

Open Letter to George Eustice MP Minister of State for Agriculture, Fisheries and Food

Dear Minister

The Guardian European Environment journalist Arthur Neslen interviewed you about Brexit on 30/05/2016.¹ You were alleged to have said: “*The birds and habitats directives would go,*” (referring to two key pieces of European environmental law). “*A lot of the national directives they instructed us to put in place would stay. But the directives’ framework is so rigid that it is spirit-crushing.*” On **pesticides**, you said “*the EU’s precautionary principle needed to be reformed in favour of a US-style risk-based approach, allowing faster authorisation.*”

Perhaps you aren’t aware that farmers, their families and rural communities are most affected by the toxic effects of pesticides?

CHEM Trust published a Report in 2010:² **A Review of the Role Pesticides Play in Some Cancers: Children, Farmers and Pesticide Users at Risk?** “*Studies of death registries in some parts of the world suggest that farmers and agricultural workers are more likely than the general population to die from several cancers including NHL, leukaemia, multiple myeloma, prostate cancer, Hodgkin’s disease, pancreatic cancer and brain cancer. Some studies strongly indicate an association between pesticide exposure and NHL, leukaemia and prostate cancer.*”

Of course you as Minister of State and the National Farmers’ Union (NFU) Executives aren’t often at home to be exposed, but what about your family, farmworkers and neighbours?

Georgina Downs³ has been campaigning since 2001 for rural communities against spraying She says: “*The reality of crop spraying in the countryside is not merely related to exposure to one individual pesticide or to one single group of pesticides, as agricultural pesticides are rarely used individually but commonly sprayed in mixtures (cocktails) -- quite often a mixture will consist of 4 or 5 different products. Each product formulation in itself can contain a number of different active ingredients, as well as other chemicals, such as solvents, surfactants and co-formulants (some of which can have adverse effects in their own right, before considering any potential synergistic effects in a mixture(s)). Studies have shown mixtures of pesticides (and/or other chemicals) can have synergistic effects.*”

I wrote to Meurig Raymond, President of the NFU on 22 October 2015: he replied to my 13-page Open Letter on 17/11/2015 but it probably won’t be distributed to all NFU members
The President of the NFU Meurig Raymond wrote to defend the rights 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.**

He replied: “*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*

¹ <https://www.theguardian.com/politics/2016/may/30/brexit-spirit-crushing-green-directives-minister->

² <http://www.chemtrust.org.uk/wp-content/uploads/CHEM-Trust-Report-Pesticides-Cancer-July-2010.pdf>

³ <http://www.pesticidescampaign.co.uk>

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."*

Are you aware that the Monsanto Tribunal is being held in The Hague on 14-16 October?

The Monsanto Tribunal⁴ is an international civil society initiative to hold Monsanto accountable for human rights violations, for crimes against humanity, and for ecocide. Eminent judges will hear testimonies from victims, and deliver an advisory opinion following procedures of the International Court of Justice. A parallel People's Assembly provides the opportunity for social movements to rally and plan for the future we want. The Tribunal and People's Assembly will take place between 14 and 16 October 2016 in The Hague, Netherlands.

The British Government has voted with Monsanto, the European Food Safety Authority and the European Commission and against IARC, to say that glyphosate is not a carcinogen

In a "state of the science" review⁵ released today, Pesticides Action Network (PAN) International presents a large body of research documenting the adverse human health and environmental impacts of glyphosate and glyphosate-based herbicides and underscores the need for a global phase-out. Environmental and health advocates say the monograph on the world's most widely used herbicide, commonly known by its original trade name Roundup, should serve as a wake up call for regulators, governments and users around the world.

The International Criminal Court in The Hague announced a change in remit.⁶

On 15/09/2016: *"Environmental destruction and land-grabs could lead to governments and individuals being prosecuted for crimes against humanity by the International Criminal Court following a decision to expand its remit."*

The State of Nature in the UK 2016 is "pretty knackered" according to the first author of the Report: the Republic of Ireland and the USA lie even further below the UK⁷

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

In lobbying the EU to protect pesticides in June 2014,⁸ The National Farmers' Union (NFU), the Crop Protection Association (CPA) and Agricultural Industries Confederation (AIC) launched *Healthy Harvest– safeguarding the crop protection toolbox*. 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. CPA, AIC and the NFU commissioned Andersons to write a

⁴ www.monsanto-tribunal.org

⁵ <http://www.pan-uk.org/news/pan-international-releases-new-glyphosate-review>

⁶ <https://www.theguardian.com/global/2016/sep/15/hague-court-widens-remit-to-include-environmental-destruction-cases>

⁷ http://www.rspb.org.uk/Images/State%20of%20Nature%20UK%20report_%2020%20Sept_tcm9-424984.pdf

⁸ https://www.nfuonline.com/healthyharvest_final_digital/

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.⁹

What the new PAN Report says about the environmental impacts of glyphosate

“Environmental impacts detailed in the monograph are no less concerning, and include adverse effects on ecosystem functioning, pollination services, biological controls, soil fertility and crop health. Residues are widespread in the environment, including in rainwater, surface and ground waters, and the marine environment. Glyphosate can persist in some soils for up to 3 years; and there is some evidence of bioaccumulation. Resistance to glyphosate is now recorded in 35 weed species and in 27 countries, mostly caused by the repeated use of glyphosate in GE crops, no-till agriculture, and amenity use.”

A long history of cooperation between the British Government and Monsanto against civil society

Monsanto, the British Government, the European Food Safety Authority (EFSA) and the EU Commission joined forces in a lawsuit against civil society in 2013¹⁰

In March 2013, a group of non-governmental organisations filed a lawsuit at the Court of Justice of the European Union against an EU Commission decision allowing the use of Monsanto’s genetically engineered soybeans, Intacta, in food and feed (T-177/13-5). The complainants maintain that EFSA has not carried out the risk assessments for the genetically engineered soybean as legally required. Now Monsanto, the British Government, the European Food Safety Authority (EFSA) are all joining forces in court to defend the right to import the transgenic soybeans.

The defence of the lawsuit will be led by Testbiotech, a German biotechnology firm.¹¹

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ENSSER: www.ensser.org

Foundation on Future Farming: www.zs-l.de

Manfred-Hermsen-Stiftung: www.m-h-s.org

Sambucus: www.sambucus.org

Society for Ecological Research: www.oekologische-forschung.de

German Family Farmers Association (ABL): www.abl-ev.de

Open Letter from America to the Prime Minister David Cameron warning the UK against GM crops: hand delivered November 2014 Living with GMOs: Citizen to Citizen¹²

From 57 million citizens in the US to citizens, politicians, and regulators in the UK and the rest of the EU about the hazards of genetically modified crops.

We, the undersigned, are sharing our experience and what we have learned with you so that you don’t make our mistakes. Signatories include NGOs, groups, academics, scientists, farmers, food manufactures, and high profile individuals representing some 57 million Americans.

⁹ http://www.cropprotection.org.uk/media/89364/andersons_final_report.pdf

¹⁰ <https://www.testbiotech.org/en/node/898>

¹¹ Testbiotech was founded in 2008 by a group of experts and registered as a non-profit organisation to promote independent research and public debate on the impacts of biotechnology. Testbiotech is a centre of expertise concerned mainly with the ecological, social and ethical consequences of modern biotechnology. It is in Frankfurt.

