild (IARC) to Bernhard Url on 5 February.⁵⁴ Bernhard Url to Dr Wild on 9 February⁵⁵ and Dr Wild to Bernhard Url 12 February.⁵⁶

Sixteen eminent and independent scientists published a Consensus Statement on Glyphosate Concerns over use of glyphosate-based herbicides and risks associated with exposures: a consensus statement.⁵⁷ The scientists outlined the environmental risks of repeated heavy use of glyphosate-based herbicides (GBH) on fish, butterflies, earthworms and beneficial soil microbes, including its breakdown products of AMPA and formaldehyde contaminating soil and groundwater. The low levels (50 ppb) which have significant effects on the aquatic invertebrate *Daphnia magna* (compared with the US EPA’s level of 700 ppm and Canada’s short term exposure of 27,000 ppb and long-term exposure of 800 ppb). The US EPA does not measure glyphosate despite the 100-fold increase in glyphosate over the last 10 years. They pointed out its action as a chelating agent with the potential to sequester micronutrients zinc, cobalt and manganese that are co-factors contributing to a number of deleterious effects on liver and kidney metabolism. **Extracts:** “*The full list of chemicals in most commercial GBHs is protected as “confidential business information,” despite the universally accepted relevance of such information to scientists hoping to conduct an accurate risk assessment of these herbicide formulations. The distinction in regulatory review and decision processes between ‘active’ and ‘inert’ ingredients has no toxicological justification, given increasing evidence that several so-called ‘inert’ adjuvants are toxic in their own right. Multiple studies on GBHs have reported effects indicative of endocrine disruption [21–24]. Based on knowledge from studies of other endocrine disruptors, the developing fetus, infants, and children are most at risk. Effects following GBH exposure may not be immediately apparent, because some adverse conditions caused by early-life exposure only manifest in later stages of development and/or in adulthood. These include both acute diseases and chronic health problems. In addition, proving links between chronic disease and exposures to GBHs is made more difficult by the fact that people are routinely exposed to complex mixtures of glyphosate and other toxic chemicals. The action of glyphosate as an antibiotic may alter the gastrointestinal microbiome in vertebrates [33,70–72], which could favor the proliferation of pathogenic microbes in humans, farm animals, pets and other exposed vertebrates. A recent report demonstrates that environmentally relevant concentrations of commercially available GBHs alter the susceptibility of bacteria to six classes of antibiotics (for example, either raise or lower the minimum*

⁵³ [Reply from EFSA to Professor Portier](#)

⁵⁴ [Letter from Dr. Wild to Bernhard Url](#)

⁵⁵ [Reply from Bernhard Url to Dr. Wild](#)

⁵⁶ [Letter from Dr. Wild to Bernhard Url](#)

⁵⁷ <http://ehjournal.biomedcentral.com/articles/10.1186/s12940-016-0117-0>

concentration needed to inhibit growth) [75]. Furthermore, GBHs can also induce multiple antibiotic-resistance phenotypes in potential human pathogens (*E. coli* and *Salmonella enterica* serovar typhimurium).

Increased incidence of severe birth defects in Argentina and Paraguay in areas where GE Roundup Ready crops are widely grown may be linked to the ability of GBHs to increase retinoic acid activity during fetal development [23]⁴. Glyphosate-contaminated soybean feeds used in the pork industry have also been associated with elevated rates of gastrointestinal-health problems and birth defects in young pigs [32]. Related impacts have been observed in poultry [33]. A steadily growing portion of global GBH use is applied in conjunction with multiple other herbicides, insecticides, and fungicides. Herbicide and other pesticide active ingredient safety levels are calculated for each active ingredient separately, despite the fact that tank mixes including two to five, or even more active ingredients account for a significant portion of the volume of pesticides applied. Regulators do not require further testing of such mixtures, nor do they conduct any additional risk assessments designed to quantify possible additive or synergistic impacts among all herbicides applied, let alone the combination of all herbicides, insecticides, fungicides, and other pesticides applied on any given field." (The Appendix gives maps of the 777 pesticides used on crops in the US)

The lead author of the Consensus Statement is John Peterson Myers, who in 1996 wrote a book with the late Theo Colborn about Endocrine Disrupting Chemicals (EDCs).

What are EDCs? Theo Colborn's crucial research in the early 1990s into the chemicals that were changing humans and the environment was ignored

The late Theo Colborn⁵⁸ (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, Peters and Dumanoski revealed the full horror of what was happening to the world as a result of contamination with EDCs.⁵⁹ There was emerging scientific research about how a wide range of man-made chemicals can 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. In 1996, polychlorinated biphenyls (PCBs), pesticides DDT, chlordane, lindane, aldrin, dieldrin, endrin, toxaphene, heptachlor, dioxin, atrazine and dacthal had been shown to be 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."*

Endocrine Disrupting Chemicals (EDC) – 2012 Report Commissioned by WHO and UNEP

An assessment of the State of Science of Endocrine Disruptors was prepared for the United Nations Environment Program and the World Health Organization by a group of approximately 50 expert scientists led by Professor Åke Bergman, University of Stockholm.⁶⁰

The authors outlined the current evidence of: 1) a high incidence, and increasing trends, of many endocrine-related disorders in humans; 2) observations of endocrine-related effects in wildlife populations; 3) identification of chemicals with endocrine disrupting properties linked to disease outcomes in laboratory studies.

"Endocrine-related disorders in humans are manifest by:

- *Increases in low semen quality in young men (up to 40%)*

⁵⁸ <http://endocrinedisruption.org/about-tedx/theo-colborn>

⁵⁹ Colborn, T., Myers, J.P., & Dumanoski, D. *Our Stolen Future. How Man-made Chemicals are Threatening our Fertility, Intelligence and Survival.* Little, Brown and Company: London; 1996.

⁶⁰ http://unep.org/pdf/9789241505031_eng.pdf

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

The prevalence of obesity and type 2 diabetes is increasing. The WHO estimates that 1.5 billion adults worldwide are overweight or obese and that the number with type 2 diabetes increased from 153 million to 347 million between 1980 and 2008.”

Hot dispute between endocrinologists and toxicologists about the dose required in order to disrupt mammalian hormones and what precisely constitutes a hormone⁶¹

“In 2002, the relevance of EDCs to people and their biological mechanisms were poorly understood” says Andrea Gore (Professor of Pharmacology and Toxicology, University of Texas at Austin in the USA). But a flood of papers since then by “academic researchers and epidemiologists with no conflicts of interests”, Gore emphasises, has led to a radical reappraisal of the hazards posed by EDCs. Standard toxicology assumes that as the dose of a chemical increases, so does its effect, and vice versa. This is a monotonic dose response. Safe exposure standards are usually set by exposing an experimental animal to a high dose of a chemical, and then successively decreasing doses until the effects of the chemical are no longer detectable. But this logic falls apart if the compound under investigation happens to cause a non-monotonic dose response—i.e., there is no linear relation between dose and response, and a significant response can be caused at a low dose despite there being no or little response at a high dose. “Hormones act at extremely low doses; furthermore, actions of hormones (or EDCs) at one dose may not predict outcomes at another dose”, Gore points out.

Linda Birnbaum, the straight-talking Director of the US National Institute of Environmental Health Sciences (NIEHS), one of the National Institutes of Health, sums up the mood of frustration. “There are some people still stuck in the last century”, she says. And although she stresses that the EPA can “only do so much”, she continues that “the EPA's focus on endocrine disruption is very much on oestrogen, androgen, and thyroid. Well guess what, there are lots of other endocrine systems. Ten years ago we were thinking things were pretty simple, it turns out to be a lot more complicated”, and many regulators, in Birnbaum's opinion, are not capturing that complexity. “Context is everything”, she says. “You can have a completely different response to the same hormone, possibly going through the same receptor system, in one tissue than you'd have in another tissue. And that response can be very time dependent; not only chronic versus acute but developmentally.”

For example one study⁶² found that breast cancer cell proliferation is accelerated by glyphosate in extremely low concentrations. “The present study used pure glyphosate substance at log intervals from 10^{-12} to 10^{-6} M. These concentrations are in a crucial range which correlated to the potential biological levels at parts per trillion (ppt) to parts per billion (ppb) which have been reported in epidemiological studies.”

