

Open Letter to the European Commission and European Food Safety Authority

Executive Summary

1) Sealed documents obtained from the US EPA show that Monsanto knew that glyphosate caused cancer in animals but manipulated the research results¹

“During its years investigating glyphosate’s bioactivity, Monsanto conducted hundreds of trials on mice, rats, beagle dogs, rabbits and other life. Among the many cancers and diseases Monsanto’s own research found associated with glyphosate are: adenoma/cancer in the pituitary gland; glioma tumors in the brain; reticular cell sarcomas in the heart; malignant tumors in the lungs; salivary mandibular reticular cell carcinoma; metastatic sarcomas of the lymph gland; prostate carcinoma; cancer of the bladder; thyroid carcinoma; adrenal reticulum cell sarcomas; cortical adenomas; basal cell squamous skin tumours. In female mammals there were cancers of the lung, liver, thymus, stomach, bladder adrenal glands, ovaries, colon, uterus, parathyroid and mammary glands.” (page 5 US EPA)

2) Global obesity rise puts UN goals on diet-related diseases 'beyond reach'

Westernised diets are blamed as figures predict failure to meet 2025 target of no increase in obesity or diabetes beyond 2010 levels.²

However, obesity is not due to the public’s addiction to sugar, but to the addiction of farmers around the world (encouraged by the agrochemical industry) to using glyphosate to ripen sugar cane (and to desiccate (dry) other crops).

Glyphosate use in the US has increased over the years 2002 to 2012 from 49,000 tons to 128,000 tons annually. In the UK, according to Defra, more than 1,700 tonnes of glyphosate were sprayed on crops in 2014, up one third on 2012.³

3) Glyphosate is an endocrine disrupting chemical (EDC)

EDCs are chemicals, that, for example, cause fish to change sex, make girls become sexually mature at 13 years old, cause a range of endocrine-related cancers, obesity and diabetes. The agrochemical industry has been trying to delay a ban on EDCs (see page 10)

4) Monsanto has four patents on glyphosate

As a herbicide, a chelator of minerals (it was previously used to extract minerals from boilers), an antibiotic and an antiprotozoal. Every meal that is consumed in which food contains glyphosate residues, beneficial bacteria will be destroyed.

5) Yet more delay until June 2016

Why has the EU Commission given EFSA permission to delay the decision on glyphosate until June 2016?

6) Why won’t the Commission allow Testbiotech to see the BfR Report on Glyphosate?

“The final version of the Pesticides Safety Department at the Federal Institute for Risk Assessment (BfR) Report will be available only after EFSA has finished its own assessment and thereafter a “redacted version” will be published.” (see page 7)

¹ <http://prn.fm/monsantos-sealed-documents-reveal-the-truth-behind-roundups-toxicological-dangers-richard-gale-and-gary-null/>

² <http://www.theguardian.com/society/2015/oct/09/obesitys-global-spread-un-goals-diet-related-diseases-fail>

³ <http://www.thetimes.co.uk/tto/environment/article4528297.ece>

The European Commission was challenged about its continued registration of Roundup® as long ago as 2011; why has it delayed it even further until June 2016?⁴

In 2011, a paper written by eight multinational experts, the authors challenged the European Commission about its continued registration of Roundup®. Roundup® and Birth Defects: is the public being kept in the dark?⁵

Devastating Impacts of Glyphosate Use with GMO Seeds in Argentina”⁶

Argentinian lawyer Dr Graciela Gomez even came to petition the European Parliament against continued registration of glyphosate on behalf of the rural communities in Argentina. Many farm workers and their families were affected by reproductive problems, birth defects and cancers and had DNA changes after spraying pesticides on Roundup® Ready Soy which Monsanto had forced upon them in 1996.

The review of glyphosate was due to take place in 2012. Soon after the Commission was notified of the latest research showing that glyphosate and Roundup® caused birth defects, it quietly passed a directive delaying the review of glyphosate and 38 other dangerous pesticides until 2015. The then EU Commissioner for Health, John Dalli, resigned on 12/10/2012 after an anti-fraud inquiry linked him to an attempt to influence tobacco legislation.⁷ The Commissioner denied the allegation.

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

Professor Dr Dr Andreas Hensel President of the Federal Institute of Risk Assessment (BfR) at a Press release in March 2014 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... 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 (5-enolpyruvylshikimate- 3-phosphate synthase) that is essential for the biosynthesis of certain amino acids. This enzyme is not found in animals and humans.”⁸*

This final statement by the German BfR is wrong: 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.⁹ Pesticide scientists and plant scientists have based their assessment of herbicides on complete ignorance of human physiology. UK public health experts and physicians in the Wellcome Trust and the Royal Society have failed to question the accuracy of the pesticide regulator’s risk assessors’ knowledge.

⁴ <http://panteres.com/2015/09/15/glyphosate-eu-commission-wants-to-extend-half-a-year-admission/>

⁵ <http://earthopensource.org/earth-open-source-reports/roundup-and-birth-defects-is-the-public-being-kept-in-the-dark/>

⁶ http://www.i-sis.org.uk/Devastating_Impacts_of_Glyphosate_Argentina.php

⁷ http://europa.eu/rapid/press-release_MEMO-12-788_en.htm

⁸

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

⁹ <http://www.ncbi.nlm.nih.gov/pubmed/23985870>

Organizations have challenged European Agencies about a re-assessment of glyphosate that has largely used industry data

The Scandal of Glyphosate Re-assessment in Europe

The Institute of Science in Society (I-SIS) Report 07/09/2014

Scandal of Glyphosate Re-assessment in Europe¹⁰

EU rapporteur state Germany recommends re-approval with daily intake increased by 67 %; its re-assessment was carried out by Monsanto and a consortium of chemical companies in Europe based almost entirely on studies from industry; it should be rejected outright.