¹² <http://www.theletterfromamerica.org/>

Extracts: *“A recent review found that between 1996 and 2011, farmers who planted Roundup Ready crops used 24% more herbicide than non-GMO farmers planting the same crops. This pesticide treadmill means that in the last decade in the US at least 14 new glyphosate-resistant weed species have emerged, and over half of US farms are plagued with herbicide-resistant weeds.”* **They outlined eight independent papers describing Environmental Harm and six about the Threat to Human Health.** *“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.***

We strongly urge you to resist the approval of genetically modified crops, to refuse to plant those crops that have been approved, to reject the import and/or sale of GM-containing animal feeds and foods intended for human consumption, and to speak out against the corporate influence over politics, regulation and science.”

The Open Letter from America was passed from the Prime Minister’s Office to Defra.

Extracts from the reply from Lord de Mauley, Defra Minister, “to Directors of Beyond GM.”

It was clear that the Minister hadn’t read the letter, or realised that it was an Open Letter from 60 million citizens from the US, but relied on signing Defra’s letter of denial¹³

Extract: *“However, to pick up on your point on contamination, cross-pollination is, again, a normal process between compatible plant species and there is nothing different about GM crops in this respect”...“The UK Government regards safety as paramount and we will only agree to planting of GM crops or the marketing of GM foods **if it is clear that people and the environment will not be harmed.**”*

The European Food Safety Authority and the European Commission ignored the advice from 60 million US citizens and have continued to authorize GM crops for food and feed

Pesticide residues in non-organic foods

Some UK farmers started spraying glyphosate on crops pre-harvest in 1980¹⁴ at the suggestion of a scientist working for Monsanto¹⁵ and on grassland in 1985 on the advice of another Monsanto scientist.¹⁶ Defra started publishing pesticide residues in foods in 2000.¹⁷ *“Residues of chlormequat¹⁸ glyphosate and pirimiphos-methyl¹⁹ were found (in bread).*

Defra said: *“These pesticides are commonly used on cereal crops, and residues have been found in other cereal products, therefore these findings are not unexpected. None of the residues found were of concern for consumer health.”* When the Chemicals Regulation Directorate (CRD) Head of Regulatory Policy replied on 28/02/2014 to defend the authorisation of glyphosate, he told

¹³ http://beyond-gm.org/wp-content/uploads/2015/01/BGM_Defra-letter_151214.pdf

¹⁴ <http://www.hgca.com/media/185527/is02-pre-harvest-glyphosate-application-to-wheat-and-barley.pdf>

¹⁵ 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.

¹⁶ Stride CD, Edwards RV, Seddon JC. Sward destruction by application of glyphosate before cutting or grazing; 1985. pp. 771–778. British Crop Protection Conference – Weeds 7B–6.

¹⁷ <http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/about-PRiF>

¹⁸ Chlormequat, a plant growth regulator was present consistently throughout.

¹⁹ pirimiphos-methyl, is an organophosphate insecticide for use in storage. The approval was revoked on 24/03/2011, but it was only finally banned 31/03/2013, presumably to allow stocks to be used up.

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 the European Food Safety Authority (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.

EFSA’s Reasoned Opinion Panel increases MRLs at the request of industry

Monsanto Europe asked EFSA to set the import tolerance for glyphosate in lentils *“in order to accommodate the authorised desiccation use of glyphosate in lentils in the US and Canada”* from 0.1 mg/kg to 10 mg/kg²⁰ (i.e. 100 times: January 2012). EFSA had granted similarly elevated MRLs for glyphosate on wheat and GM soya.

Monsanto convicted of false claims in 1996

1996 The Attorney General of the State of New York, Consumer Frauds and Protection Bureau, Environmental Protection Bureau fined Monsanto for being guilty of: *False advertising by Monsanto regarding the safety of Roundup® herbicide (glyphosate)*. In advertisements it implied that it could be used in water.²¹

Monsanto claimed that glyphosate & GM crops have a positive effect on wildlife and biodiversity: “it can be used on invasive weeds around waterways and lakes”

Despite having been convicted of false claims in 1996, Monsanto repeated similar but worse lies in a document published 2010 entitled: *“The agronomic benefits of glyphosate in Europe: Benefits per market use February 2010.”*²² It stated that glyphosate has an *“excellent safety profile to operators, the public and the environment.”* On page 4 Monsanto makes a further claim about the use of glyphosate to increase wildlife and biodiversity: *“Use of glyphosate instead of mechanical weed control techniques on non-cropped/amenity land preserves wildlife like small mammals and birds. Adoption of Conservation agriculture encourages earthworms and other invertebrates as well as birds. Judicious use of glyphosate to control excessive plant growth and invasive weeds on or around waterways and lakes encourages wildfowl and much other wildlife.”* An additional claim was made for GM Crops (p. 4): *“Use of glyphosate tolerant crops allows later control of weeds providing early food sources for many invertebrates and birds and thus increases animal numbers.”*

An entire department in Monsanto is devoted to discrediting science against GMOs²³

“For the first time, a Monsanto employee admits that there is an entire department within the corporation with the simple task of ‘discrediting’ and ‘debunking’ scientists who speak out against GMOs. The Discredit Bureau will not be found on their official website.”

Glyphosate: four different patents have been filed by Monsanto (and granted) in the US

²⁰ <http://www.efsa.europa.eu/en/efsajournal/pub/2550.htm>

²¹ <http://www.mindfully.org/Pesticide/Monsanto-v-AGNYnov96.htm>

²² <http://www.monsanto.com/products/Documents/glyphosate-background-materials/Agronomic%20benefits%20of%20glyphosate%20in%20Europe.pdf>

²³ <http://naturalsociety.com/monsanto-employee-admits-an-entire-department-exists-to-discredit-scientists/>

- As a chelator of heavy metals (used to clean boilers) and a wetting agent in 1961²⁴
- As a herbicide in 1968²⁵
- As an antibiotic in 2002²⁶
- As an anti-protozoal agent in 2003²⁷

“Antibiotic-resistant diseases pose an 'apocalyptic' threat to humans.” Vets, farmers and GPs were blamed for overuse of antibiotics.²⁸ In 2013, the Chief Medical Officer told MPs that this issue should be added to the national risk register of civil emergencies. In March 2014 I wrote to inform her that glyphosate had been patented as an antibiotic. I finally had a reply: *“Given the detailed regulatory regime for plant protection products, this is the most appropriate place for these issues to be considered.”*

The biodiversity has finally crashed in the UK (and the US and the Republic of Ireland) due to massive and increasing use of pesticides

“On pesticides”, you as Minister had said, “the EU’s precautionary principle needed to be reformed in favour of a US-style risk-based approach, allowing faster authorization”.

How many more pesticides does British farming need?

The Head of Regulation of the Chemicals Regulation Directorate (CRD) had said in 2012, *“the capability to detect individual pesticides in food had risen to 393.”*

Has the Minister been briefed by Defra civil servants on The UK State of Nature Report 2016?

