# Grave Inaccuracies and Omissions in US EPA Glyphosate Issue Paper: Evaluation of Carcinogenic Potential[1]

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## Monsanto and GMO scientists had Prof Séralini's paper retracted, but it was republished: the increases in human cancers and liver and kidney failure in the people of Britain is precisely what the study predicted

**Page 186** Séralini, G-E. et al. (2014). "Retraction notice to "Long-term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize" [Food Chem. Toxicol. 50 (2012) 4221–4231]." Food and Chemical Toxicology 63: 244.
The US EPA reported the Séralini study as 'Retracted' when the European Glyphosate Task Force knew that it was republished in another journal over which industry had no power.[2]

**Séralini's 2-year feeding study provoked chronic hormone and sex dependent pathologies in rats; males developed tumours at 4 months and females at 7 months**

*"The health effects of a Roundup®-tolerant genetically modified maize (from 11% in the diet), cultivated with or without Roundup®, and Roundup® alone (from 0.1 ppb in water), were studied 2 years in rats. In females, all treated groups died 2–3 times more than controls, and more rapidly. This difference was visible in 3 male groups fed GMOs. All results were hormone and sex dependent, and the pathological profiles were comparable. Females developed large mammary tumours almost always more often than and before controls, the pituitary was the second most disabled organ; the sex hormonal balance was modified by GMO and Roundup® treatments. In treated males, liver congestions and necrosis were 2.5–5.5 times higher. This pathology was confirmed by optic and transmission electron microscopy. Marked and severe kidney nephropathies were also generally 1.3–2.3 greater. Males presented 4 times more large palpable tumors (kidney) than controls that occurred up to 600 days earlier. Biochemistry data confirmed very significant kidney chronic deficiencies; for all treatments and both sexes, 76% of the altered parameters were kidney related. These results can be explained by the non-linear endocrine-disrupting effects of Roundup®, but also by the overexpression of the transgene in the GMO and its metabolic consequences."*

Authors' highlights:

- A Roundup®-tolerant maize and Roundup® provoked chronic hormone and sex dependent pathologies.

[1] https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0094
[2] http://enveurope.springeropen.com/articles/10.1186/s12302-014-0014-5

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

**Cancer Research UK: the incidence of renal cancer has increased and is sex dependent[3]**
Kidney cancer incidence rates have increased by 166% in Great Britain since the late 1970s
Incidence in males, 10/100,000 in 1979 to 28/100,000 in 2013
Incidence in females, 5/100,000 in 1979 to 13/100,000 in 2013

**Cancer Research UK: the mortality from liver cancerhas increased and is sex dependent[4]**
Liver cancer mortality 3/100,000 in the 1979 to 12/100,000 in 2013 for men
Liver cancer mortality 2/100,000 in 1979 to 6/100,000 in 2013 for women

**Cancer Research UK: Incidence rates for cancer in teenagers and young adults have increased**
According to Cancer Research UK, incidence rates for cancer in teenagers and young adultshave increased by 55% in Great Britain since the late 1970s. This includes a larger overall increase for females than for males.[5]
On 03/09/2016 new analysis of government statistics by researchers at the charity Children with Cancer UK found that there are now 1,300 more cancer cases a year compared with 1998, the first time all data sets were published. In an article in the *Sunday Telegraph* by the Science Editor: "*Modern life is killing children with the number of youngsters diagnosed with cancer rising 40 per cent in the past 16 years*" because of air pollution, pesticides, poor diets and radiation, scientists have warned.[6]
*"Diagnoses of colon cancer among children and young people has risen 200 per cent since 1998, while thyroid cancer has doubled. Ovarian and cervical cancers have also risen by 70 per cent and 50 per cent respectively."*
However, Nicola Smith, Cancer Research UK's senior health information officer, said: *"It's not yet clear exactly what causes cancer in childhood and research has not shown a link with environmental factors like air pollution and diet during pregnancy. There are some factorsthat can increase the risk of childhood cancer like inherited genetic conditions and exposure to radiation – but these are usually not avoidable and no one should feel blamed for a child getting cancer."* 'Inherited genetic conditions' cannot develop within 16 years!