*“But 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)**”*

Extracts: “The German Federal Institute for Risk Assessment (BfR-- Bundesinstitut für Risikobewertung) is responsible for the Renewal Assessment Report (RAR). There is no information on authorship anywhere within the 15 documents totalling 3 744 pages. Between April and June of 2014, the BfR was contacted and asked on four separate occasions to provide information on who authored the report and which committee at BfR was responsible for the report. To date, they have not responded.

The BfR Committee for Pesticides and Their Residues (CPTR), which might be expected to be responsible for preparing the RAR, has 3 out of 12 of its 2014 members and 4 out of its 16 2011-2013 members from either BASF or Bayer CropScience [14, 15]. This serious conflict of interest in a regulatory agency is not restricted to BfR, it is endemic to the EU regulatory agency.

But 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).¹¹ And the GTF consists of Monsanto and a consortium of 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). 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.”

Testbiotech¹² highlights renewed concern over the risk assessment of glyphosate

Report by German authorities on the most commonly used herbicide criticized as inadequate Friday, 10. October 2014 Press Release

In a report published today, Testbiotech is highlighting the ongoing inadequacies in the risk assessment of the herbicide, glyphosate.¹³ The weed killer is sold under brand names such as Roundup. At the beginning of this year, German authorities published a Renewal Assessment Report (RAR) as part of a EU re-evaluation process for the most widely used weed killer.

According to the German authorities, there were no risks to health, and it was even suggested that the acceptable daily thresholds for long-term exposure (ADI) to which consumers could be exposed might be raised.

In contrast to these findings, the Testbiotech analysis shows that the German assessment report is untenable in light of new scientific evidence and cites evidence from studies

¹⁰ http://www.i-sis.org.uk/Scandal_of_Glyphosate_Reassessment_in_Europe.php

¹¹ <http://www.glyphosatetaskforce.org>

¹² Testbiotech was founded in 2008 by a group of experts and registered as a non-profit organization to promote independent research and public debate on the impacts of biotechnology.

¹³ <https://www.testbiotech.org/en/node/1094>

https://www.testbiotech.org/sites/default/files/TBT_Comment_glyphosate_final.pdf

published in 2013 and 2014. Testbiotech concluded that risks associated with glyphosate must be examined much more closely than has been the case so far.

GM Free Cymru Open letter to EFSA 07/05/2014¹⁴

Here is an extract from an exchange of correspondence complaining about the consultation process between Dr Brian John and an anonymous individual in EFSA: **EFSA's glyphosate consultation: designed to help Monsanto.**

"We therefore seek reassurances from you on the following matters. Please confirm that:

- (a) Comments received by Email or in hard copy, outside the "designated" electronic template, WILL be considered and accepted as valid;*
- (b) You have no right to withhold the German documents on glyphosate from those who are not prepared to sign the illegal disclaimer referred to above.*
- (c) You will agree to undertake an assessment of the use of glyphosate in the context of its intended use with GMO / RR crops, as you have full discretion to do.*
- (d) You will give due consideration to submissions relating to Roundup formulations, since these are the materials actually used in the field by European farmers, and since new evidence points to Roundup being many times more toxic than the supposed "active substance."*

We look forward to receiving your confirmation that these four protests will be placed onto the published record, and that action will immediately be taken as requested."

In March 2015 the World Health Organisation's International Agency for Research on Cancer (IARC) declared glyphosate as a 2A carcinogen (probably carcinogenic in humans)

The IARC reached its decision based on the view of 17 experts from 11 countries, who met in Lyon, France, to assess the carcinogenicity of 5 organophosphate pesticides.¹⁵

GM Free Cymru¹⁶ GM-Free Cymru Special Report Monsanto knew of glyphosate/cancer link 35 years ago posted 8th April 2015

Extracts: *"According to evidence unearthed from the archives of the EPA (Environmental Protection Agency) in the United States, it has been established that Monsanto was fully aware of the potential of glyphosate to cause cancer in mammals as long ago as 1981. Predictably, there was more fury from the industry-led Glyphosate Task Force (2). This Task Force also sponsored a "rebuttal" review article¹⁷ from a team of writers with strong links with the biotechnology industry: but because of the clear bias demonstrated in this paper (which suggests that glyphosate has no carcinogenic potential in humans) it is best ignored until it has been carefully scrutinized by independent researchers (4)."*

NB The paper is called Evaluation of carcinogenic potential of the herbicide glyphosate, drawing on tumor incidence data from fourteen chronic/carcinogenicity rodent studies and the authors' state in the Abstract: *"Most toxicological studies informing regulatory evaluations are of commercial interest and are proprietary in nature. Given the widespread attention to this molecule, **the authors gained access to carcinogenicity data submitted to regulatory agencies** and present overviews of each study, followed by a weight of evidence evaluation of tumor incidence data."*

¹⁴ http://www.gmfreecymru.org/open_letters/Open_letter07May2014.html

¹⁵ [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.

¹⁶ http://www.gmfreecymru.org/documents/monsanto_knew_of_glyphosate.html

¹⁷ <http://www.tandfonline.com/doi/abs/10.3109/10408444.2014.1003423>

Speaking for GM-Free Cymru, Dr Brian John says: "*The evidence shows that by 1981 both Monsanto and the EPA were aware of malignant tumours and pre-cancerous conditions in the test animals which were fed small doses of glyphosate in the secret feeding experiments. Although concerns were expressed at the time by EPA committees, these concerns were later suppressed under the weight of conflicting evidence brought forward by Monsanto, some of it involving the inappropriate use of historical control data of dubious quality. None of these studies [considered in the paper] is available for independent examination (14).*"

Research scientist Dr Anthony Samsel says: "Monsanto's Trade Secret studies of glyphosate show significant incidence of cell tumors of the testes and tumorigenic growth in multiple organs and tissues. They also show significant interstitial fibrosis of the kidney including effects in particular to the Pituitary gland, mammary glands, liver, and skin. Glyphosate has significant effects to the lungs indicative of chronic respiratory disease. Glyphosate has an inverse dose response relationship, and it appears that its effects are highly pH dependent. Both Monsanto and the EPA knew of the deleterious effects of this chemical in 1980 at the conclusion of their multiple long-term assessments, but the EPA hid the results of their findings as "trade secrets." Monsanto has been lying and covering up the truth about glyphosate's harmful effects on public health and the environment for decades. The increases in multiple chronic diseases, seen since its introduction into the food supply, continue to rise in step with its use. Monsanto's Roundup glyphosate based herbicides have a ubiquitous presence as residues in the food supply directly associated with its crop use. Nations must stand together against Monsanto and other chemical companies who continue to destroy the biosphere. We are all part of that biosphere and we are all connected. What affects one affects us all."