Mark Eaton of the RSPB, the Report’s first author said: *“The report includes a new “biodiversity intactness index”, which analyses the loss of species over centuries. The UK has lost significantly more nature over the long term than the global average with the UK the 29th lowest out of 218 countries. “It is quite shocking where we stand compared to the rest of the world, even compared to other western European countries: France and Germany are quite a way above us in the rankings,” said Eaton. “The index gives an idea of where we have got to over the centuries, and we are pretty knackered.”*

Biodiversity Intactness Index

This is a link to an animated pictorial representation but it is not easily findable.²⁹

“Of 218 countries assessed, the UK is ranked 189: it is 29th lowest out of 218: Countries below are the Republic of Ireland, USA, Hong Kong and Macao. This means that nature is faring worse in the UK than in most other countries.

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

UK 165 species are considered critically endangered and likely to go extinct.

England 109 species are critically endangered and likely to go extinct.

²⁴ <http://www.google.com/patents/US3160632>

²⁵ <http://www.google.com/patents/US3455675>

²⁶ <http://www.google.com/patents/US7771736>

²⁷ <http://patft.uspto.gov/netacgi/nph->

<Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=%2Fnetachtml%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=7771736.PN.&OS=PN/7771736&RS=PN/7771736>

²⁸ <http://www.theguardian.com/society/2013/jan/23/antibiotic-resistant-diseases-apocalyptic-threat>

²⁹ <https://ww2.rspb.org.uk/whatwedo/stateofnature2016>

Scotland 65 species are critically endangered and are likely to go extinct.
 Northern Ireland 45 species are critically endangered and likely to go extinct.
 Wales 41 species are critically endangered and likely to go extinct.”

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

The National Farmers’ Union (NFU), the Crop Protection Association (CPA) and the Agricultural Industries Confederation (AIC) combine to lobby the EU not to restrict the 320+ pesticides available to them. The publication is called: **HEALTHY HARVEST**.³⁰ The countries that have even lower Biodiversity Intactness Indices are similarly working with the Agrochemical Corporations. These are the Republic of Ireland and the USA.

Complete denial that farming was responsible

It was therefore astounding to hear the complete denial of the NFU and Defra about The State of Nature Report. NFU vice-president Guy Smith said *“intensification of farming had ended in the early 1990s.”* that farmers *“were using less fertiliser and pesticides than ever”* and a spokeswoman from Defra said: *“Protecting our precious environment and supporting our world-leading farmers, a cornerstone of our economy, will form an important part of our EU exit negotiations.”* The statistics for pesticide usage produced by Fera show exactly the opposite. Isn’t Defra supposed to be advising the UK Government?

Results are out for species that have declined in summer 2016 compared with 2015

From the Butterfly Conservation Trust Big Butterfly Count³¹ *“It was a pretty good summer, with above average temperatures and yet butterflies on the whole fared badly. Over half of the big butterfly count target species decreased in 2016 compared with the previous year. The ‘blues’ did badly, with **Small Copper** recording its lowest numbers since the big butterfly count began and both **Common Blue** and **Holly Blue** halved in numbers compared with summer 2015. This was particularly disappointing for Holly Blue, which had an excellent 2015 and numbers in spring 2016 also appeared high. The stunning **Peacock**, with its beautiful eye-spot wing markings that can scare off would-be predators such as Blue Tits, decreased for the third summer in a row. Its numbers have now dropped from an average of 3.6 individuals per count in 2013 to just 0.5 per count in 2016, a six-fold decrease over three years. **Small Tortoiseshell** numbers were down once again too, falling by 47% from 2015 levels, and even the **Comma**, one of the butterfly success stories of the past few decades, suffered a poor summer. Its numbers were down 46% year on year, resulting in its lowest abundance in the seven years of big butterfly count. It was all change at the top of the big butterfly count chart in 2016, with **Gatekeeper**, the most abundant species in 2015’s count, suffering a 40% decrease and finishing in fourth place. An average of just 1.5 Gatekeepers seen per count in 2016 was the lowest abundance of this species since big butterfly count began.”*

Toads *“Toad numbers have fallen by more than two-thirds in 30 years, according to a study using*

³⁰ Healthy Harvest: The impact of losing plant protection products on UK food and plant production.
<http://www.nfuonline.com/assets/30597>

³¹

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

data from volunteer patrols set up to help the amphibians cross roads.”³²

How Roundup® poisoned my Nature Reserve³³

We have done a 10-year (2006-2016) observational study of biodiversity on a small Nature Reserve exposed to ultra-low dose Roundup® sprayed on Japanese knotweed outside our area. Japanese knotweed has become a Roundup-resistant super-weed and just grows more strongly each year spray is applied (like super-weeds in GM cropping systems in the US). I challenged EFSA about the German Rapporteur Member State’s BfR conclusion that glyphosate is not harmful to the environment. Dr Bernhard Url and Dr José Tarazona ignored this evidence. The European Commission re-licensed glyphosate for a further 18 months while the European Chemical Agency (ECHA) gave their opinion. Prof Gilles-Eric Séralini, one of the organisers of the Monsanto Tribunal, suggested that I send a written testimony to the Judges.

In 2002 WWF-UK placed an advertisement of a baby superimposed by a message: WHO CARES WHERE CHEMICALS END UP? This was followed by a Report: CONTAMINATION³⁴

The industry complained to the Advertising Standards Agency (ASA). *The ASA found WWF’s scientific research to be above reproach on all fronts and rejected every technical complaint. But despite being ruled factually accurate and being in the public interest, the advertisement was nevertheless banned on the grounds that it was ‘unduly alarming’ to the public.*

“Given the concern expressed by international organizations such as the European Commission and the World Health Organization about the potential harm from man-made chemicals, this report makes unnerving reading. We are facing an uncontrolled global experiment where humans and wildlife are being exposed to man-made synthetic chemicals that have the potential to harm. It is time to wake up to this threat and ensure that exposure to such chemicals is controlled – and, where necessary, that they are banned.”

In 2016 the European Commission no longer CARES WHERE CHEMICALS END UP: the EU Commission, EFSA and the UK government are colluding with the Pesticides Industry

The measure of public suspicion in Europe was such that the EU Commission received more than 1.5 million citizen petitions demanding they not approve glyphosate.

When it was clear that some European Commissioners were secretly planning to re-approve it for 15 years, veteran US journalist William Engdahl reported in an article: The Amazing Glyphosate Revolt Grows:³⁵ *“To date the EU Commission has received a staggering 1.5 million citizen petitions demanding they not re-approve glyphosate. The opposition to EU Commission approval of glyphosate has taken on a self-expanding character and that has the agribusiness weed-killer cartel alarmed. The process is exposing to the general public, for the first time in such a clear manner, the degree of corruption in not only Brussels but also in the so-called scientific bodies that advise it on what is safe and what not. ... So a group of manifestly immoral scientists (Boobis & Moretto) led the Joint FAO/WHO Meeting on Pesticide Residues (JMPR).”* Vito Buonsante, a lawyer for the ClientEarth group, in reference to the suspiciously-timed FAO/WHO report stated, *“There is a clear conflict of interest here if the review of the safety of glyphosate is*

³² <https://www.theguardian.com/environment/2016/oct/06/uk-common-toad-numbers-down-two-thirds-in-30-years>

³³ http://www.i-sis.org.uk/How_Roundup_Poisoned_My_Nature_Reserve.php

³⁴ <http://www.wwf.org.uk/filelibrary/pdf/biomonitoringresults.pdf>

³⁵ <http://journal-neo.org/2016/05/23/the-amazing-glyphosate-revolt-grows/>

carried out by scientists that directly get money from industry.”