Séralini's study exposed glyphosate as a being an endocrine disruptor: the CRIIGEN 2-year feeding study provoked chronic hormone and sex dependent pathologies in rats; males developed tumours at 4 months and females at 7 months⁶³

“The health effects of a Roundup®-tolerant genetically modified maize (from 11% in the diet), cultivated with or without Roundup®, and Roundup® alone (from 0.1 ppb in water), were studied for 2 years in rats. In females, all treated groups died 2–3 times more than controls, and more rapidly. This difference was visible in 3 male groups fed GMOs. All results were hormone and sex dependent,

⁶¹ [http://www.thelancet.com/journals/landia/article/PIIS2213-8587\(13\)70057-3/fulltext](http://www.thelancet.com/journals/landia/article/PIIS2213-8587(13)70057-3/fulltext)

⁶² <http://www.ncbi.nlm.nih.gov/pubmed/23756170>

⁶³ <http://enveurope.springeropen.com/articles/10.1186/s12302-014-0014-5>

and the pathological profiles were comparable. Females developed large mammary tumours almost always more often than and before controls, the pituitary was the second most disabled organ; the sex hormonal balance was modified by GMO and Roundup® treatments. In treated males, liver congestions and necrosis were 2.5–5.5 times higher. This pathology was confirmed by optic and transmission electron microscopy. Marked and severe kidney nephropathies were also generally 1.3–2.3 greater. Males presented 4 times more large palpable tumors (kidney) than controls which occurred up to 600 days earlier. Biochemistry data confirmed very significant kidney chronic deficiencies; for all treatments and both sexes, 76% of the altered parameters were kidney related. These results can be explained by the non-linear endocrine-disrupting effects of Roundup®, but also by the overexpression of the transgene in the GMO and its metabolic consequences.”

Authors’ highlights:

- A Roundup®-tolerant maize and Roundup® provoked chronic hormone and sex dependent pathologies.
- Female mortality was 2–3 times increased mostly due to large mammary tumours and disabled pituitary.
- Males had liver congestions, necrosis, severe kidney nephropathies and large palpable tumours.
- This may be due to an endocrine disruption linked to Roundup® and a new metabolism due to the transgene.
- GMOs and formulated pesticides must be evaluated by long-term studies to measure toxic effects.

Séralini’s team wins defamation and forgery cases on the team’s GMO and pesticide research⁶⁴

On 25 November 2015, the High Court of Paris indicted Marc Fellous, former chairman of France’s Biomolecular Engineering Commission, for “forgery” and “the use of forgery”, in a libel trial that he lost to Prof Gilles-Eric Séralini. The Biomolecular Engineering Commission has authorised many GM crops for consumption.

In September 2012, an article written by Jean-Claude Jaillette in Marianne magazine said that “researchers around the world” had voiced “harsh words” about the research of Séralini and his team on the toxic effects of a GMO and Roundup over a long term period – research that was supported by the independent organisation CRIIGEN. The journalist wrote of a “scientific fraud in which the methodology served to reinforce pre-determined results”.

Séralini, his team, and CRIIGEN challenged this allegation in a defamation lawsuit. They were assisted by the notaries Bernard Dartevelle and Cindy Gay. On 6 November 2015, after a criminal investigation lasting three years, the 17th Criminal Chamber of the High Court of Paris passed sentence. Marianne magazine and its journalist were fined for public defamation of a public official and public defamation of the researchers and of CRIIGEN, which is chaired by Dr Joel Spiroux de Vendômois.

Federation of German Scientists Whistleblower Award goes jointly to Prof Gilles-Eric Séralini and former US drone pilot Brandon Bryant⁶⁵

“Professor Gilles-Eric Séralini has been honoured with the 2015 Whistleblower Award by the Federation of German Scientists (VDW) and the German Section of the International Association of Lawyers Against Nuclear Arms (“IALANA”). Prof Séralini received the award in recognition of his research demonstrating the toxic effects of Roundup herbicide on rats when administered at a low environmentally relevant dose over a long-term period. After the research was published, Prof Séralini was attacked in what the VDW and IALANA call “a vehement campaign by ‘interested circles’ from the chemical industry” as well as from the UK Science Media Centre.”

⁶⁴ <http://www.gmoseralini.org/seralinis-team-wins-defamation-and-forgery-court-cases-on-gmo-and-pesticide-research/>

⁶⁵ <http://www.gmoseralini.org/federation-of-german-scientists-whistleblower-award-goes-to-prof-gilles-eric-seralini/>

Gottfried Glöckner and Gilles-Éric Séralini have published new scientific data on Bt toxins and a thorough study of the records show that this GMO Bt maize is most probably toxic over the long term.⁶⁶ Pathology reports on the first cows fed with Bt176 maize (1997–2002)

“Over the years, and coinciding with regular increases in GMO content of the diet (0–40%), the proportion of healthy cows with high milk yield diminished from 70% (normal rate) to only 40%. At the peak of mortalities in 2002, 10% of the cows died, preceded by a long-lasting paresis syndrome without hypocalcemia or fever, but with kidney biochemical failure and mucosa or epithelial problems.” The only toxicological test, before being commercialized, was conducted by Novartis (subsequently Syngenta) in the United States, and consisted of feeding 4 cows for 15 days; one cow died after a week. This was the GM maize Bt176, which produced an insecticidal Bt toxin and contained an antibiotic resistance marker gene. Prof Séralini had access to the veterinary records as well as the farmer's archives.

Syngenta (Germany)⁶⁷ was subsequently charged with lying; they had never informed Glöckner about the outcome of their US study nor of numerous other dangers from feeding with Bt176 corn that were already known to them. They were legally obliged to do so and because they did not do so, the company is liable for the destruction of Glöckner's 65 cows.

Glyphosate co-formulants alone, formulations and glyphosate alone are all endocrine disruptors⁶⁸

New publication on 26/02/2016 by CRIIGEN and the Séralini Group: *“We measured the endocrine disruptive effects of co-formulants of six glyphosate herbicides. We did this by measuring the activity of aromatase, a key enzyme for the balance of sex hormones, in human placental cells, using a method validated by the OECD to assess endocrine disruptors. The aromatase activity was significantly decreased both by the co-formulants alone and by the formulations, from doses 800 times lower than the agricultural dilution, while glyphosate alone only showed such an effect from one-third of the agricultural dilution.”*

STATEMENT OF BRITISH MEDICAL ASSOCIATION ON GM FOODS

The British Medical Association's statement on GM foods in 2004 needs updating

The link to this statement on GM crops on the BMA website has been broken.

However, it was held on the International Life Sciences Institute (ILSI) US website.⁶⁹ ILSI is industry-funded. The membership of ILSI Europe consists of 56 (as of 12 Feb 2015) organisations. This list 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.

The British Medical Association (BMA) had updated their 1999 report on the health implications of GM food crops based on their June 2003 review of new evidence.

Extracts: *“Any new technology such as genetic modification must be examined for possible benefits and risks to human health, the environment, and biological diversity... If public mistrust is to be alleviated, it is imperative that bodies, which regulate new agricultural and food technologies, should retain full transparency in their deliberations and remain fully accountable to the public they are intended to serve.*

Conclusions regarding GM foods and health

BMA believes that there is no substantial evidence to prove that GM foods are unsafe however, the organization calls for further research and surveillance to provide convincing evidence of safety and

⁶⁶ <http://scholarly-journals.com/sjas/archive/2016/January/pdf/Gl%C3%B6ckner%20and%20S%C3%A9ralini.pdf>

⁶⁷ <http://www.gmwatch.org/latest-listing/1-news-items/13926-syngenta-charged-with-lying-over-cattle-deaths>

⁶⁸ <http://www.mdpi.com/1660-4601/13/3/264>

⁶⁹ <http://www.ils.org/NorthAmerica/Documents/BMA%20Stmnt.pdf>

benefit. Epidemiological health surveillance will remain impractical in the UK while so few of the population are exposed to GM foods. The BMA still considers that with adequate risk assessment procedures, independent and rigorous testing of novel foods, adequate post marketing surveillance and proper regulation, GM food has potential benefits for both the developed and developing world in the long-term. Continuing sound scientific research will also provide the only means of eliminating the uncertainty that still surrounds the environmental and health impact of GM crops..."

In the light of the Letter from America in 2014,⁷⁰ the BMA's attitude to GM crops and glyphosate should be revised.

The Open Letter from America 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.