Collusion between Regulatory Agencies in Europe and the US EPA

United States of America Environmental Protection Agency serving industry

"Poison Spring, the Secret History of the (US) EPA documents, in devastating detail, the corruption and misuse of science and public trust that has turned the (US) EPA from a watchdog into a "polluters' protection agency".¹⁸ In its half-century of existence, the agency has repeatedly reinforced the chemical-industrial complex by endorsing deadly chemicals, often against the continued advice of its own scientists. It has botched field investigations, turned a blind eye to toxic disasters, and unblinkingly swallowed the self-serving claims of industry." Rarely has our government allowed and encouraged the actions of the chemical industry so openly as it did during Reagan's tenure in Office. He opened the door wide to corporate influence throughout the government, and especially at the Environmental Protection Agency, which began a precipitous functional decline. Reagan gave corporations the reins of power at the agency and they immediately began tearing the EPA apart. One of the authors, E.G.Vallianatos, had worked for the US EPA for 25 years.

Monsanto claims that Roundup® is so safe you can drink it. The US EPA knew otherwise and had the evidence of cancers in animals from Monsanto's 15,000 pages of glyphosate research locked away

Monsanto's Sealed Documents Reveal the Truth behind Roundup's Toxicological Dangers - Richard Gale and Gary Null¹⁹

Extracts: "Among the many diseases and health conditions non-industry studies identified Alzheimer's, Parkinson's and autism since Roundup has been shown to instigate aluminium

¹⁸ E.G. Vallianatos & McKay Jenkins Poison Spring: The Secret History of Pollution and the EPA. 2014.

¹⁹ <http://prn.fm/monsantos-sealed-documents-reveal-the-truth-behind-roundups-toxicological-dangers-richard-gale-and-gary-null/>

accumulation in the brain. The herbicide has been responsible for reproductive problems such as infertility, miscarriages, and neural tube and birth defects. It is a causal agent for a variety of cancers: brain, breast, prostate, lung and non-Hodgkin lymphoma. Other disorders include chronic kidney and liver diseases, diabetes, heart disease, hypothyroidism, and leaky gut syndrome. In addition to lung cancer, glyphosate may be responsible for today's growing epidemics of chronic respiratory illnesses among farm workers and their families.

No mention of human health or the environment in the US EPA Office of Pesticides Programs (OPP) Workshop: 'Streamline the Risk Assessment Process of Pesticides Registration'

On December 13th 2010 the EPA OPP ran a Workgroup to 'Streamline the Risk Assessment Process of Pesticides Registration.'²⁰ Robert Schultz won the OPP competition by designing an e-dossier to make it easier and faster for the registrants. The benefits were said to be *"reduced costs to the EPA associated with primary reviews and quicker processing."* There were 67 (updated to 77) slides without a mention of either human health or the environment. Slide 35 showed that: *"since 2002 no pesticide products had been suspended by the EPA."*

Failure to regulate data fraud comes home to roost Carol Van Strum 9 April 2015

Extracts:²¹ Within the first decade of the EPA's existence, it became obvious that nearly all the "safety" tests supporting pesticide registrations were faked, with either fraudulent or nonexistent data. The massive lab fraud uncovered at Industrial Bio-Test Laboratories (IBT) revealed that 99 percent of long-term studies (for cancer, birth defects, mutagenicity, reproductive damage etc.) supporting some 483 pesticide registrations were invalid. For 25 years, in what US Food and Drug Administration (FDA) officials called *"the most massive scientific fraud ever committed in the United States, and perhaps the world,"* all major chemical and pharmaceutical companies had paid IBT to produce the test data they needed to register their products. A laboratory that IBT scientists called *"The Swamp,"* with a faulty water system that drenched the entire room, cages, rodents and all, in a continuous spray of water, drowning the test animals in droves. *"Dead rats and mice, technicians later told federal investigators, decomposed so rapidly in the Swamp that their bodies oozed through wire cage bottoms and lay in purple puddles on the dropping trays..."* read on...

It was essential that industry proved that glyphosate didn't accumulate

Glyphosate does not accumulate By: [Dan Goldstein](#), Senior Science Fellow and Lead, Medical Sciences and Outreach, Monsanto on Friday, 12/20/2013 3:16 pm: *"It is a common misunderstanding that pesticides, in general, accumulate in body fat. While this phenomenon may occur with some older compounds and a very few compounds currently in use, pesticides that bioaccumulate to any significant degree have been removed from use or are highly restricted to specialized applications needs that limit environmental exposures. Glyphosate is structurally related to the amino acid (protein component) glycine and is readily soluble in water, as demonstrated by the fact that you can buy water-based formulations containing as much as 62% glyphosate salts in agricultural formulations. If ingested, glyphosate is excreted rapidly, does not accumulate in body fat or tissues, and does not undergo metabolism in humans. Rather, it is excreted unchanged in the urine (EU Review Report of the active substance glyphosate, 2002)."*²² Since a US Monsanto Scientist was referring to the European Review in 2002, was the US EPA using Europe as its Rapporteur