The Agrochemical Industry has used the UK as a test-bed for its agrochemicals just as the islands of Hawaii became a test-bed for GE crops

In Britain the Agrochemical Industry has been advising farmers on chemicals since WW2: but GE crops are planned for the Future of Food and Farming.³⁶

In Hawaii: “However, the plantation era legacy of land concentration, intensive use of toxic pesticides, and agriculture for export lives on with the genetically engineered seed crop industry, to which we now turn. The seed industry transitioned rapidly from conventional to GE crops beginning in the 1990s, and today the vast majority of seeds produced on Hawai’i are genetically engineered.”³⁷

Extracts from Summary of Center for Food Safety Pesticide Report for Hawaii: Agrochemical corporations have bought land on Hawaii for intensive testing of GE Crops that are not relevant to local needs

HEALTH IMPACTS OF PESTICIDE EXPOSURE (SECTION 6)

Farmworkers and children are at greatest risk from pesticides, due to high exposure and greater sensitivity, respectively. Fetuses (via maternal exposure) are the most vulnerable.

In a major review of the medical literature, the American Academy of Pediatrics found strong evidence linking pesticide exposure of kids to childhood cancers, neurobehavioral and cognitive deficits, adverse birth outcomes, and asthma. Many of the implicated pesticides (e.g. chlorpyrifos, atrazine) are heavily used in Hawai’i (6.2).

Adults exposed to pesticides have higher risk of various cancers, Parkinson’s disease, depression, and reproductive problems, such as low sperm counts (6.1).

Chlorpyrifos (Dow) is still registered for use in the UK: in 2014 it was used on 106,908 ha

Longitudinal birth cohort studies in the US showed that prenatal exposure to chlorpyrifos, an organophosphorus insecticide, is associated with impaired neurocognitive development in children when assessed at 3 years and 7 years and most recently with decrements in working memory at age 7. In adults, a review of 14 studies (looking at 1600 participants) has shown a relationship between low-level exposure to organophosphates and impaired neurobehavioural functioning. It targets memory, information processing speed, the ability to plan and have abstract thoughts. However, a review by a Dow employee together with individuals from *Exponent Inc.* concluded that “*exposure to specific pesticides during critical periods of brain development and neurobehavioral outcomes is not compelling.*”³⁸

Syngenta’s herbicides atrazine and simazine were banned in Europe in 2004

Syngenta’s triazine herbicides, atrazine and simazine, are prime examples of how Syngenta’s control has been exerted over many years in Britain. Both these chemical were banned in Europe in 2004 (2004/248/EC) with exceptions for a few countries. The UK had applied for a dispensation for both atrazine and simazine. Dispensation was to be limited to a period no longer than 12 months to allow existing stocks to be used, in no more than one growing season.

³⁶ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/288329/11-546-future-of-food-and-farming-report.pdf

³⁷ http://www.centerforfoodsafety.org/files/pesticidereportfull_86476.pdf

³⁸ <http://www.ncbi.nlm.nih.gov/pubmed/23777200>

The UK was permitted to use atrazine on sweet corn and forestry only, but they had to ensure the protection of human health and the environment. Defra ignored the conditions for both herbicides, which they continued to use in similar amounts until the end of 2008/2009 respectively. In addition, they were used on many crops outside those specified by the EU. The Environment Agency Groundwater Database had recorded a maximum concentration of atrazine of 13.04µg/l. That is 130 times the EU legal limit for groundwater (2004/248/EC).³⁹

In April 2012, *The Daily Mail* and *Mail on Sunday* revealed that nine babies born over 12 years in one street in Kent had the same major congenital anomaly, gastroschisis.⁴⁰ Gastroschisis is a major congenital defect in the abdominal wall, almost always to the right of the navel, through which the abdominal contents freely protrude. An investigation was carried out which reported on 05/03/2012. The Director of Public Health for Kent claimed that the number of cases didn't amount to a "cluster" and excluded atrazine as a cause. Syngenta said: *"There is no proven link between atrazine and these defects. Atrazine does not cause developmental abnormalities."*

The same quantities of atrazine were used on UK cropland from 1997 until 2008; authorisation was not restricted. Only in 2009, did the amounts applied start to decrease

In 2008, in a presentation to the Pesticides Forum, the Environment Agency had showed that atrazine and its metabolites had been found in more than 25% of sample sites. In the US gastroschisis had been associated with atrazine.

Gastroschisis: a major congenital defect of the abdominal wall was also seen in Hawaii

Sidney Johnson, a pediatric surgeon at the Kapiolani Medical Center for Women and Children who oversees all children born in Hawaii with major birth defects and operates on many, says he's been thinking about pesticides a lot lately. The reason: he's noticed that the number of babies born here with their abdominal organs outside, a rare condition known as gastroschisis, has grown from three a year in the 1980s to about a dozen now.⁴¹

Atrazine is still used extensively in many countries, including the US and Australia and Syngenta relentlessly pursues anyone who says it is harmful.⁴²

Australia had a similar cluster of cases of gastroschisis to the UK in a small community in NSW in 2011 but industry and the APVMA denied a link

The global incidence of gastroschisis is one in 5,000, but data from the Australian Bureau of Statistics puts the incidence for NSW's Northern Rivers region at one in 950 births.

In the past three years there have been at least seven babies born with the defect around the community of Wadeville.⁴³ In a population-based study of 122 cases in Western Australia between 1980 and 2001 there was a sustained increase in incidence of gastroschisis and a significant fetal death rate in the third trimester.⁴⁴

In 2010, researchers at the University of Washington released a landmark study analysing almost 20 years of medical and agricultural data for Eastern Washington.

³⁹ <http://nora.nerc.ac.uk/14557/1/OR11013.pdf>

⁴⁰ <http://www.dailymail.co.uk/news/article-2142106/One-street-Nine-babies-born-horrific-rare-deformity-And-troubling-question--mothers-poisoned-weedkiller.html>

⁴¹ <https://alethonews.wordpress.com/2015/08/26/hawaii-sees-10-fold-increase-in-birth-defects-after-becoming-gm-corn-testing-grounds/>

⁴² www.newyorker.com/reporting/2014/02/10/140210fa_fact_aviv

⁴³ <http://www.abc.net.au/news/2011-05-14/birth-defect-cluster-sparks-investigation/2715546>

⁴⁴ [http://www.ajog.org/article/S0002-9378\(03\)00819-6/abstract](http://www.ajog.org/article/S0002-9378(03)00819-6/abstract)

It linked the rising rate of gastroschisis to exposure to Atrazine-contaminated waters, particularly for women who conceived in spring - the peak spraying time. Another 2010 study from the University of California found one in 10 male frogs exposed to Atrazine turned into females, while 75 per cent were rendered sterile.

Studies done by the manufacturer of Atrazine did not come to the same conclusions. The Australian Pesticides and Veterinary Medicines Authority (APVMA) is the regulator of pesticides. *"The APVMA has reviewed in detail scientific studies that suggest possible links between Atrazine and gastroschisis and Atrazine and Hermaphroditism in frogs. While the studies are interesting, they do not satisfy internationally accepted standards of scientific rigour, relevance and reliability, which regulators rely upon to make decisions,"* the APVMA said in a statement.