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

The letter was delivered to 10 Downing Street on 11 November 2014. David Cameron forwarded it to the Defra Under-Secretary for State Lord de Mauley, whose reply was ambiguous⁷¹

Most of the countries in the EU took that advice and opted out of GM (including Scotland, Wales and Ireland). (Glyphosate was a herbicide that was specifically mentioned.)

Did the government and Defra consult the BMA before it opted for GM crops?

Or did they take the previous statement on GM crops as tacit approval? It is interesting to note that the link with the BMA statement has been broken, but the one on the ILSI website is intact.

STATEMENTS ON EXPOSURE TO CHEMICALS DURING EMBRYONIC, FOETAL AND INFANT LIFE

Does the BMA believe that exposure to chemicals during embryonic, foetal and infant life is damaging to development?

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

⁷⁰ <http://www.theletterfromamerica.org/>

⁷¹ file:///C:/Users/Rosemary/Downloads/bgm_defra%20letter_151214.pdf

In 2007 twenty-five experts in environmental health from eleven countries (including from the UK) met on the Faroes and contributed to this statement.⁷² *“The periods of embryonic, foetal and infant development are remarkably susceptible to environmental hazards. Toxic exposures to chemical pollutants during these windows of increased susceptibility can cause disease and disability in infants, children and across the entire span of human life. Among the effects of toxic exposures recognized in the past have been spontaneous abortion, congenital malformations, lowered birthweight and other adverse effects. These outcomes may be readily apparent. However, even subtle changes caused by chemical exposures during early development may lead to important functional deficits and increased risks of disease later in life. The timing of exposure during early life has therefore become a crucial factor to be considered in toxicological assessments.”* Many countries and organisation strongly endorse the Faroes Statement; these are some of the organisations:

- The Royal College of Obstetricians and Gynaecologists⁷³
- American Academy of Pediatrics⁷⁴
- International Society of Doctors for the Environment⁷⁵
- Pesticides Action Network of North America (PANNA)⁷⁶
- the EDC-Free Campaign⁷⁷
- Chem Trust⁷⁸
- Chemical Brain Drain⁷⁹
- The Endocrine Disruption Exchange (TEDx)⁸⁰
- The International Federation of Gynecology and Obstetrics (FIGO)⁸¹
- The European Environment Agency⁸²

Amongst those who dismiss the concept are:

- The Chief Medical Officer for Health (England)⁸³
- Dr John Harrison, Director of the Public Health England (PHE), Centre for Radiation, Chemical and Environmental Hazards (CRCE)
- Tracey Browne from Sense about Science agreed with the CMO⁸⁴
- The Defra Minister, the Defra Chief Scientist and the Chief Scientist CRD⁸⁵
- Bayer who had just re-launched its ‘family friendly’ garden products campaign.⁸⁶
- UK Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment (COC)⁸⁷
- The President of the NFU⁸⁸
- Scientists from Dow Chemicals⁸⁹

⁷² <http://www.ncbi.nlm.nih.gov/pubmed/18226057>

⁷³ https://www.rcog.org.uk/globalassets/documents/guidelines/scientific-impact-papers/sip_37.pdf

⁷⁴ <http://pediatrics.aappublications.org/content/130/6/e1757>

⁷⁵ http://isde.org/Appeal_glyphosate_IARC.pdf

⁷⁶ <http://www.panna.org/publication/generation-in-jeopardy>

⁷⁷ http://www.env-health.org/IMG/pdf/letter_edc_free_coalition_to_president_juncker.pdf

⁷⁸ <http://www.chemtrust.org.uk/>

⁷⁹ www.braindrain.dk

⁸⁰ <http://www.endocrinedisruption.org/>

⁸¹ http://www.who.int/sites/default/files/uploads/news/Final%20PDF_8462.pdf

⁸² <http://www.eea.europa.eu/publications/late-lessons-2>

⁸³ <http://www.theguardian.com/lifeandstyle/2013/jun/07/pregnancy-advice-royal-college-health-chief>

⁸⁴ <http://www.senseaboutscience.org/news.php/326/rcog-report-on-chemical-exposures-during-pregnancy>

⁸⁵ <http://www.publications.parliament.uk/pa/cm201213/cmselect/cmenvaud/668/668.pdf>

⁸⁶ <http://www.gardenforum.co.uk/tradeforum/peoplenews/?artid=2382>

⁸⁷ <https://www.gov.uk/government/collections/coc-guidance-statements>

⁸⁸ https://www.academia.edu/17144792/Open_Letter_to_the_National_Farmers_Union

⁸⁹ <http://dx.doi.org/10.1080/10937404.2013.783383>

Children living in Britain are the most exposed to agricultural chemicals compared with other European countries (hence 'chemical brain drain')

Since WW2, successive British Governments had been advised by industry that farming should be chemically based. A scientist from Rothamsted Research discovered the first chemical herbicides 2,4-D (at the same time as the US) in 1941. It was manufactured in 1946. It persists in authorising aerial spraying of pesticides even though it has been banned in the EU. All seemed to have failed to appreciate that chemicals are hazardous. Children in the UK are falling behind global rivals in international tests taken by 15-year-olds (PISA),⁹⁰ failing to make the top 20 in mathematics, reading and science (December 2013). In 2000 UK children were 4th in the PISA tests.

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

In 2016 an OECD study showed that in England the young have lower basic skills than their counterparts in Europe.⁹¹ 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)."*

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

The OECD publication Reviews of Health Care Quality: United Kingdom 2016 Raising Standards⁹²

"The United Kingdom's health systems have long made the quality of care a high priority, pioneering many tools and policies in this area. Yet despite being a global leader in monitoring and improvement, the United Kingdom does not consistently perform well on international quality benchmarks. Why?"... "Based on international benchmarks of health care quality, notably OECD, some indicators for the UK show average or disappointing performance. Survival estimates for breast cancer, cervical and colorectal cancer, for example, are all below the OECD average..."

New attack on EU policy regarding endocrine disruption: Health DG SANCO prepares an escape route for pesticides 20/05/2014. Pesticides Action Network Europe puts out a Press Release:⁹³

"Commission health service DG SANCO is on its way to develop an escape route for endocrine disrupting pesticides that will be banned in future. This is done behind closed doors with EU member states and Food Authority EFSA. Sweden fiercely protested against this initiative because they feel the pesticide Regulation is misused and doesn't allow for a general derogation. Food Authority EFSA is also active in the SANCO working group, lobbying to revise the legislation on endocrines back to traditional risk assessment and encouraging SANCO to use an escape route."

"It also appears from documents released by Commission to PAN Europe (on the PAN website) that EFSA has an active role in the SANCO working group. A representative of the EFSA Scientific Committee writes to Barroso's advisors that they keep on opposing the pesticide legislation and aim to return to traditional risk assessment. This is in line with pesticide industry's efforts. The representative also complains about the pesticide legislation having no "control route" or "socio-economic route" to save endocrine disrupting pesticides from a ban and keep them on the market. The person suggests that the 'negligible exposure' option will be a good option to fill this gap." But documents obtained by Pesticides Action Network (PAN) show that following a meeting between US and EU officials, plans to block the pesticides were dropped.

A PAN spokesman said it looked as if "only trade and profit matter" during the TTIP talks.

The group argues that "health standards already now do not sufficiently protect people and the environment and costs are already externalised massively to society in terms of health care".

⁹⁰ [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)

⁹¹ <http://www.oecd.org/unitedkingdom/building-skills-for-all-review-of-england.pdf>

⁹² http://www.keepeek.com/Digital-Asset-Management/oecd/social-issues-migration-health/oecd-reviews-of-health-care-quality-united-kingdom-2016_9789264239487-en#page19

⁹³ <http://www.pan-europe.info/News/PR/140520.html>

THE PROMOTION OF THE AGROCHEMICAL INDUSTRY BY THE BBC

Open letter to the Director General of the BBC 10/12/2012

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

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

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

BBC Panorama: GM Food – Cultivating Fear⁹⁴

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

Cultivating Myths – The Pro-GMO Bias of the BBC

June 9, 2015 by Lawrence Woodward and Pat Thomas:

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

*It’s tempting to say that you couldn’t make this stuff up – except Panorama has proven with its latest fiction that actually you can – and that you can even get the BBC (and thus the licence fee payer) to pay for it.”*⁹⁵

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

The following are extracts from the account by Clare Robinson of GM Watch:⁹⁶

The BBC’s claim of 90% success for Bt brinjal in Bangladesh has been challenged by a journalist.