**Cancer Research UK: Chairman of Cancer Research UK works for the Agrochemical Industry**

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[3] http://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/kidney-cancer/incidence#heading-Two
[4] http://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/liver-cancer/mortality#heading-Two
[5] http://www.cancerresearchuk.org/health-professional/cancer-statistics/teenagers-and-young-adults-cancers/incidence#heading-Two
[6] http://www.telegraph.co.uk/science/2016/09/03/modern-life-is-killing-our-children-cancer-rate-in-young-people/

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

**Alcohol is claimed to be linked with seven forms of cancer: this 'alleged fact' is endlessly reinforced by the UK media until people in the UK are brainwashed and believe it to be true**
An article was published in the *British Medical Journal* on 9 April 2016[7] reporting a survey commissioned by **Cancer Research UK** 'People lack awareness of link between alcohol and cancer.' The Report produced by researchers at the University of Sheffield 'comes ahead of the consultation closing on how well new drinking guidelines proposed by the UK's Chief Medical Officer in January 2016, are communicated.'[8]
"*Almost 90 per cent of people in England don't associate drinking alcohol with an increased risk of cancer*" Alison Cox, **Cancer Research UK**'s Director of Cancer Prevention. She said: *"The link between alcohol and cancer is now well established, and it's not just heavy drinkers who are at risk. Drinking alcohol is linked to an increased risk of seven different cancers- liver, breast, bowel, mouth, throat, oesophageal (food pipe), laryngeal (voice box)- but when people were asked "which, if any, health conditions do you think can result from drinking too much alcohol?" just 13 per cent of adults mentioned cancer."* Dr Penny Buykx, a senior research fellow at The University of Sheffield and lead-author of the report, said: "*We've shown that public awareness of the increased cancer risk from drinking alcohol remains worryingly low. People link drinking and liver cancer, but most still don't realise that cancers including breast cancer, mouth and throat cancers and bowel cancer are also linked with alcohol, and that risks for some cancers go up even by drinking a small amount.*"

**Séralini reported in his feeding study that rats developed: "liver congestions, necrosis, severe kidney nephropathies"**
His prediction was correct. The crop area treated with glyphosate by UK farmers has increased from 1,750,000 ha in 2012 to 2,250,000 in 2014.[9] Pesticide residues are present in foods.[10]

**Acute kidney injury (AKI) has risen dramatically in England and Wales**
In England over half a million people sustain AKI every year with AKI affecting 5-15% of all hospital admissions.[11] A new guideline report issued on 28/08/2013 from the National Institute for Health and Care Excellence (Nice) said AKI (a sudden loss of kidney function) costs

[7] http://www.bmj.com/content/353/bmj.i1881
[8] http://www.cancerresearchuk.org/about-us/cancer-news/press-release/2016-04-01-9-in-10-dont-link-alcohol-and-cancer
[9] https://secure.fera.defra.gov.uk/pusstats/myresults.cfm
[10] http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/about-PRiF
[11] https://www.kidneyresearchuk.org/research/acute-kidney-injury-clinical-study-group

the NHS between £434m and £620m a year – more than it spends on breast, lung and skin cancer combined.[12]

**Standardized Mortality from liver disease (% change)[13]**
The map shows a gradual rise in mortality from the late seventies and a steep rise since 1994. Liver disease is the only major cause of death still increasing year-on-year. Twice as many people now die from liver disease as in 1991.

**Implementation of the *Lancet* Standing Commission on Liver Disease in the UK was published in 2015.**[14]
*"Between 1980 and 2013, deaths from liver disease in the UK increased by four times, mainly attributable to alcohol consumption… At least two-thirds of the population are overweight or obese…"*

**Pesticide residues in non-organic foods**
Some UK farmers started spraying glyphosate on crops pre-harvest in 1980[15] at the suggestion of a scientist working for Monsanto[16] and on grassland in 1985 on the advice of another Monsanto scientist.[17] Defra started publishing pesticide residues in foods in 2000.[18] *"Residues of chlormequat [19] glyphosate and pirimiphos-methyl[20] 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 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

[12] http://www.theguardian.com/society/2013/aug/28/kidney-care-lives-nice
[13] http://www.britishlivertrust.org.uk/wp-content/uploads/Liver-mortality-map-1970-to-2010.png
[14] http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736%2815%2900680-7.pdf
[15] http://www.hgca.com/media/185527/is02-pre-harvest-glyphosate-application-to-wheat-and-barley.pdf
[16] 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.
[17] 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.
[18] http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/about-PRiF
[19] Chlormequat, a plant growth regulator was present consistently throughout.
[20] 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.

0.1 mg/kg to 10 mg/kg[21] (i.e. 100 times: January 2012). EFSA had granted similarly elevated MRLs for glyphosate on wheat and GM soya.

A Report by Pesticides Action Network-UK has shown that 46% of non-organic food in 2013 contained residues of one or more pesticides and this had increased from 25% in 2003.[22] A further Report by PAN-UK: 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*. [23] *Classified probably carcinogenic in humans (2A) see page 15.

**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.[24] Glyphosate residues were found in German beer.[25] *"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.** [26]

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.