CSIRO admitted that Australia works with global corporations for market access

In 1992, according to an interview with John Stocker, Commonwealth Scientific and Industrial Research Organisation's former chief executive, *"Working with the transnationals makes a lot of sense, in the context of market access... There are very few Australian companies that have developed market access in the United States, in Europe and in Japan, the world's major marketplaces. Yes, we do find that it is often the best strategy to get into bed with these companies."*⁴⁵ **The APVMA was also established in 1992 at the same time.**

Birth defects and GMOs in Hawaii: Pesticides in paradise⁴⁶

Carla Nelson, Californian pediatrician says that in Waimea, there have been at least nine babies born with congenital cardiac malformations in five years; that's more than 10 times the national rate, according to analysis by local [doctors](#). They find themselves in the eye of a storm swirling for the past three years around the Hawaiian archipelago over whether a major cash crop on four of the six main islands, corn that's been genetically modified to resist pesticides, is a source of prosperity, as the companies claim – or of birth defects and illnesses, as the doctors and many others suspect.

Birth defects in animals in Montana correlates with glyphosate usage on crops and with birth defects in humans

A recent study by Hoy *et al.* found alarming increases in congenital malformations in wildlife in Montana that Hoy has been documenting for the past 19 years. Similar birth defects have occurred in humans in the USA. Their graphs illustrating human disease patterns over the twelve-year period correlate remarkably well with the rate of glyphosate usage on corn, soy and wheat crops, which has increased due to "Roundup® Ready" crops. While the animals' exposure to the herbicide is through food, water and air, the authors believe that human exposure is predominantly through food, as the majority of the population does not reside near agricultural fields and forests. They conclude: *"Our over-reliance on chemicals in agriculture is causing irreparable harm to all beings on this planet, including the planet herself. Most of these chemicals are known to cause illness, and they have likely been causing illnesses for many years.*

⁴⁵ http://powerbase.info/index.php/Commonwealth_Scientific_and_Industrial_Research_Organisation

⁴⁶ <http://www.theguardian.com/us-news/2015/aug/23/hawaii-birth-defects-pesticides-gmo>

*But until recently, the herbicides have never been sprayed directly on food crops, and never in this massive quantity. We must find another way”.*⁴⁷

The Pesticide Conspiracy: even in the 1970s the Agricultural Industry was given massive power by the British Government

Robert van den Bosch, writing in 1978 in *The Pesticide Conspiracy*:⁴⁸ “If one considers how dangerous these chemicals are, one would suppose that it would be Government policy to minimize their use by every possible means. However the Royal Commission on Environmental Pollution notes, *‘there is... no such policy in the UK, nor does the possible need for it appear to have been considered, notwithstanding the great increases in the use of these chemicals.’*”

The Agrochemical Industry, on the contrary, seems to be under the impression it is Government policy to encourage the maximum use of pesticides. Thus according to the Agrochemical industry, of 367,000 acres of potatoes grown in this country in 1976, 310,000 acres are treated with herbicides, 114,000 acres with granular insecticides and nematocides, 218,000 acres with foliar insecticides and 265,000 acres with fungicides.⁴⁹ 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.”* Britain still uses aerial spraying as derogation from the EU recommendations.

Sustainable Use of Pesticides 21 October 2009: DIRECTIVE 2009/128/EC OF THE EUROPEAN PARLIAMENT⁵⁰ **What is the EU 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 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 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.

⁴⁷ <http://www.esciencecentral.org/journals/the-high-cost-of-pesticides-human-and-animal-diseases-2375-446X-1000132.php?aid=56471>

⁴⁸ Van den Bosch, R. *The Pesticide Conspiracy*: USA Doubleday & Company (1978): Dorchester, UK: Prism Press (1980).

⁴⁹ Industry’s Statistics: British Agrochemical Association London 1976

⁵⁰ <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32009L0128>

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

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

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

Pesticide usage statistics show massive increase in glyphosate between 2012 and 2014

Fera statistics showed that in 2012 the area treated by glyphosate was 1,750,000 ha. This had increased in 2014 to 2,250,000 ha. Guy Gagen, Chief Arable Adviser for the NFU, said increased glyphosate use (up one third since 2012, to an area the size of Wales) was probably due to treatment of 'black grass'.⁵¹ Black grass is a glyphosate-resistant super-weed just like Japanese knotweed. Herbicide resistant black grass, first seen in 1982 (two years after farmers started spraying glyphosate pre-harvest) and is now found on 16,000 farms in 34 counties. Gagen said that spraying wheat could result in traces of glyphosate ending up in bread sold in supermarkets but the amount was well below the maximum residue level set by the EU. A Defra spokesman said: "There are extensive regulations in place so that people and the environment are protected from pesticides. The approval of glyphosate for use across Europe is being reviewed by the EU Commission."

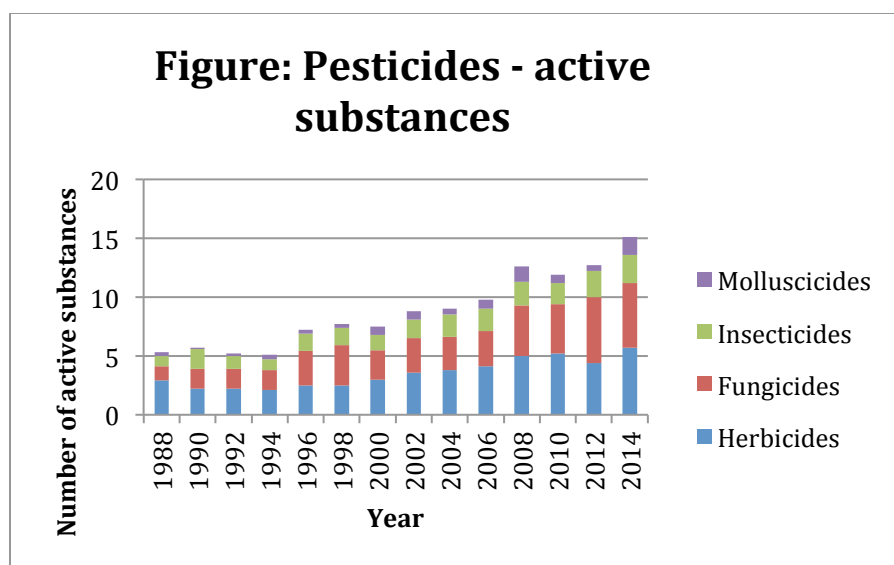


Fig. 1 PESTICIDES: Number of active substances used on Oil Seed Rape in the UK between 1988 and 2014: By kind permission of John Hoar, Hampshire Beekeeper's Spray Liaison Officer. Figures supplied by FERA