Faisal Rahman, staff correspondent for the United News of Bangladesh (UNB), contacted GMWatch

⁹⁴ <https://www.youtube.com/watch?v=6KruFQ2uCqk>

⁹⁵ <http://beyond-gm.org/cultivating-myths-the-bbc-pro-gmo-bias/>

⁹⁶ <http://www.gmwatch.org/news/latest-news/16320-bt-brinjal-plants>

after watching the programme, which he felt “denied the reality of losses the farmers of Bangladesh incurred by cultivating Bt brinjal”. Out of concern for the farmers, Rahman wanted to set the record straight. His evidence, together with subsequent investigations by GMWatch, casts serious doubt on the credibility of the BBC Panorama programme.

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

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

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

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

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

What happened next to Bt Brinjal? After Panorama had left, on 20 June, Faisal Rahman visited some Bt brinjal fields in Tangail with fellow journalist Delowar Jahan, staff correspondent of the daily newspaper Sokaler Khobor. BBC Panorama's visit to Tangail had made them curious about the performance of Bt brinjal there. They called in on Hafizur Rahman, the farmer who was featured in the Panorama programme to show Bt brinjal was a success. Tellingly, Hafizur Rahman said he had “stopped taking care of his Bt brinjal field about one and a half to two months ago” because the plants had been slowly dying out, from just three months after planting. His brother Alhaj had also cultivated Bt brinjal on another plot nearby, and the condition of his crop was worse. The two journalists found a significant number of the plants dead in both the fields. Many plants were bearing fruits that were unnaturally hard and some of the fruits had rotted before being fully ripe.

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

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

Scientist leading GM crop test defends links to US biotech giant Monsanto by Jamie Doward.⁹⁷

Research professor Jonathan Jones says his verdict on a potato trial in Norfolk “will not be influenced by his past commercial ties to Monsanto.” In a statement to the *Observer*, Jones insisted: “It is not true to suggest I have attempted to hide my role as co-founder and science advisory board member of Mendel Biotechnology, which has contracts with Monsanto, Bayer and BP. The information that I

⁹⁷ <http://www.theguardian.com/environment/2010/jul/18/gm-scientist-defends-monsanto-links>

am co-founder... of Mendel has been in the public domain on the Mendel website for at least 10 years."

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

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

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

Rothamsted Research's 3-year trial of GM wheat has failed. GM wheat designed to repel aphids is no more effective at repelling the bugs than standard varieties a major field trial has revealed.⁹⁸

"The research cost of the trial was £730,000, but that figure is dwarfed by a further £400,000 spent on fencing to protect this and future trials, and an extra £1.8m used to combat threats of criminal damage and vandalism."

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

This very popular programme on BBC 2 is presented by Dr Michael Mosley and Dr Chris van Tulleken. In Series 3 Episode 3, they ask the question: Is organic food better for your health?⁹⁹ Twenty-nine minutes into the programme, they take 3 vegetables: carrots, apples and tomatoes. They send them to be analysed for pesticides (which?) by Professor Graham Bonwick. On his website it states: *In addition to teaching in the Departments of Biological and Clinical Sciences, I am involved in research and knowledge transfer in the food chain sciences, as well as the development of industry responsive blended learning programmes for workforce up-skilling. I am Project Director for the ERDF [NowFood Project](#) which is creating a centre of excellence (North West Food Research Development Centre) and lead the Food Growth Team in the Faculty of Life Sciences.* Bonwick returns and says there are no pesticides in the organic samples and only a 'trace' in the non-organic which makes them 'safe for human consumption'. They conclude therefore that it is not worth paying for organic. I sent Dr Mosley's agent an email with the details from the Expert Committee about glyphosate (and other pesticide) residues in bread, cereals etc., the information that some farmers have been spraying glyphosate pre-harvest since 1980 together with the Soil Association Campaign and Peter Melchett's information about the IARC declaration that glyphosate is a Grade 2A (probable carcinogen in humans and 'definitely genotoxic') : www.soilassociation.org.uk/notinourbread A DEAFENING SILENCE (apologies Dr Mosley if you didn't reply because you were on holiday). His agent Sophie Laurimore says the unit is very busy. Sophie launched Factual Management in 2009 'enabling her to focus on the representation of exceptionally talented factual television Presenters'. Coincidentally she is also the agent for Adam Rutherford of Inside Science.

THE WEEK IN SCIENCE: 22–29 FEBRUARY 2016

With acknowledgements to *Nature*

Glyphosate found in 14 German Beers

The Munich Environmental Institute (Umweltinstitut München) has released shocking results on 25/02/2016 of laboratory testing it has completed on 14 of the most sold beers in Germany.¹⁰⁰

The Wellcome Trust and the Gates Foundation

⁹⁸ <http://www.theguardian.com/environment/2015/jun/25/gm-wheat-no-more-pest-resistant-than-ordinary-crops-trial-shows>

⁹⁹ <http://www.bbc.co.uk/iplayer/episode/b0647r8c/trust-me-im-a-doctor-series-3-episode-3>

¹⁰⁰ <http://sustainablepulse.com/2016/02/25/german-beer-industry-in-shock-over-probable-carcinogen-glyphosate-contamination/>

Dr Jeremy Farrar of the Wellcome Trust and Dr Trevor Mundel of the Gates Foundation wrote in the Observer/Guardian on 27/02/2016 to appeal for money for vaccines and drugs to fight global diseases.¹⁰¹ Both have intimate connections with agrochemical and pharmaceutical corporations including Monsanto, Syngenta, Bayer, AstraZeneca and GlaxoSmithKline.¹⁰²

They wrote: “A healthy body has three essential systems for staying that way. There is physical fitness, building resilience against threats [A global obesity and diabetic crisis caused by endocrine disrupting chemicals: glyphosate, atrazine and DDT]. There is the brain, to spot danger and take action [The brains of the young have been damaged by exposure to environmental chemicals]. And there is the immune system, to neutralise infections that breach other defences.” [Our immune systems and that of animals have been destroyed by biocides...in particular the widespread use of glyphosate and the neonicotinoid insecticides]. Jeremy Farrar goes on to say: *The final requirement is a better immune system. That means a transformed approach to research and development of vaccines and drugs.* The Wellcome Trust website states: “We are an independent global charitable foundation dedicated to improving health, because good health makes life better.”

Zika Virus is blamed for the epidemic of microcephaly but there is another possible explanation
The Physicians of Crop-Sprayed Towns of Argentina’s Report about the origins of microcephaly:¹⁰³
“...they fail to recognise that in the area where most sick persons live, a chemical larvicide producing malformations in mosquitoes has been applied for 18 months, and that this poison (pyroproxyfen) is applied by the State on drinking water used by the affected population.”

Pyroproxyfen is a chemical growth regulator of insect larvae produced by Sumitomo, a Japanese subsidiary of Monsanto. The Physicians of Argentina’s Report continues: “this strategy is in fact a commercial manoeuvre from the chemical poisons industry, deeply integrated into Latin American ministries of health as well as WHO and PAHO. Massive spreading using planes, as the governments of Mercosur are considering, is criminal, useless, and a political manoeuvre to simulate that actions are taken. The basis of the progress of the disease lies in inequality and poverty, and the best defence are community-based actions. The last strategy deployed in Brazil, and which might be replicated in all our countries, is the use of GM mosquitoes — a total failure, except for the company supplying mosquitoes,” Oxitec, from Oxford, UK.

Global biodiversity report warns pollinators are under threat

First assessment from intergovernmental body set up to track world's ecosystems suggests curbing pesticide use to save bees.¹⁰⁴ An assessment by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) a UN body on biodiversity said: *Many wild bees and butterflies have been declining in abundance, occurrence and diversity at local and regional scales in Northwest Europe and North America posing potential risks to major world crops.*¹⁰⁵ Data is more solid for non-insect pollinators such as bats and birds, however, with the IPBES saying 16% of such species worldwide are threatened with extinction. Greater attention to controlling pathogens among species and better regulation of managed populations of bees and other pollinators could also help, it added. IPBES members stressed that the group does not make specific recommendations, but provides information for policy-makers.” However there were complaints that two out of the 40 members of the committee were from the pesticides industry therefore had conflicts of interest.