²⁰ <http://www.epa.gov/oppfead1/cb/ppdc/pria/2010/december/update-presenta.pdf>

²¹ <http://www.truth-out.org/news/item/30097-failure-to-regulate-pesticide-data-fraud-comes-home-to-roost>

²² http://ec.europa.eu/food/plant/protection/evaluation/existactive/list1_glyphosate_en.pdf

Member State? It would seem so. The would explain why the recent BfR/GTF re-assessment excluded papers with any evidence of glyphosate being metabolised. The letter Moms Across America posted on their website from Neil Anderson US EPA (in charge of glyphosate renewal) following their paper which found glyphosate in breast milk, the reply I received from the US EPA dated 19/06/2014 from the Chief Communications Services Branch, and the paper published by the BfR in January 2015, all seemed to suggest either we weren't using US EPA-approved methods or the levels of glyphosate we measured weren't harmful to human health, according to the Regulatory Authorities.

After the German BfR draft risk assessment was published, scientists from the BfR dismissed studies of glyphosate in human urine as unlikely to be of public health concern
The BfR wrote a paper: "A critical review of glyphosate findings in human urine samples and comparison with the exposure of operators and consumers"? (Accepted: 03/11/2014, published online: 08/01/2015)²³ In it they dismissed the study by Moms Across America and Sustainable Pulse in which they found glyphosate in breast milk²⁴ and concluded with this statement: "Thus, the results of this review of urine analysis data confirm the conclusion drawn during re-assessment of glyphosate (EFSA 2014) that the dietary intake as well as occupational exposure is unlikely to present a public health concern."

Pesticides Action Network Germany²⁵ Does glyphosate cause cancer?

April 2015 The toxicologist Dr. Peter Clausing, who assessed the studies available on behalf of PAN Germany, said: "The BfR only took two studies on oxidative stress into account and these not in relation to carcinogenesis. However, between 2005 and 2013, there were at least eight further publications reporting that glyphosate can act as oxidative stressor in vertebrates such as fish, amphibians, mice and rats. None of these studies were mentioned even though such effects are very relevant in the assessment of possible carcinogenic effects of glyphosate." Oxidative stress occurs if highly reactive chemicals overwhelm the capacity of cells to deactivate them, and may as a result be a possible cause of cancer... In a communication released on 1 April 2015, the BfR announced that the final version of its glyphosate evaluation report had been handed over to the European Food Safety Authority (EFSA). According to this communication, the BfR did not endorse the findings of the IARC, and will ultimately leave this up to the discussion between the relevant international institutions...

On 7 April 2015, European NGOs sent a joint letter to the responsible EU Commissioner, Vytenis Andriukaitis, pointing out the gap concerning "oxidative stress" in the BfR evaluation. Now, in a joint letter, PAN Germany and Testbiotech have asked the BfR for an explanation of this omission.

Glyphosate Task Force Statement 26 May 2015

"Evaluations carried out by regulatory authorities across the world for over forty years have all confirmed that glyphosate poses no unacceptable risk to humans, animals or the environment.

*The Glyphosate Task Force (GTF) therefore does not accept the recent classification of glyphosate by the International Agency for Research on Cancer (IARC) as a Group 2A carcinogen. The evaluation that has produced this outcome demonstrates serious deficiencies in terms of methodological approach and the overall conclusion is inconsistent with the results of all regulatory reviews concerning glyphosate's safety profile."*²⁶

²³ <http://link.springer.com/article/10.1007%2Fs00003-014-0927-3>

²⁴ http://www.momsacrossamerica.com/glyphosate_testing_results

²⁵ <http://www.testbiotech.org/en/node/1202>

²⁶ <http://www.glyphosate.eu/gtf-statements/statement-gtf-recent-iarc-decision-concerning-glyphosate>

European Commission still refuses to release documents of the German Risk Assessment²⁷

5 October 2015 The EU Commission informed Testbiotech that the public will still not be allowed to access documents on the risk assessment of the herbicide glyphosate...The final version of the report will be available only after EFSA has finished its own assessment and thereafter a “redacted version” will be published. *“Such subtleties certainly do not add to the credibility of the EU Commission. We have the strong impression that access to the report will be denied whatever the argument. There might be a simple reason: The EU Commission is trying to conceal major flaws in the risk assessment carried out by the German Federal Institute for Risk Assessment”*, says Christoph Then for Testbiotech.

The WHO/JMPR²⁸ 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.²⁹ They complained that three members had conflicts of interest.³⁰ 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 2002.³¹

[NB ILSI represents Global Corporations (including the six Agrochemical Giants) with massive resources that are seeking to control the world’s food supply. ILSI is an industry organisation based in Washington, DC, USA. It claims to be *“a non-profit, worldwide organization whose mission is to provide science that improves human health and well-being and safeguards the environment”* and allegedly has charity status.]

Dr Roland Solecki, Head of the BfR, was one of the eight experts on the WHO/JMPR even though BfR had said:³² *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.*

Did the WHO/JMPR Committee decide to ban glyphosate at their meeting in September 2015?

One presumes that they did, at least the majority could have voted for a ban, which might explain why EFSA has asked the EU Commission for an extension? Was this a compromise to satisfy the three identified by NRDC as having conflicts of interest or is it another industry ploy to stretch out the availability of glyphosate to cover the spring planting of crops?