⁵¹ <http://www.thetimes.co.uk/tto/environment/article4528297.ece>

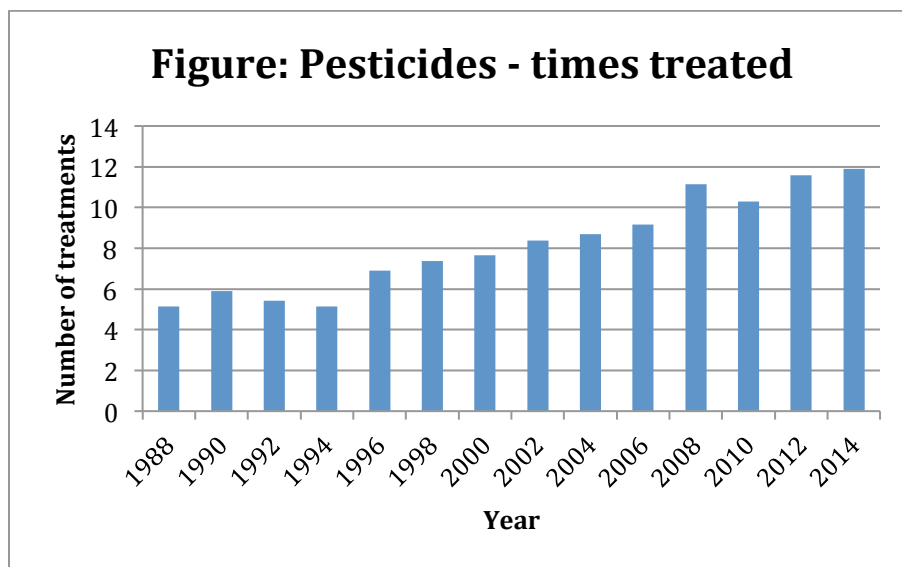


Fig. 2 PESTICIDES TIMES TREATED: used on Oil Seed Rape in the UK between 1988 and 2014: By kind permission of John Hoar, Hampshire Beekeepers Spray Liaison Officer. Figures supplied by FERA

Regulators are measuring many pesticides in water and soil– but not glyphosate or the neonicotinoids; it is left to independent scientists

Science requires that measurements are made; even with glyphosate and the neonicotinoids
 The CRD, EFSA, US EPA and the AVPMA claim they are doing ‘*sound science*’. However, they are measuring many pesticides in groundwater **BUT NOT** glyphosate or the systemic neonicotinoids. I asked the Chairman of the Environment Agency in May 2013 if the EA could measure them. Dr Jo Kennedy replied on Lord Smith’s behalf on 1st May 2013. With regard to glyphosate, she replied: “*The GCMS scan is not able to measure glyphosate, and glyphosate is not part of the routine suite of substances monitored for nationally across our network. The main reason for this is that glyphosate analysis is relatively costly and it was felt that the additional costs of analysis could not be justified. If local glyphosate problems have been identified in groundwater the Environment Agency can carry out operational monitoring at a local level.*” These are the most widely used herbicides/pesticides in the world. Both glyphosate and neonicotinoid insecticides residues have been measured in humans and animals and in non-organic food, water, air and rain by independent scientists all over the world. Farmers in Britain are applying them blindly year on year. The levels are increasing in the environment each year and can be correlated with losses of biodiversity.

Many independent sources have measured glyphosate in the environment

In 2011, the US Geological Survey (USGS) published the first report on the ambient levels of glyphosate, the most widely used herbicide in the United States, and its major degradation product, aminomethylphosphonic acid (AMPA), in air and rain in Mississippi and Iowa in two growing seasons.⁵² In 2013, scientists in Argentina did the same. “*Agricultural production is fundamentally based on a technological package that combines no-till and glyphosate in the cultivation of transgenic crops. Transgenic crops (soybean, maize and cotton) occupy 23 million*

⁵² <http://www.ncbi.nlm.nih.gov/pubmed/21128261>

hectares. This means that glyphosate is the most employed herbicide in the country, where 180–200 million liters are applied every year.”⁵³ Another report from the USGS in 2014:⁵⁴ “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 US Geological Survey (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. They concluded that Glyphosate and its degradation product AMPA occur frequently and widely in U.S. soils, surface water, groundwater, and precipitation.”

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

Craig Childs confirms it in his book *Apocalyptic Planet: Field Guide to the Future of the Earth*.⁵⁵ The State of Iowa was just one area in which the US Geological Survey reported widespread contamination of soil, air, rainwater and river water with glyphosate and its longer-acting metabolite AMPA (α -amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid).⁵⁶ Grundy County Iowa was where Craig Childs spent a long weekend in a monoculture of GM “Roundup® Ready” corn looking for wildlife. “I listened and heard nothing, no bird, no click of insect. Mr Owen was the farmer who had given us permission to backpack across his cornfields. He grew a combination of DuPont and Monsanto stock. We were in DuPont now. It didn’t look any different to me.”

Robert Krulwich blog:⁵⁷

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

One hundred years ago there was a rich biodiversity of species in the US; now it has gone

Krulwich continues: “Yet, 100 years ago, these same fields, these prairies, were home to 300 species of plants, 60 mammals, 300 birds, hundreds and hundreds of insects. This soil was the richest, the loamiest in the state. And now, in these patches, there is almost literally nothing but one kind of living thing. We’ve erased everything else. We need to feed our planet, of course. But we also need the teeny creatures that drive all life on earth. There’s something strange about a farm that intentionally creates a biological desert to

⁵³ <http://www.ncbi.nlm.nih.gov/pubmed/23849835>

⁵⁴ <http://onlinelibrary.wiley.com/doi/10.1111/jawr.2014.50.issue-2/issuetoc>

⁵⁵ <http://houseofrain.com/bookdetail.cfm?id=1344621970977>

⁵⁶ <http://onlinelibrary.wiley.com/doi/10.1111/jawr.12159/abstract>

⁵⁷ <http://www.npr.org/sections/krulwich/2012/11/29/166156242/cornstalks-everywhere-but-nothing-else-not-even-a-bee>

produce food for one species: us. It's efficient, yes. But it's so efficient that the ants are missing, the bees are missing, and even the birds stay away. Something's not right here. Our cornfields are too quiet."

Britain is not measuring glyphosate residues in humans or animals

Glyphosate residues in alcohol: wine, whisky and beer

The use of glyphosate for desiccation on both barley and wheat was accepted by the brewing and distilling industries in 2007.⁵⁸ Glyphosate residues were found in German beer.⁵⁹ *"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."*

A vast majority of German citizens are contaminated with the herbicide glyphosate, according to a report from the Heinrich Böll Foundation.⁶⁰

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

It is outrageous that the NFU and Defra are victimizing badgers claiming that they are the cause of TB in dairy herds. Independent scientists have shown that a badger cull is a waste of time and money and is inhumane

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

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

Studies in Danish Dairy cattle fed GM soya.⁶¹ Farm animals such as high yielding dairy cows ingest concentrated feeds like soy, corn, and other grains contaminated with the herbicide glyphosate. This contamination is especially high in genetically modified crops (GMO) with resistance to glyphosate or in those crops treated pre-harvest with glyphosate to desiccate grain or kill late-emerging weeds. This is the first report of glyphosate in the urine of dairy cows chronically contaminated with glyphosate in their feed. The cows had:

- Glyphosate in the urine

⁵⁸ Notes on the use of Roundup® products on malting, milling and seed crops: Monsanto UK Ltd 2007. <http://www.grainfarmers.co.uk/seeddownloads/Roundup%20on%20seed%20%20milling%20and%20malt%20ing.pdf>

⁵⁹ <http://sustainablepulse.com/2016/02/25/german-beer-industry-in-shock-over-probable-carcinogen-glyphosate-contamination/>

⁶⁰ <http://beyondpesticides.org/dailynewsblog/2016/03/study-finds-majority-of-germans-have-glyphosate-in-their-bodies/>

⁶¹ <http://dx.doi.org/10.4172/2161-0525.1000186>

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

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

Detection of Glyphosate in 38 malformed Piglets⁶²

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

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

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

Evidence of GMO harm in pig study

This was a combined study between the US and Australia.⁶³ GM-fed females had on average a 25% heavier uterus than non-GM-fed females, a possible indicator of disease that requires further investigation. Also, the level of severe inflammation in stomachs was markedly higher in pigs fed on the GM diet. The research results were striking and statistically significant. Lead researcher Dr Judy Carman, adjunct associate professor at Flinders University, Adelaide, Australia, said: *"Our findings are noteworthy for several reasons.*

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

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

⁶² <http://omicsonline.org/open-access/detection-of-glyphosate-in-malformed-piglets-2161-0525.1000230.pdf>

⁶³ <http://www.organic-systems.org/journal/81/8106.pdf>

livestock death loss is high, and there are unexplained problems including spontaneous abortions, deformities of new-born animals, and an overall listlessness and lack of contentment in the animals.”