Glyphosate co-formulants alone, formulations and glyphosate alone are all endocrine disruptors¹⁰⁶

New publication on 26/02/2016 by CRIIGEN and the Séralini Group: “We measured the endocrine disruptive effects of co-formulants of six glyphosate herbicides. We did this by measuring the activity

¹⁰¹ <http://www.theguardian.com/global-development/2016/feb/27/global-defence-against-virus-zika-ebola-needed>

¹⁰² <http://www.globaljustice.org.uk/sites/default/files/files/resources/gated-development-global-justice-now.pdf>

¹⁰³ http://www.reduas.com.ar/wp-content/uploads/downloads/2016/02/Informe-Zika-de-Reduas_TRAD.pdf

¹⁰⁴ <http://www.nature.com/news/global-biodiversity-report-warns-pollinators-are-under-threat-1.19456>

¹⁰⁵ <http://www.theguardian.com/environment/2016/feb/26/decline-of-bees-poses-potential-risks-to-major-crops-says-un>

¹⁰⁶ <http://www.mdpi.com/1660-4601/13/3/264>

of aromatase, a key enzyme for the balance of sex hormones, in human placental cells, using a method validated by the OECD to assess endocrine disruptors. The aromatase activity was significantly decreased both by the co-formulants alone and by the formulations, from doses 800 times lower than the agricultural dilution, while glyphosate alone only showed such an effect from one-third of the agricultural dilution.”

Department of Health’s child obesity strategy delayed – yet again

The strategy was first planned for December, then rescheduled for January, then February or March. Now it’s been moved to the summer. Who knows if it will be mysteriously delayed again?

A DoH spokesperson said that they wanted to get it right and that David Cameron and Jeremy Hunt wanted it to be a “game-changing moment”.¹⁰⁷

Obesity crisis: Sugar: spinning a web of influence¹⁰⁸

Public health scientists are involved with the food companies being blamed for the obesity crisis

Report by freelance journalist, Jonathan Gornall. “An investigation by *The BMJ* has uncovered evidence of the extraordinary extent to which key public health experts are involved with the sugar industry and related companies responsible for many of the products blamed for the obesity crisis through research grants, consultancy fees, and other forms of funding.”

New lead for the US Food and Drug Administration¹⁰⁹

After a five-month delay, the US Senate is finally poised to vote on the nominee to head the US Food and Drug Administration (FDA): cardiologist and clinical-trials expert Robert Califf. In an article this month in the *New England Journal of Medicine*, Califf listed more than a dozen pharmaceutical companies in his conflict-of-interest disclosure. “No previous FDA commissioner has been so closely tied to the pharmaceutical industry”, says Michael Carome, director of the health-research group at Public Citizen, a consumer activist group in Washington DC. “It would be dangerously naive to think he has not developed deeply ingrained attitudes that tilt in favour of the medical-device and drug industries,” says Carome.

It might be a change from the previous appointee. *The Obama administration appointed Michael Taylor, the previous vice president of Monsanto and a current Monsanto lobbyist, to a high level advisory role at the Food and Drug Administration [FDA]. It is virtually inarguable that this appointment constitutes a massive boon for Monsanto and an undeniable conflict of interest for Taylor. Given the fact that Taylor is a lobbyist for Monsanto and is being paid by the agro-giant, it is reasonable to assume that his advice to the FDA is focused upon helping his employer reduce its regulatory burden and improve its profitability. It isn’t a secret who Taylor worked for and we can assume that the Obama administration knew who they were appointing when they did it.*¹¹⁰

Chytrid fungus wipes out 90% salamanders in the Netherlands¹¹¹ but pesticides not mentioned

Urgent trade embargo on live Asian species is needed to prevent a virulent disease from wiping out European newts and salamander populations. *Batrachochytrium salamandrivorans* or “Bsal” fungus, thought to originate in Asia. The pathogen has already wiped out 99.9% of the Netherlands’ glossy black and yellow fire salamander population in just three years. It is now spreading quickly across Belgium and northern Germany.

¹⁰⁷ http://www.theguardian.com/commentisfree/2016/feb/28/jeremy-hunt-running-scared-of-sugar-tax-childhood-obesity?utm_source=esp&utm_medium=Email&utm_campaign=GU+Today+main+NEW+H&utm_term=159176&subid=5939743&CMP=EMCNEWEML661912

¹⁰⁸ <http://www.bmj.com/content/bmj/350/bmj.h231.full.pdf>

¹⁰⁹ <http://www.nature.com/news/senate-nears-final-vote-on-obama-s-pick-to-lead-fda-1.19418>

¹¹⁰ <http://www.globalresearch.ca/monsanto-controls-both-the-white-house-and-the-us-congress/5336422>

¹¹¹ <http://www.theguardian.com/environment/2016/feb/09/scientists-call-for-import-ban-to-save-europes-salamanders-from-skin-eating-fungus>

In 2010 Dr Henk Tennekes, an independent Dutch toxicologist, first warned of the dangers of the systemic neonicotinoid insecticides to arthropods in a paper in *Toxicology*¹¹² and in his book: *The systemic neonicotinoid insecticides: A disaster in the making*. Dr Tennekes says that his book: "... catalogues a tragedy of monumental proportions regarding the loss of invertebrates and subsequent losses of the insect-feeding (invertebrate-dependent) bird populations in all environments in the Netherlands. The disappearance can be related to agriculture in general, and to the neonicotinoid insecticide imidacloprid in particular, which is a major contaminant of Dutch surface water since 2004." The relationship exists because of crucial (and catastrophic) disadvantages of the neonicotinoid insecticides: the damage to the central nervous system of insects is irreversible and cumulative. Tennekes showed that there is no safe level of exposure, and even minute quantities can have devastating effects in the long term. They leach into groundwater and contaminate surface water and persist in soil and water, chronically exposing aquatic and terrestrial organisms to these insecticides. "So, what, in effect, is happening is that these insecticides are creating a toxic landscape, in which many beneficial organisms are killed off." Tennekes and Sánchez-Bayo, in a more recent paper, demonstrated that chemicals that bind irreversibly to specific receptors (neonicotinoids, genotoxic carcinogens and some metalloids) will produce toxic effects in a time-dependent manner, no matter how low the level of exposure.¹¹³

In 2013 a study from Utrecht University in the Netherlands of imidacloprid contamination of water showed that macrofauna abundance drops sharply between 13 and 67 ng L⁻¹ of imidacloprid.¹¹⁴ The team combined 8 years of monitoring data on imidacloprid in surface water and 8 years of monitoring data on macrofauna abundance. The water quality standards applied in the Netherlands to achieve ecological protection are not met in many parts of the country, and especially in agricultural areas with greenhouses and crops like bulbs, where concentrations up to hundreds of µg L⁻¹ imidacloprid were being found in surface water. "We are risking far too much to combat a few insect pests that might threaten agriculture," said Dr Jeroen van der Sluijs, the senior member of the team based at Utrecht University. "This substance should be phased out internationally as soon as possible. The pollution was so bad in some places that the ditch water in fields could have been used as an effective pesticide" he said. "As well as killing mayflies, midges and molluscs, the pollution could have a knock-on effect on birds such as swallows that rely on flying insects for food," he added. Half of the 20,000 tonnes of imidacloprid produced each year is not affected by the EU ban, because it is used not to treat crops, but to combat fleas and other pests in cattle, dogs and cats; much of it ends up in surface water.

Emerging pathogens as threats to animal and plant health

Outbreaks of infectious diseases amongst species of wildlife around the world (such as amphibians, honey bees and wild bees, fish, birds and bats) have occurred over the last 25 years. Since the late 1990's scientists have written in increasingly desperate tones. In 2012 there were two papers in *Nature*: "Biodiversity loss and the impact on humanity"¹¹⁵ and "Emerging fungal threats to animal, plant and ecosystem health".¹¹⁶ Authors of this last review had appealed to scientists urgently to find 'the elusive magic bullet.' Only one paper from California dared to mention pesticides. Davidson *et al.*¹¹⁷ reported in 2002 spatial patterns of decline for four California ranid frogs and matched the declines with the distribution of agricultural lands (based on USGS land use maps and key predominant wind directions based on California Air Resources streamline wind maps). The authors

¹¹² Tennekes HA. The significance of the Druckrey-Küpfmüller equation for risk assessment – The toxicity of neonicotinoid insecticides to arthropods is reinforced by exposure time. *Toxicology* 2010; 276(1):1-4.