Governments and industry have failed to measure levels of glyphosate and neonicotinoid insecticides in the environment

However, the US Geological Survey **has** made measurements. Glyphosate and its degradation product AMPA occur frequently, and widely in U.S. soils, surface water, groundwater, and precipitation. This is the conclusion of the latest independent survey from

²⁷ <http://www.testbiotech.org/en/node/1356>

²⁸ WHO Expert Committee on Pesticide Residues held jointly with the FAO Panel of Experts on the Use of Pesticides in Agriculture

²⁹ http://www.who.int/foodsafety/areas_work/chemical-risks/list_of_experts1.pdf?ua=1

³⁰ http://docs.nrdc.org/health/files/hea_15061501a.pdf

³¹ http://whqlibdoc.who.int/publications/2006/9241665203_eng.pdf?ua=1

³² <http://www.bfr.bund.de/cm/349/bfr-contribution-to-the-eu-approval-process-of-glyphosate-is-finalised.pdf>

the US Geological Survey (USGS) in 2014.³³ “The most comprehensive research to date on environmental glyphosate levels exposes the widespread contamination of soil and water in the US, as well as its water treatment system. Looking at a wide range of geographical locations, researchers from the USGS analysed 3,732 water and sediment samples and 1,081 quality assurance samples collected between 2001 and 2010 from 38 states in the US and the district of Colombia. They found glyphosate in 39.4% of samples (1,470 out of 3,732) and its metabolite aminomethylphosphonic acid (AMPA) in 55% of samples.

We are drowning our world in unsafe and untested chemicals³⁴

By Gabrielle Canon 01/10/2015

The International Federation of Gynecology and Obstetrics (FIGO), a group representing OB-GYNs from 125 countries, released a report detailing the detrimental health effects caused by even small exposure to common chemicals like the ones found in pesticides, plastics, and air pollution.³⁵ The health problems are even greater for babies exposed in the womb, who face increased risks of cancer, reduced cognitive function, and even miscarriage or stillbirth. The organization cited concerns about the sharp increase over the past four decades in chemical manufacturing, which continues to grow by more than 3 per cent every year. Some 30,000 pounds of chemicals were manufactured or imported for every person in the United States in 2012 alone—a whopping 9.5 trillion pounds in total. Annually, the FIGO authors write, chemical manufacturing leads to 7 million deaths and billions in health care costs. In an article in the UK about why we should eat organic food,³⁶ the journalist said that in 31,000 tonnes of chemical are used in farming in the UK each year.

Farmers use more carcinogenic weed killer: The Times August 15 2015³⁷

According to Ben Webster, the Times Environment Correspondent: *“Farmers have sharply increased their use of a weed killer that has been classified as ‘probably carcinogenic in humans.’ More than 1,700 tonnes of glyphosate were sprayed on crops last year, up a third on 2012, according to the Department for Environment, Food and Rural Affairs (Defra). The total area sprayed with the weed killer grew by almost 500,000 hectares to 2.1 million hectares, an area the size of Wales.”* Guy Gagen, chief arable adviser for the National Farmers’ Union, said that glyphosate usage had probably increased to control black-grass,³⁸ a weed that is resistant to weaker herbicides. He said: *“No farmer would be wanting to put a chemical on a crop when he doesn’t need to.”* He added that spraying wheat could result in traces of glyphosate ending up in bread sold in supermarkets but the amount was well below the maximum residue level set by the EU. A Defra spokesman said: *“There are extensive regulations in place so that people and the environment are protected from pesticides. The approval of glyphosate for use across Europe is being reviewed by the EU Commission.”*

The Soil Association’s campaign against Glyphosate residues in our bread

On finding that there are glyphosate residues in our bread and the WHO International Agency for Research into Cancer has declared that glyphosate is probably carcinogenic to humans, the Soil Association has launched a campaign NOT IN OUR BREAD.³⁹ It has been

³³ <http://onlinelibrary.wiley.com/doi/10.1111/jawr.12159/abstract>

³⁴ <http://www.motherjones.com/environment/2015/10/human-reproduction-threatened-pollution>

³⁵ http://www.igo.org/sites/default/files/uploads/News/Final%20PDF_8462.pdf

³⁶ <http://www.theguardian.com/commentisfree/2015/oct/07/why-should-i-eat-organic-google>

³⁷ <http://www.thetimes.co.uk/tto/environment/article4528297.ece>

³⁸ HERBICIDE RESISTANT BLACKGRASS, FIRST SEEN IN 1982 IS NOW FOUND ON 16,000 FARMS IN 34 COUNTIES. This is a glyphosate-resistant super weed, the same as in GM in the US and Japanese Knotweed in the UK. Does the NFU understand super weeds and do they really want GMO technology?

³⁹ <http://www.soilassociation.org/notinourbread>

shown that 46% of non-organic food in 2013 contained residues of one or more pesticides and this had increased from 25% in 2003.⁴⁰ Another Report: Pesticides in your daily bread showed that nearly two-thirds of bread contained one or more pesticides and the three most frequently found were glyphosate, chlormequat and malathion.⁴¹ This is all the more concerning because UK farmers have been spraying glyphosate pre-harvest since 1980⁴² at the suggestion of a scientist from Monsanto.⁴³ 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 did aerial spraying.⁴⁴

Why is England one of the few countries in Europe that hasn't opted out from GM crops?⁴⁵

Because the British Government has colluded with industry to try and get GM crops into the UK...but Scotland and Wales **have** opted out. David Cameron received an Open Letter from America⁴⁶ from 60 million US citizens urging Europe not to adopt GMO technology for reasons of dangers to human health and biodiversity but passed it quietly to the then Defra Under Secretary of State, Lord de Mauley. Was it for economic reasons, as with farmers? Farms in the US where GM crops were grown continuously were biological deserts.⁴⁷

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

On 25th October 2012 Dr Helen Wallace Director of Genewatch and Pete Riley Campaign Manager GM Freeze published a Press Release:⁴⁸ Monsanto meets Ministers to push return of GM crops to Britain. On 26 June 2012, Roundtable discussion on 'Going for Growth': Realising the potential of agricultural technologies in the UK. Attendees⁴⁹ included Government Ministers, MPs, Civil Servants from Defra, the Department of Business, Innovations and Skills, Office of Life Sciences, Director of the Centre for Food Security, John Innes Centre, Rothamsted Research, James Hutton Institute, the National Farmers Union and the Agricultural and Horticultural Development Board. Here are the links to the Agenda⁵⁰ and a summary of the meeting.⁵¹ The ABC had also communicated with the Food Standards Agency (FSA). These organisations or individuals have colluded with industry.