Diseases related to glyphosate in animals

Glyphosate has been found in the urine of urban populations and farmers. *“In the search for the causes of serious diseases of entire herds of animals in Northern Germany especially cattle, glyphosate has repeatedly been detected in the urine, faeces, milk and feed of the animals.”*⁶⁴

Krüger *et al.* have studied the damaging effects of glyphosate on the beneficial gut biota of poultry.⁶⁵ In another paper: *Visceral botulism at dairy farms in Schleswig Holstein, Germany* the authors show that the farmers who look after sick cattle with botulism often have botulism too. *C. botulinum* occurs in cows' and farmers' faeces and in cattle feeds.⁶⁶ The researchers show that the humans are most likely contracting their infections, not from the cattle but from the feeds, because the same type of botulinum is present in both humans and feeds, but the type of botulinum in the cattle is different. There is now a strong probability that glyphosate residues in animal feeds result in botulism in the cattle and also in related ailments in poultry.

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

Glyphosate in other species: *“In the present study⁶⁷ glyphosate residues were tested in urine and different organs of dairy cows as well as in urine of hares, rabbits and humans using ELISA and Gas Chromatography-Mass Spectroscopy (GC-MS). The correlation coefficients between ELISA and GC-MS were 0.96, 0.87, 0.97 and 0.96 for cattle, human, and rabbit urine and organs, respectively. Glyphosate excretion in German dairy cows was significantly lower than Danish cows. Cows kept in genetically modified free area had significantly lower glyphosate concentrations in urine than conventional husbandry cows. Also glyphosate was detected in different organs of slaughtered cows as intestine, liver, muscles, spleen and kidney. Fattening rabbits showed significantly higher glyphosate residues in urine than hares. Moreover, glyphosate was significantly higher in urine of humans with conventional feeding. Furthermore, chronically ill humans showed significantly higher glyphosate residues in urine than healthy population. The presence of glyphosate residues in both humans and animals could haul the entire population towards numerous health hazards, studying the impact of glyphosate residues on health is warranted and the global regulations for the use of glyphosate may have to be re-evaluated.”*

Emerging pathogens wipe out wildlife species across the globe secondary to immune suppression

Emerging pathogens as threats to animal and plant health

⁶⁴ <http://www.ithaka-journal.net/druckversionen/e052012-herbicides-urine.pdf>

⁶⁵ <http://www.ncbi.nlm.nih.gov/pubmed/23224412>

⁶⁶ <http://www.ncbi.nlm.nih.gov/pubmed/22200452>

⁶⁷ <http://www.omicsonline.org/open-access/detection-of-glyphosate-residues-in-animals-and-humans-2161-0525.1000210.pdf>

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. Kiesecker (2002) found that atrazine (herbicide) and malathion (pesticide) made frogs more susceptible to a parasite, a burrowing trematode worm, which caused limb deformities in tadpoles.⁶⁸ Field experiments conclusively demonstrated that exposure to trematode infection was required for the development of limb deformities in wood frogs, *Rana sylvatica*. Even very low levels of exposure (“at concentrations considered safe for drinking water by the US Environmental Protection Agency”) could produce “dramatic effects on the immune response of the animals”. Field studies showed “considerably higher rates of limb deformities where there was pesticide exposure... Amphibian deformities, in particular those related to limb development, have now been reported in 43 states in the U.S. and in five Canadian Provinces, as well as in several other countries around the world.”⁶⁹

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”⁷⁰ and “Emerging fungal threats to animal, plant and ecosystem health”.⁷¹ Authors of this last review had appealed to scientists urgently to find ‘the elusive magic bullet.’ Only one other (in addition to Kiesecker’s) paper from California dared to mention pesticides. Davidson *et al.*⁷² 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 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 widespread use on agricultural crops of the systemic neonicotinoid insecticides⁷³ and the herbicide glyphosate,⁷⁴ 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 2011.⁷⁵ “The reality of amphibian declines and extinctions has shifted the ecological baseline in so many ecosystems, that an entire

⁶⁸ <http://www.pnas.org/content/99/15/9900.full.pdf>

⁶⁹ [http://onlinelibrary.wiley.com/doi/10.1002/1096-9926\(200009\)62:3%3C147::AID-TERA2%3E3.0.CO;2-2/full](http://onlinelibrary.wiley.com/doi/10.1002/1096-9926(200009)62:3%3C147::AID-TERA2%3E3.0.CO;2-2/full)

⁷⁰ http://www.nature.com/nature/journal/v486/n7401/full/nature11148.html?WT.ec_id=NATURE-20120607

⁷¹ <http://www.ncbi.nlm.nih.gov/pubmed/22498624>

⁷² <http://onlinelibrary.wiley.com/doi/10.1046/j.1523-1739.2002.01030.x/abstract>

⁷³ http://www.boerenlandvogels.nl/sites/default/files/JEIT%20Immune%20Suppression%20pdf_6.pdf

⁷⁴ http://www.fs.fed.us/foresthealth/pesticide/pdfs/seratr01_43_08_04.pdf

⁷⁵ http://nationalzoo.si.edu/support/volunteer/documents/HR_Mar2011_JoeM_proofs.pdf

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.”

Plant immune systems are similar to those of animals: could that explain why trees around the world are dying from diseases because there are so many chemicals in the environment?

Prof Jeff L Dangl of North Carolina, Chapel Hill is an expert on the plant immune systems. *“Many of these proteins (in plants) fall into a class of proteins that has related members which function in innate animal immunity...Thus activation of plant immune systems is akin to that of animal immune systems where ‘modified self’ can be recognised to trigger an appropriate response...”* *“He was at the cutting edge of what he calls a mini-revolution that not only showed that plants have an immune system, but that, at the genetic and molecular levels, the system shares basic organizational traits with mammals.”⁷⁶ For his work in deciphering how plants interact, at the molecular level, with pathogens to fight off disease, Dangl was elected into the National Academy of Sciences in 2007.”*

Humans and the environment are being silently poisoned by thousands of untested and unmonitored chemicals ⁷⁷

This is according to the International Federation of Gynecologists and Obstetrics Opinion on reproductive health impacts of exposure to toxic environmental chemicals. Three are from the UK, one from Canada, eight from the USA and one from the World Health Organisation.