<http://www.ncbi.nlm.nih.gov/pubmed/20803795>

¹¹³ <http://www.farmlandbirds.net/en/content/human-health-and-global-biodiversity-lies-hands-pesticides-industry>

¹¹⁴ <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0062374>

¹¹⁵ http://www.nature.com/nature/journal/v486/n7401/full/nature11148.html?WT.ec_id=NATURE-20120607

¹¹⁶ <http://www.ncbi.nlm.nih.gov/pubmed/22498624>

¹¹⁷ <http://onlinelibrary.wiley.com/doi/10.1046/j.1523-1739.2002.01030.x/abstract>

stated that: “In California, the transport and deposition of pesticides from the agriculturally intensive Central Valley to the adjacent Sierra Nevada is well documented, and pesticides have been found in the bodies of Sierra frogs.” The extensive use of the systemic neonicotinoid insecticides¹¹⁸ and the herbicide glyphosate,¹¹⁹ on agricultural crops, both of which cause immune suppression, make species vulnerable to emerging infectious pathogens, driving large-scale amphibian extinctions.

Chytrid fungus has wiped out amphibian populations over five continents.

Chytrid fungus, *Batrachochytrium dendrobatidis* has wiped out amphibian populations over five continents. A spokesman for IUCN said: “The IUCN Red List currently considers 31% of the earth’s amphibians are threatened with extinction...it’s thought that 159 species have vanished forever in recent years.” Amphibians, particularly tadpoles, are considered to be environmental indicators of indirect ecosystem effects because of their unique niche at the boundary of the aquatic-terrestrial ecosystems as well as their sensitivity to pollutants. While tadpoles feed on periphyton, adult amphibians are strictly insectivorous. Amphibians were the first group of vertebrates to be affected by the epidemics of diseases caused by uncommon pathogens. Joseph Mendelson an amphibian taxonomist wrote in 2011.¹²⁰ “The reality of amphibian declines and extinctions has shifted the ecological baseline in so many ecosystems, that an entire generation of biologists is conducting their research in a framework that has been very recently remodelled. I am a taxonomist and I have seen my career vacillate between the thrill of discovering new species and the chill of tracking extinction events—including species that I described.”

Elephants kept in captivity dying from herpes virus but animal feed contaminated with pesticides

Elephant endotheliotropic herpes virus (EEHV) has killed 11 elephants since 1995.¹²¹ EEHV5 was first detected in 2007 in whole blood samples from a clinically healthy, 59 year-old, wild-born Asian elephant. “Humans get herpes when they are run down and their immune system is weak”.

Séralini’s group wrote a paper ‘Laboratory Rodent Diets Contain Toxic Levels of Environmental Contaminants: Implications for Regulatory Tests’¹²²

“We describe the contamination with environmental pollutants of 13 laboratory rodent diets from 5 continents. Measurements were performed using accredited methodologies. All diets were contaminated with pesticides (1-6 out of 262 measured), heavy metals (2-3 out of 4, mostly lead and cadmium), PCDD/Fs (1-13 out of 17) and PCBs (5-15 out of 18). Out of 22 GMOs tested for, Roundup-tolerant GMOs were the most frequently detected, constituting up to 48% of the diet...This is the first study reporting the extent of the worldwide use of GMOs in rodent diet.

The Science Media Centre as usual criticised it on behalf of Monsanto.¹²³ At the same time Anthony Samsel issued analyses of nine samples of pet food contaminated with glyphosate and its breakdown product AMPA.¹²⁴ These contaminants must be present in zoo-feed as well as pet food.

Death rate in England and Wales has increased by 5.6% in 2015¹²⁵

Prof Dominic Harrison, Director of Public Health in Blackburn and Darwen says that England and Wales have seen the biggest jump in the number of deaths a year for a whole generation. Public Health England says it is monitoring the provisional data and its officials say a particularly bad strain of flu and an ineffective vaccine may be behind the rise.

¹¹⁸ http://www.boerenlandvogels.nl/sites/default/files/JEIT%20Immune%20Suppression%20pdf_6.pdf

¹¹⁹ http://www.fs.fed.us/foresthealth/pesticide/pdfs/seratr01_43_08_04.pdf

¹²⁰ http://nationalzoo.si.edu/support/volunteer/documents/HR_Mar2011_JoeM_proofs.pdf

¹²¹ <http://www.nature.com/articles/srep06299>

¹²² <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0128429>

¹²³ <http://www.sciencemediacentre.org/expert-reaction-to-study-investigating-content-of-and-contaminants-in-laboratory-rodent-diets/>

¹²⁴ <http://farmwars.info/wp-content/uploads/2015/09/Riddled-with-Roundup1.jpg>

¹²⁵ <http://www.bbc.co.uk/news/uk-england-35589564>

Prof Harrison's own analysis backs up figures in the [Health Service Journal](#) which suggest there have been 5.6% more deaths in England and Wales in 2015 than in the previous year - the biggest increase in the national death rate since the 1960s.

Taken together he says the figures suggest "*something is making the population more vulnerable to death.*" And he says the findings are unlikely to be fully explained by winter infections or a rise in the elderly population.

WHAT IS THE DIFFERENCE BETWEEN PESTICIDES AND CHEMICAL WEAPONS?

Secret use of chemicals by Governments in wartime

The Winston Churchill Government had been stockpiling Mustard Gas with a view to its use in WW2. Mustard production at the manufacturing sites near Mold in Flintshire, Wales ceased in April 1945 and between 1946 and 1948 the associated plant and facilities were decommissioned.¹²⁶ By April 1959 the entire stockpile had been sent for destruction and dismantling and decontamination of all the remaining pipework and equipment was completed by April 1960. In 1994 Defra was charged with cleaning up the site.

Phosphorus had been used on civilians during the allied bombing of Dresden¹²⁷ and was employed during the Falklands War.¹²⁸ The US has used aerial bombardment with phosphorus on multiple occasions. However, they do not acknowledge it as a banned substance.¹²⁹

The Malayan Emergency also marked the first time herbicidal warfare was used. Defoliation experiments using 2,4-D¹³⁰ and 2,4,5-T (Agent Orange) were conducted by the British during the conflict in the 1950s.¹³¹ "*The initial government strategy was primarily to guard important economic targets, such as mines and plantation estates... Areas of jungle close to roadways were cleared using chemical defoliation to help prevent ambushes by Communist guerrillas... An estimated 10,000 civilians and insurgents in Malaya also suffered heavily from the effects of the defoliant (though many historians agree it was likely more than this number given that Agent Orange was used on a large scale in the Malayan conflict and unlike the US, the British government manipulated the numbers and kept its secret very tight in fear of negative world public opinion.*"

The US has used Agent Orange in Vietnam¹³² and Glyphosate in Columbia.

With regard to spraying glyphosate in Columbia, Alfredo Molano Bravo says: "*The aircraft with its wings full of Roundup - herbicide produced by criminal Monsanto- and with armored bellies to avoid the gringo pilots gutted to the ground with their airplanes, will take off again in Cauca, Putumayo, North Santander, Antioquia, Chocó, Caquetá, Meta, Guaviare and Nariño...They suspended the spraying while they armored the aircrafts against guerrilla fire. They do care for protecting the airplanes; however, they don't care if the population gets cancer, if congenital malformations occur in the babies of peasants and indigenous women and if children will continue to be born with genetic deformities as has been happening.*"¹³³ Professor Robert Bellé of the Station Biologique de Roscoff (under the authority of the CNRS (Centre Nationale de la Recherche Scientifique) and the Université Pierre et Marie Curie) is an expert on the toxic effects of formulated glyphosate on human cells.

^{134,135} He investigated aerial spraying of glyphosate on some 1.5 million hectares in Colombia says: "*Formulated glyphosate is causing the early stages of cancerization.*"

¹²⁶ http://www.subbrit.org.uk/rsg/sites/r/rhydymwyn/defra_1.html

¹²⁷ <http://www.bbc.co.uk/programmes/b071gx2c>

¹²⁸ <http://www.amazon.co.uk/When-Fighting-Over-Tumbledown-Aftermath/dp/0747501742>

¹²⁹ <http://www.globalsecurity.org/military/systems/munitions/wp.htm>

¹³⁰ Discovered by Rothamsted Research UK and the USDA in 1941.