George Freeman MP, one of those present, was appointed by David Cameron as Parliamentary Under Secretary of State for Life Sciences at the Department for Business, Innovation and Skills and the Department of Health on 15 July 2014. He has a large portfolio at the Department of Health: nine subjects including genomics, medicine and industry.⁵²

⁴⁰ http://www.pan-uk.org/files/pesticides_on_a_plate_2013_final.pdf

⁴¹ [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)

⁴² <http://cereals.ahdb.org.uk/media/185527/is02-pre-harvest-glyphosate-application-to-wheat-and-barley.pdf>

⁴³ O'Keeffe MG. The control of Agropyron repens and broad-leaved weeds pre-harvest of wheat and barley with the isopropylamine salt of glyphosate; 1980. pp. 53–60. Proceedings of British Crop Protection Conference-Weeds.

⁴⁴ https://www.nfuonline.com/healthyharvest_final_digital/ The impact of losing plant protection products on UK Food Production

⁴⁵ <http://sustainablepulse.com/2015/10/04/gm-crop-bans-confirmed-in-19-eu-countries/#.VhUMcYtYXww>

⁴⁶ <http://www.theletterfromamerica.org/>

⁴⁷ Craig Childs: Apocalyptic Planet: Chapter 6 Species Vanish. "How shall the heart be reconciled to its feast of losses?" Stanley Kunitz, American Poet 1905-2006.

⁴⁸ <http://www.genewatch.org/article.shtml?als%5Bcid%5D=569457&als%5Bitemid%5D=571449>

⁴⁹ <http://tinyurl.com/9jbce4g>

⁵⁰ <http://tinyurl.com/8ahylza>

⁵¹ <http://tinyurl.com/92rrajj>

⁵² <https://www.gov.uk/government/ministers/parliamentary-under-secretary-of-state--42>

The Battle in Europe over Endocrine Disruptive Chemicals (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 Colborn⁵³ (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: Are We Threatening Our Fertility, Intelligence, and Survival?* Colborn, Dumanoski and Peters⁵⁴ revealed the full horror of what was happening to the world as a result of contamination with EDCs. There was emerging scientific research about how a wide range of man-made chemicals disrupts delicate hormone systems in humans. These systems play a critical role in processes ranging from human sexual development to behaviour, intelligence, and the functioning of the immune system. At that stage, polychlorinated biphenyls (PCBs), pesticides DDT, chlordane, lindane, aldrin, dieldrin, endrin, toxaphene, heptachlor, dioxin, atrazine and dacthal were 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."*

Former Environment Minister's correspondence with Syngenta

In a secret letter⁵⁵ Owen Paterson MP told the chemical company Syngenta (in April 2013) that he was extremely disappointed by the European Commission's proposed ban on neonicotinoid insecticides. He said that *'the UK has been very active'* in opposing it and *'our efforts will continue and intensify in the coming days.'* The BBC reported that the Government rejects the science behind the neonicotinoid ban in Europe.⁵⁶

In the same correspondence, Paterson indicated that they had been discussing Endocrine Disrupting Chemicals (EDCs). Industry and lobbyists had been trying to delay a ban on EDCs in Europe. *"You raise the point that this issue is one of several that impact 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."*

The herbicides glyphosate⁵⁷ and atrazine⁵⁸ have been shown to cause endocrine disruption. Do Owen Paterson and the UK Government know what Endocrine Disrupting Chemicals do?

Endocrine Disrupting Chemicals (EDC) – 2012 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.⁵⁹ 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.

⁵³ <http://endocrinedisruption.org/about-tedx/theo-colborn>

⁵⁴ Theo Colborn, Dianne Dumanoski and John Peterson Myers. *Our Stolen Future: Are We Threatening Our Fertility, Intelligence, and Survival? A Scientific Detective Story* 1996 Penguin; New York

⁵⁵ <http://www.guardian.co.uk/environment/interactive/2013/apr/29/environment-secretary-letter-syngenta-insecticide-ban>

⁵⁶ <http://www.bbc.co.uk/news/science-environment-24024634>

⁵⁷ <http://www.sciencedirect.com/science/article/pii/S221475001530041X>

⁵⁸ <http://www.ncbi.nlm.nih.gov/pubmed/23022511>

⁵⁹ http://unep.org/pdf/9789241505031_eng.pdf

“Endocrine-related disorders in humans are manifest by:

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

EFSA Committee works on Endocrine Disruptors, March 2013, but continues to procrastinate

Prof Anthony Hardy Chairman of EFSA Scientific Committee and Emerging Risks made a video statement at the end.⁶⁰ The Committee agreed unanimously with the WHO definition (2012). *“Scientific knowledge of this area is still growing and, therefore, understanding of what is an endocrine active substance continues to be the subject of scientific debate...EFSA’s experts concluded that available or soon to be available internationally agreed testing methods can identify interference of chemical substances with the most important endocrine pathways in mammals and fish known to be sensitive to endocrine disruption. EFSA concluded that a risk assessment approach which considers both the likelihood of exposure together with potential adverse effects of endocrine active substances makes best use of available information to regulate their use.”*

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:⁶¹

“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.”

Sweden decides to sue the EU Commission for delay on identifying hormone disrupting chemicals

On May 22 2014, Agéncie France Presse (AFP): Sweden said it would sue the European Commission over a delay in identifying harmful chemicals in everyday products, which it

⁶⁰ <http://www.efsa.europa.eu/en/topics/topic/eas.htm>

⁶¹ <http://www.pan-europe.info/News/PR/140520.html>

blamed on chemical industry lobbying.⁶²

“This delay is due to the European chemical lobby, which put pressure again on different Commissioners,” Swedish Environment Minister Lena Ek told AFP.