Britain secretly colluded with the Agricultural Biotechnology Council (ABC) against the British public

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:⁷⁸ 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. Attendees⁷⁹ 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 Agenda⁸⁰ and a summary of the meeting.⁸¹ 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

⁷⁶ <http://www.pnas.org/content/107/30/13203.full>

⁷⁷ http://www.figo.org/sites/default/files/uploads/News/Final%20PDF_8462.pdf

⁷⁸ <http://www.genewatch.org/article.shtml?als%5Bcid%5D=569457&als%5Bitemid%5D=571449>

⁷⁹ <http://tinyurl.com/9jbce4g>

⁸⁰ <http://tinyurl.com/8ahylza>

⁸¹ <http://tinyurl.com/92rrajn>

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.⁸²

That is why the NFU has the British Government on a string and gives it anything it wants

Since June 2012, the NFU has the Government on a string. It is totally dependent on the NFU to make money for it by bringing in GM crops. While the NFU President can ignore what pesticides are doing to UK children's brains, the NFU gets everything that it asks for, including protection from prosecution for polluting the environment and Health and Safety Executive breaches on his farm.⁸³

- Sustainable use of pesticides:⁸⁴ NFU lobbied for continuation of Aerial Spraying. Article 9 Aerial Spraying. **EU Directive Advice:** *Aerial spraying of pesticides has the potential to cause significant 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.*

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.*

- NFU lobbied for Abolition of the Agricultural Wages Board September 2012.⁸⁵ Despite massive protests it was passed in April 2013 without a debate in the House of Commons
- It lobbied for no cap on benefit claims from the EU March 2014. The biggest 174 landowners in England take £120m between them. A €300,000 cap would have saved around £70m.⁸⁶
- It demand a badger cull April 2013 (at £7000/badger) against all scientific evidence.⁸⁷
- It lobbied to weaken slurry regulations.⁸⁸ *"NFU believes the best way to support the environment is via a non-regulatory and advice led approach."*⁸⁹
- Reducing conditions for farm subsidies.⁹⁰ The Farm Regulation Task Force demanded a specific change: all soil protection rules attached to farm subsidies should become voluntary.

⁸² <https://www.gov.uk/government/ministers/parliamentary-under-secretary-of-state--42>

⁸³ <http://www.theguardian.com/environment/georgemonbiot/2016/mar/23/has-the-nfu-presidents-farm-led-by-example-when-it-comes-to-bad-practice-in-the-countryside>

⁸⁴ <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32009L0128>

⁸⁵ <http://www.farming.co.uk/news/article/8249>

⁸⁶ <http://www.theguardian.com/environment/georgemonbiot/2016/mar/23/has-the-nfu-presidents-farm-led-by-example-when-it-comes-to-bad-practice-in-the-countryside>⁸⁶

<http://www.monbiot.com/2014/03/03/the-benefits-claimants-the-government-loves/>

⁸⁷ <http://www.theguardian.com/environment/damian-carrington-blog/2013/oct/01/badger-cull-police-nfu-losing>

⁸⁸ <http://www.theguardian.com/environment/2015/oct/05/think-dairy-farming-is-benign-our-rivers-tell-a-different-story>

⁸⁹ <http://www.nfonline.com/final-consultation-response-23-11-15/>

- Lobbying the EU to protect pesticides June 2014. The National Farmers' Union (NFU), the Crop Protection Association (CPA) and Agricultural Industries Confederation (AIC) launched *Healthy Harvest 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. 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.⁹¹
- After severe flooding in York and major towns around the north of England in January 2016, Liz Truss plan to allow farmers to dredge and clear the water courses passing through their land, without oversight, regulation, or consideration of the impacts downstream, in order to prevent their fields from flooding.⁹²
- No protection for bees from neonicotinoid insecticides. The NFU lobbied for Bayer and Syngenta to attend (the new) Expert Committee on Pesticides (ECP) meeting to justify emergency lifting of neonicotinoid ban.⁹³

In contrast, Italy's partial ban on systemic neonicotinoid insecticides in 2008 had been successful

At a Beekeeping Conference held in Guelph University, Ontario on 12 August 2015,⁹⁴ Prof Franco Mutinelli said Italy instituted a partial ban on neonicotinoids in 2008 and it has been extended each year since. No active substances are allowed in seed coatings and the use of neonicotinoids is restricted to specific cases. *"It's been effective"*, he said. *"After the ban there has been strong improvement. The effect of the ban was immediate."* He said corn producers were worried about losing crop yield to disease, *"but that didn't happen,"* he said. *"The ban has been now seven years and crop yield is within the expected range."* Christian Krupke's (University of Purdue) research indicates that the benefit of neonicotinoid treatment to corn seeds only lasts two weeks. Then it washes away with the water and seeps into the soil. Further, he said the pests the neonicotinoids are supposed to fend off are not present in the majority of farms. But they are really toxic to honey bees, he said. *"The benefit of the seed treatments is hard to justify,"* he said. *"We know the status quo just doesn't work."*

The PAN review of glyphosate states that Italy has banned its use pre-harvest

*"As a result, national bans and restrictions, and voluntary action by local authorities and retailers to curb use are rising dramatically. Sri Lanka was the first country to ban it completely, although the ban has recently been relaxed to allow use in tea plantations. Italy has banned pre-harvest use of glyphosate, and all use in public places and those frequented by children and the elderly; France is phasing out the use of pesticides in towns and public areas"*⁹⁵

⁹⁰ <http://www.monbiot.com/2014/02/17/muddying-the-waters/>

⁹¹ http://www.cropprotection.org.uk/media/89364/andersons_final_report.pdf

⁹² <http://www.theguardian.com/environment/georgemonbiot/2016/jan/07/liz-truss-is-choosing-to-protect-farmers-over-flood-victims>

⁹³ <http://www.theguardian.com/environment/2015/jul/29/bee-harming-pesticide-firms-took-part-key-meeting-ban>

⁹⁴ <http://www.guelphmercury.com/news-story/5795639-italy-s-ban-on-neonicotinoids-effective-u-of-g-conference-told/>

⁹⁵ <http://www.pan-uk.org/news/pan-international-releases-new-glyphosate-review>

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

REACH (Registration, Evaluation, Authorisation and Restriction of Chemical substances): The Biocidal Product Regulation (BPR, Regulation (EU) 528/2012) concerns the placing on the market and use of biocidal products, which are used to protect humans, animals, materials or articles against harmful organisms, like pests or bacteria, by the action of the active substances contained in the biocidal product.⁹⁶

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

It came into force on 02/08/07.

Exponent Inc. is a company that helps chemical firms with REACH compliance.⁹⁷ It describes itself as *“a research and scientific consultant firm with clients from industry (including crop protection) and government.”* *Exponent Inc.* was employed by Bayer to criticise EFSA’s work on neonicotinoids and bees in 2013. It also contributed to a review by a Dow employee that concluded that *“exposure to specific pesticides during critical periods of brain development and neurobehavioral outcomes is not compelling.”*⁹⁸ Dr Caroline Harris, a Vice-President of Exponent Inc was on the UK Advisory Committee on Pesticides even before it became the Expert Committee on Pesticides.

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

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

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

Rosemary Mason MB ChB FRCA

12/10/2016

⁹⁶ <https://echa.europa.eu/regulations/biocidal-products-regulation>

⁹⁷ <http://www.exponent.com/REACH/>

⁹⁸ <http://www.ncbi.nlm.nih.gov/pubmed/23777200>