¹³¹ http://medlibrary.org/medwiki/Environmental_impact_of_war

¹³² https://en.wikipedia.org/wiki/Environmental_impact_of_war

¹³³ <http://farc-epeace.org/index.php/component/k2/item/337-about-glyphosate-powerful-chemical-weapon-of-transnational-power/337-about-glyphosate-powerful-chemical-weapon-of-transnational-power.html>

¹³⁴ <http://www.ncbi.nlm.nih.gov/pubmed/15182708>

Questions and Answers for the British and American Governments

- **Q:** Who 'wields tremendous control' over the British and American Governments? ¹³⁶
- **A:** The Agrochemical Corporations.
- **Q:** With regards to pesticide regulations, who controls human health and biodiversity?
- **A:** The Agrochemical Corporations.
- **Q:** Who has manufactured the chemical weapons used in Syria and Vietnam?
- **A:** The Agrochemical Corporations. The factories in Germany that made chemical weapons during the war were turned into factories to make pesticides.
- **Q:** What is the difference between chemical weapons and pesticides?
- **A:** For some pesticides the mode of action is identical.
- **Q:** What chemical did John Kerry reveal was used in Syria?
- **A:** Sarin; a potent organophosphate compound which kills by inhibiting anticholinesterase
- **Q:** What is chlorpyrifos?
- **A:** Chlorpyrifos, an organophosphate insecticide, is also an inhibitor of anticholinesterase. This is an enzyme vital to the nervous systems of animals and humans. Symptoms of acute chlorpyrifos poisoning in adults include headache, nausea, dizziness, muscle twitching, weakness, increased sweating and salivation, and occur when cholinesterase activity has been reduced by about 50%. Unconsciousness, convulsions, and death can result with sufficient exposure. Chlorpyrifos is registered by the CRD and still used by farmers in the UK.
- **Q:** If it poisons insects, what does it do to the human foetal brain when it is the same size as that of an insect brain?
- **A:** *"Prenatal exposure to chlorpyrifos (CPF), an organophosphorus insecticide, has long been associated with delayed neurocognitive development and most recently with decrements in working memory at age 7".¹³⁷ "We report evidence of deficits in Working Memory Index and Full-Scale IQ as a function of prenatal CPF exposure at 7 years of age. These findings are important in light of continued widespread use of CPF in agricultural settings and possible longer-term educational implications of early cognitive deficits"¹³⁸.*
- **Q:** In that case is there any difference between chemical weapons and pesticides?
- **A:** Chemical weapons kill fast: the effects are obvious for anyone to see. The effect of pesticides on humans and the environment is extremely subtle. Pesticides are silent destroyers: by the time the patterns are obvious, it is too late. Human beings around the world are being used as guinea pigs.

Statement: John Kerry, in justification of the bombing of Syria by the US on 30/08/2013: *"History will judge us harshly if we turn a blind eye to use of weapons of mass destruction".*

- **Q:** Has John Kerry forgotten the Vietnam War, after which he gave evidence to Congress about US War Crimes?
- **A:** *"In the course of 10 years, American forces sprayed nearly 20 million gallons of the chemical (a dioxin, Agent Orange) in Vietnam, Laos and parts of Cambodia in an effort to deprive guerrilla fighters of cover by destroying plants and trees where they could find refuge."¹³⁹*

Among the illnesses contracted by people exposed to the dioxin are non-Hodgkin's lymphoma, several varieties of cancer, type 2 diabetes, soft tissue sarcoma, birth defects in children, spina bifida and reproductive abnormalities, to name a few.

The U.S. government, however, has dismissed these figures as unreliable and inflated.

¹³⁵ <http://toxsci.oxfordjournals.org/content/82/2/436.full.pdf>

¹³⁶ <http://www.panna.org/publication/generation-in-jeopardy>

¹³⁷ <http://dx.doi.org/10.1016/j.ntt.2012.07.004>

¹³⁸ <http://dx.doi.org/10.1289/ehp.1003160>

¹³⁹ <http://www.dailymail.co.uk/news/article-2401378/Agent-Orange-Vietnamese-children-suffering-effects-herbicide-sprayed-US-Army-40-years-ago.html>

In July 2013 the Association for Victims of Agent Orange in Ho Chi Minh City filed its fourth lawsuit against Monsanto & Dow, the American chemical companies that produced Agent Orange.

- *South Korea's highest court on Friday upheld a ruling, ordering two U.S. Agent Orange makers to compensate 39 Vietnam War veterans in one of the country's most prominent lawsuits.*¹⁴⁰
- *The Supreme Court (SC) recognised the epidemiological correlation between the toxic defoliant and skin diseases for the first time, saying the 39 victims should receive a total of 466 million won (\$415,000) from Dow Chemical and Monsanto. U.S. forces widely sprayed Agent Orange, which contained the lethal chemical dioxin, in Vietnam during the conflict to deprive enemy guerrillas of forest cover and destroy food crops. Veterans in South Korea estimate the number of Korean victims of the chemicals at about 150,000. Many insisted they were suffering from various ailments associated with exposure to the powerful herbicide. Vietnam says millions of its people have died or suffered from direct or second-generation disabilities as a result of the use of Agent Orange.*
- *Washington has never accepted responsibility for the Vietnamese government's claim.*

MONSANTO TO BE PUT ON TRIAL AT INTERNATIONAL CRIMINAL COURT IN THE HAGUE

On December 3rd 2015 it was announced that Monsanto, the US-based transnational corporation, will be put on trial in the International Criminal Court in The Hague for ecocide¹⁴¹

PARIS – The Organic Consumers Association (OCA), IFOAM International Organics, Navdanya, Regeneration International (RI), and Millions Against Monsanto, joined by dozens of global food, farming and environmental justice groups announced today that they will put Monsanto, a US-based transnational corporation, on trial for crimes against nature and humanity, and ecocide, in The Hague, Netherlands, next year on World Food Day, October 16, 2016. This International Criminal Court, established in 2002 in The Hague, has determined that prosecuting ecocide as a criminal offense is the only way to guarantee the rights of humans to a healthy environment and the right of nature to be protected.

The tribunal's website says, "*According to its critics, Monsanto is able to ignore the human and environmental damage caused by its products and maintain its devastating activities through a strategy of systemic concealment: by lobbying regulatory agencies and governments, by resorting to lying and corruption, by financing fraudulent scientific studies, by pressuring independent scientists, by manipulating the press and media, etc. The history of Monsanto would thereby constitute a textbook case of impunity, benefiting transnational corporations and their executives, whose activities contribute to climate and biosphere crises and threaten the safety of the planet.*"

In addition to Monsanto, the tribunal intends to mount a "best case" to denounce "all multinational companies which are driven by the profit motive and thereby threaten human health and the safety of the planet". The initiative is "*unique and unprecedented*", says Marie-Monique Robin.¹⁴²

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 and filmmaker. She received the 1995 Albert-Londres Prize, awarded to investigative journalists in France. She is the director and producer

¹⁴⁰ <http://www.thehindu.com/todays-paper/tp-international/dow-monsanto-ordered-to-pay-agent-orange-victims/article4913976.ece>

¹⁴¹ <http://www.monsanto-tribunal.org/>

¹⁴² <http://gmwatch.org/news/latest-news/16576-international-lawyers-and-ngos-launch-tribunal-to-try-monsanto-for-ecocide>

of more than thirty documentaries. Her new book: ***Our Daily Poison: From Pesticides to Packaging, How Chemicals Have Contaminated the Food Chain and Are Making Us Sick.***¹⁴³

“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*

Sustaining Life: How Human Health Depends on Biodiversity¹⁴⁴

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.