The Commission was due to set criteria by December 2013 to identify endocrine disrupting chemicals (EDCs) in thousands of products — including disinfectants, pesticides and toiletries — which have been linked to cancers, birth defects and development disorders in children. *“Hormone disrupters are becoming a huge problem,”* said Ek, explaining that Sweden and Denmark had written to the Commission to demand action but to little avail. *“In some places in Sweden we see double sexed fish. We have scientific reports on how this affects fertility of young boys and girls, and other serious effects.”*

In an unprecedented move, in January 2015, both the European Parliament *and* the Council (all Member States together) decided to officially support Sweden’s court case against the Commission over its failure to establish criteria for EDCs. An overwhelming 21 Member States voted in favour, while only a few abstained, such as the UK.⁶³

European Commission delays further by consulting the public on criteria to identify Endocrine Disruptors⁶⁴

The Commissioners launched a consultation on 29 September 2014 with closing date 15 January 2015.

Letter to Vytenis Andriukaitis Commissioner for Health & Safety from 11 MEPs: economic impacts on industry are taking precedence over human health and the environment⁶⁵

On 20/01/2015: *“Endocrine disrupting chemicals cause adverse health effects in an intact organism. This is particularly relevant during pregnancy, where it can affect developmental processes of the foetus in an irreversible manner. Cancer, infertility, diabetes, obesity and behavioural disorders have all been linked to exposure to endocrine disrupters...Back in 2009 the European Parliament and the Council adopted the Regulation (EC) No 2009/1107 on plant protection products. It included so called cut-off criteria for endocrine disrupters: active substances in pesticides should no longer be authorized if they were endocrine disrupters, unless there was a serious danger which cannot be contained by other available means, including non-chemical methods... firstly, concrete interim criteria for endocrine disrupters were adopted, and secondly, the legislator gave a mandate to the Commission to come up with permanent criteria by the end of 2013.*

Moreover, it makes the decision about what should be the appropriate definition for endocrine disruptors depends on the socio-economic impact on the industry and the substitutability of these substances when used as pesticides and biocides. However, such economic considerations are totally irrelevant when it comes to the question of what is an endocrine disruptor. “

Estimating Burden and Disease Costs of Exposure to Endocrine-Disrupting Chemicals in the European Union⁶⁶

Rapidly increasing evidence has documented that endocrine-disrupting chemicals (EDCs) contribute substantially to disease and disability [40]. Expert panels achieved consensus at least for probable (>20%) EDC causation for IQ loss and associated intellectual disability, autism, attention-deficit hyperactivity disorder, childhood obesity, adult obesity, adult

⁶² <http://www.capitalfm.co.ke/business/2014/05/sweden-to-sue-eu-for-delay-on-hormone-disrupting-chemicals/>

⁶³ <https://chemicalwatch.com/22729/eu-council-joins-edcs-legal-action-against-commission>

⁶⁴ http://europa.eu/rapid/press-release_IP-14-1057_en.htm?locale=en

⁶⁵ <http://www.michele-rivasi.eu/au-parlement/lettre-au-commissaire-europeen-a-la-sante-sur-les-criteres-de-definition-des-perturbateurs-endocriniens/>

⁶⁶ <http://dx.doi.org/10.1210/jc.2014-4324>

diabetes, cryptorchidism, male infertility, and mortality associated with reduced testosterone.

Conclusions: EDC exposures in the EU are likely to contribute substantially to disease and dysfunction across the life course with costs in the hundreds of billions of Euros per year. These estimates represent only those EDCs with the highest probability of causation; a broader analysis would have produced greater estimates of burden of disease and costs."

Global obesity rise puts UN goals on diet-related diseases 'beyond reach'

Westernised diets blamed as figures predict failure to meet 2025 target of no increase in obesity or diabetes beyond 2010 levels.⁶⁷

In Europe, UK children are the most exposed to agricultural chemicals

Rothamsted Research is the longest running agricultural research station in the world

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

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

Robert van den Bosch, writing in 1978 in *The Pesticide Conspiracy*:⁶⁸ "If one considers how dangerous these chemicals are, one would suppose that it would be Government policy to minimise their use by every possible means. However the Royal Commission on Environmental Pollution notes, *'there is... no such policy in the UK, nor does the possible need for it appear to have been considered, notwithstanding the great increases in the use of these chemicals.'*

The Agrochemical Industry, on the contrary, seems to be under the impression it is Government policy to encourage the maximum use of pesticides. Thus according to the Agrochemical industry, of 367,000 acres of potatoes grown in this country in 1976, 310,000 acres are treated with herbicides, 114,000 acres with granular insecticides and nematocides, 218,000 acres with foliar insecticides and 265,000 acres with fungicides.⁶⁹ In this way one acre of potatoes, the industry boasts, can be treated from 2-11 times with different pesticides." Van den Bosch also condemns the UK for aerial spraying. *"What is particularly shameful in this country is the prevalence of aerial spraying. One million acres of agricultural land are sprayed each year, which involves 34,000 flights. Controls on this practice are practically non-existent...nor as the Royal Commission points out, does there appear to be any controls on the type of spraying equipment."*

The Royal Commission on Environmental Pollution was abolished on 1 April 2011, as part of the Coalition Government's spending cuts. It had been created under Royal Warrant in 1970 to advise the Queen, Government, Parliament and the public on environmental issues.

Sustainable Use of Pesticides 21 October 2009: DIRECTIVE 2009/128/EC OF THE EUROPEAN PARLIAMENT⁷⁰ What is the Directive Advice and the UK Government's Response on Article 9 Aerial Spraying?