Rosemary Mason 2 March 2016

For other documents on how Governments and Corporations are poisoning our food supply, our environment and are inadvertently destroying the planet please see:

Glyphosate causes cancer and birth defects. Humans are being poisoned by thousands of untested and unmeasured chemicals: which can be downloaded at: <http://tinyurl.com/i8gjht9n>

Open Letter to the Chief Medical Office, the Wellcome Trust and Public Health – England which can be downloaded at: <http://tinyurl.com/h86wej5>

The sixth mass extinction and chemicals in the environment: our environmental deficit is now beyond nature’s ability to regenerate: which can be downloaded at: <http://tinyurl.com/pk6a3g9>

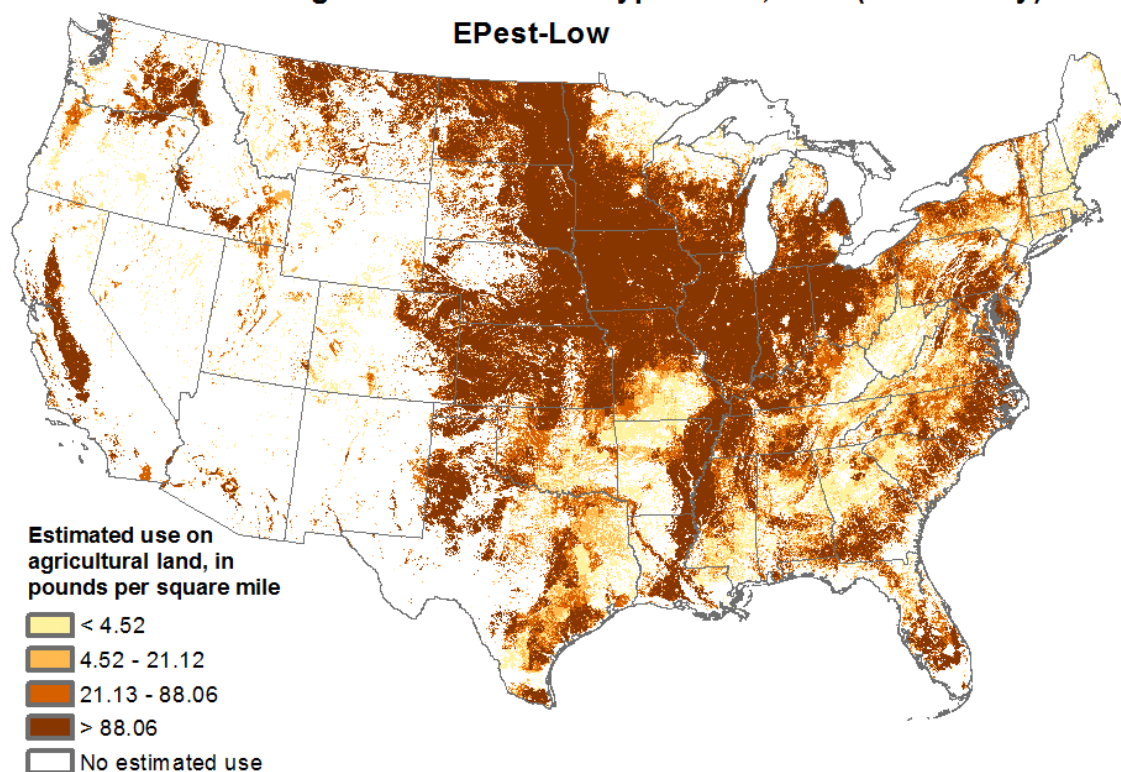
¹⁴³ <http://thenewpress.com/books/our-daily-poison>

¹⁴⁴ <https://global.oup.com/academic/product/sustaining-life-9780195175097?cc=gb&lang=en&>

APPENDIX

US National Water-Quality Assessment (NAWQA) Program
Pesticide National Synthesis Project

Estimated Agricultural Use for Glyphosate , 2013 (Preliminary) EPest-Low



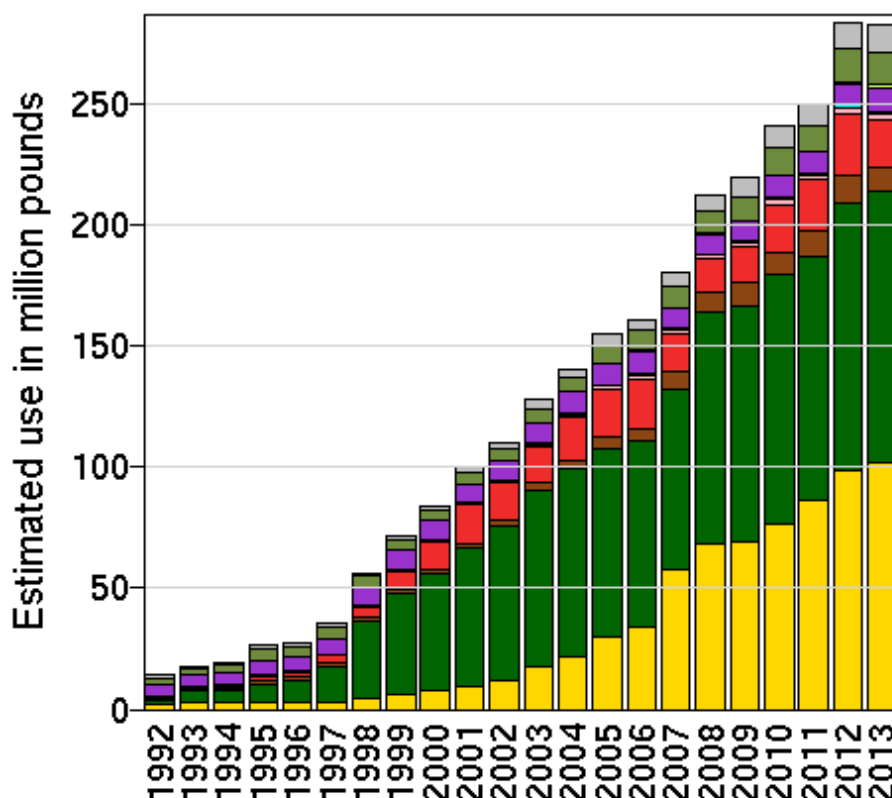
This is the map of Estimated Agricultural Use for Glyphosate in 2013.¹⁴⁵ According to 2014 figures, there were approximately 777 pesticides authorized in the US. This is a list of them for 2013.¹⁴⁶ Human Health Benchmarks for Pesticides¹⁴⁷ are measured for 363 but not glyphosate.

¹⁴⁵ http://water.usgs.gov/nawqa/pnsp/usage/maps/show_map.php?year=2013&map=GLYPHOSATE&hilo=L

¹⁴⁶ http://water.usgs.gov/nawqa/pnsp/usage/maps/compound_listing.php?year=2013&hilo=L

¹⁴⁷ <http://iaspub.epa.gov/apex/pesticides/f?p=HHBP:home>

Use by Year and Crop



This is the use by year and crop.¹⁴⁸ However, this is only the amount of glyphosate use on agriculture. It excludes amenity use. Below is a 2007 map from the US EPA showing that non-crop uses of herbicides and plant growth regulators have about 20% of the US market. Although Defra commissioned a Report from a private firm the use of Amenity Pesticides in the UK is unknown.¹⁴⁹

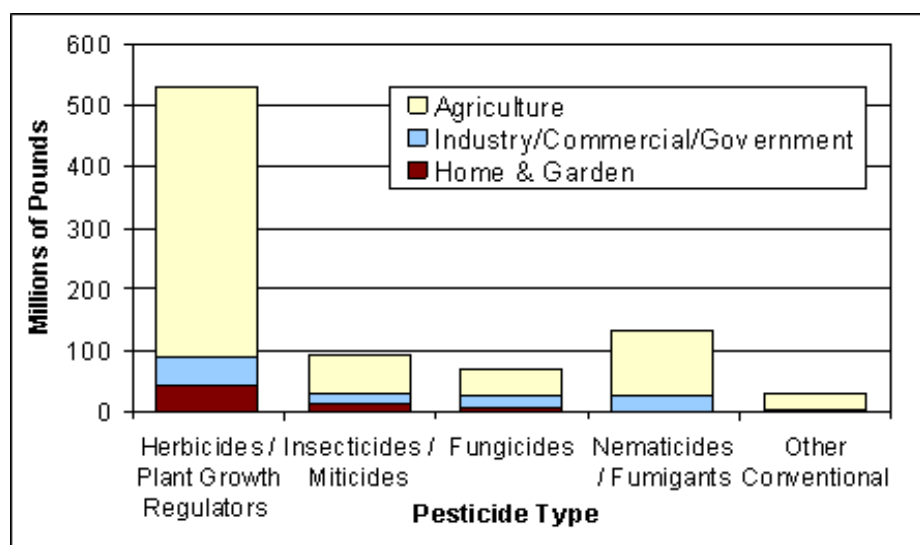


Fig 1 Amount of Conventional Pesticide Active Ingredient Used in the United States By Pesticide Type and Market Sector, 2007 Estimates US EPA

¹⁴⁸ http://water.usgs.gov/nawqa/pnsp/usage/maps/show_map.php?year=2013&map=GLYPHOSATE&hilo=L

¹⁴⁹ Amenity_Pesticide_Report_Final Feb 2011.pdf