EU Directive Advice: Aerial spraying of pesticides has the potential to cause significant

⁶⁷ <http://www.theguardian.com/society/2015/oct/09/obesitys-global-spread-un-goals-diet-related-diseases-fail>

⁶⁸ Van den Bosch, R. *The Pesticide Conspiracy*: USA Doubleday & Company (1978); Dorchester, UK: Prism Press (1980).

⁶⁹ Industry's Statistics: British Agrochemical Association London 1976

⁷⁰ <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32009L0128>

adverse impacts on human health and the environment, in particular from spray drift. Therefore aerial spraying should generally be prohibited with derogations possible where it represents clear advantages in terms of reduced impacts on human health and the environment in comparison with other spraying methods, or where there are no viable alternatives, provided that the best available technology to reduce drift is used.

UK Government Response: We do not consider that responsible application of pesticides by aerial spraying poses an unacceptable risk to human health and the environment, and consequently we will use the derogation. We believe that the existing legislation control regime provides a basis for meeting the Directive and this will be adapted to ensure the continuation of properly regulated aerial applications through a consent-based approach.

The effects of chemicals on the development of the brain

ONLY ONE CHANCE: How Environmental Pollution Impairs Brain Development - and How to Protect the Brains of the Next Generation by Professor Philippe Grandjean: Oxford University Press.

Chemical brain drain: insidious and pervasive

"Today, one out of every six children suffers from some form of neurodevelopmental abnormality. The causes are mostly unknown. Some environmental chemicals are known to cause brain damage and many are suspected of it, but few have been tested for such effects. The brain's development is uniquely sensitive to toxic chemicals and even small deficits may negatively impact our academic achievements, economic success, risk of delinquency, and quality of life. Chemicals such as mercury, polychlorinated biphenyls (PCBs) arsenic and certain pesticides pose an insidious threat to the next generation's brains. When chemicals in the environment affect development of the child's brain, he or she is at risk for mental retardation, cerebral palsy, autism, ADHD, and a range of learning disabilities and other deficits that will remain for a lifetime.

*The chemical brain drain can be halted to protect the next generation's brainpower. First, we need to control all of the 200 industrial chemicals that have already been proven to affect brain functions in adults, as their effects on the developing brain are likely even worse. We must also demand routine testing for brain toxicity, stricter regulation of emissions of brain-toxic chemicals, and required disclosure on the part of industries that unleash these hazardous chemicals into products and the environment. Decisions can still be made to protect the brains of future generations – and some decisions appear to be seriously overdue. This site aims at furthering information on chemical risks to brain development and ways to protect the next generation against chemical brain drain."*⁷¹

Review by the late THEO COLBORN, PHD, President, TEDX (the Endocrine Disruptor Exchange)

*"This book is a huge gift to humankind from an eminent scientist. Grandjean tells the truth about how we have been ruining the brainpower of each new generation and asks if there are still enough intelligent people in the world today to reverse the problem. **I cannot rid myself of the idea that too many brains have been drained and society is beyond the point of no return.** We must learn from the follies and scandals that Grandjean reveals and stop the chemical brain drain before it is too late."*

How many children's brains in Britain have been drained since 1843?

Academic performance of 15-year-olds has deteriorated since the 1990s says Gove; the UK ratings have declined significantly in the Programme for International Student Assessment

⁷¹ <http://braindrain.dk/> www.chemicalbraindrain.info

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.⁷² It was first performed in 2000 and then repeated every three years. It is done with a view to improving education policies and outcomes. It measures problem solving and cognition in daily life.

The UK is falling behind global rivals in international tests taken by 15-year-olds, failing to make the top 20 in maths, reading and science (December 2013). Although not directly comparable, because there have been different numbers of countries taking part, this marks a sustained decline, with the UK having ranked 4th in the tests taken in 2000.

The UK has made little progress and remains among the average, middle-ranking countries, in 26th place for maths and 23rd for reading, broadly similar to three years ago. England's Education Secretary Michael Gove said since the 1990s, various test performances in UK schools had been "*at best stagnant, at worst declining*".⁷³

Doesn't Genetic Modification follow what nature does already?

In April 2004, Dr Maewan Ho, Geneticist and Co-Director of the Institute of Science in Society, interviewed by Anastasia Stephens, a journalist from the Evening Standard.⁷⁴

AS "Doesn't genetic modification follow what nature does already - the evolutionary principle of genetic selection?"

MWH "No, GM breaks all the rules of evolution, it short circuits evolution altogether. It bypasses reproduction, creates new genes and gene combinations that have never existed, and is not restricted by the usual barriers between species."

Is there a Depopulation Agenda?

The élite might think that they can survive by eating organic food, as suggested by Monsanto's CEO Hugh Grant, but they cannot evade the pollution of water, soil and air by these chemicals...and the total loss of biodiversity, without which human life would collapse. These silent poisons are toxic to rich and poor alike; they do not distinguish between Presidents or Prime Ministers, media moghuls or their journalists, Monsanto Executives or Pesticide Regulators, Lords, MPs or citizens of the UK, Members of US Congress, the House of Representatives or US citizens. None of them is guaranteed to be safe.

Accelerated modern human-induced species losses: Entering the sixth mass extinction⁷⁵

In Science Advances June 2015, Ceballos *et al* calculated the average rate of vertebrate losses over the last century and compared it with the background rate of losses. They estimated it to be up to 114 times the background rate. They said that this rate of loss of biodiversity indicated that a sixth extinction is already underway. The authors described themselves variously as ecologists, field biologists, paleo-biologists or population biologists. However, all had two common beliefs. That the conservation of natural ecosystems is essential to human health, but that the accelerated losses of biodiversity were as a result of human activity.

Rosemary Mason 12 October 2015

⁷² [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)

⁷³ <http://www.bbc.co.uk/news/education-25187997>

⁷⁴ <http://www.i-sis.org.uk/GMmyths.php>

⁷⁵ <http://advances.sciencemag.org/content/advances/1/5/e1400253.full.pdf>