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

Studies in Danish Dairy cattle fed GM soya. [27] 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
- 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)

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[21] http://www.efsa.europa.eu/en/efsajournal/pub/2550.htm
[22] http://www.pan-uk.org/files/pesticides_on_a_plate_2013_final.pdf
[23] http://www.pan-uk.org/files/Pesticides%20in%20Your%20Daily%20Bread%20guide%20-%20FINAL%20(1).pdf
[24] 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%20malting.pdf
[25] http://sustainablepulse.com/2016/02/25/german-beer-industry-in-shock-over-probable-carcinogen-glyphosate-contamination/
[26] http://beyondpesticides.org/dailynewsblog/2016/03/study-finds-majority-of-germans-have-glyphosate-in-their-bodies/
[27] http://dx.doi.org/10.4172/2161-0525.1000186

- Increased serum cholesterol (the first statin, simvastatin, was trialled by Merck in 1994).
- Trace elements: very low levels of manganese and cobalt.

**Strong evidence that obesity is a problem related to glyphosate: a study showed that by 2025, the UK will have the highest obesity rates among both men and women in Europe, at 38%: in contrast in France women have had virtually no increase in BMI over 40 years**
A study on obesity published in *The Lancet* in March 2016 says: *"About a fifth of all adults around the world and a third of those in the UK will be obese by 2025, with potentially disastrous consequences for their health*".[28] *The Lancet* Study says there is zero chance that the world can meet the target set by the UN for halting the climbing obesity rate by 2025.
*"Over the past 40 years, we have changed from a world in which underweight prevalence was more than double that of obesity, to one in which more people are obese than underweight,"* said senior author Prof Majid Ezzati from the School of Public Health at Imperial College London.
*"The English-speaking world is particularly badly affected.* ***The UK will have the highest obesity among both men and women in Europe, at 38%.***
In contrast: *"Against the trend of steadily rising weight, women in some countries had virtually no increase in BMI over the 40 years – in Singapore, Japan, and a few European countries including Czech Republic, Belgium,* ***France****, and* ***Switzerland****."*[29]

**Prof Séralini won an award for his rat feeding studies on GMOs, glyphosate and tumours**
On 16 October 2015 Prof Gilles-Eric Séralini was awarded Whistleblower of the Year by German Scientists for his work on GMOs and Glyphosate.
Citation: *"He was the first to publish animal test results demonstrating the toxic and carcinogenic properties of the most commonly used herbicide worldwide, the glyphosate-based "Roundup" by carrying out a two-year feeding test on rats. After the research was published, Prof Séralini was attacked by a vehement campaign by 'interested circles' from the chemical industry as well as the industry-financed British Science Media Centre."* [30]

**Fiona Fox Director of the UK SMC boasted that the Séralini study went virtually unreported in the UK, but was highly publicized world wide, "particularly France, where it was "*front-page news everywhere*", prompting the French government to launch an inquiry into the study's findings." Ms Fox wrongly claimed Séralini used the word "carcinogenic" to describe tumours**
Amongst the 'experts' she chose to denounce the Séralini study was Prof Maurice Moloney. He worked at Calgene, a Canadian company that was taken over by Monsanto. He developed the world's first transgenic oilseed that resulted in Roundup Ready Canola. Another 'expert' was Prof Alan Boobis, Vice-president of the International Life Science Institute (ILSI) Europe. He was on the UN panel that in 2002 and 2015 ruled that glyphosate was probably not carcinogenic to humans. It has emerged that an institute co -run by the chairman of the UN's joint meeting on pesticide residues (JMPR) received a six-figure donation from Monsanto, which uses the

[28] http://www.theguardian.com/society/2016/mar/31/one-fifth-of-worlds-adults-will-be-obese-by-2025-study-predicts
[29] In Switzerland, s praying glyphosate pre-harvest is not permitted. Systemic neonicotinoid pesticides are not allowed. However the Swiss Government allows Syngenta to operate from Switzerland.
[30] http://neu.vdw-ev.de/wp-content/uploads/2015/10/Presseinformation-Whistleblower-Preisverleihung-2015_150917_eng.pdf

substance as a core ingredient in its bestselling Roundup weedkiller.[31] In 2012, the ILSI group took a $500,000 (£344,234) donation from Monsanto and a $528,500 donation from the industry group Croplife International, which represents Monsanto, Dow, Syngenta and others, according to documents obtained by the US right to know campaign."

The French were the first to announce a ban on glyphosate, while the British Government agreed with EFSA that glyphosate is not carcinogenic and has refused to ban it. So the French citizens are aware, but the British public has been kept in ignorance of Séralini's rat study by the British Media and the fact that non-organic food is contaminated with pesticide residues, including glyphosate. The BBC has been actively promoting Monsanto and GMOs.
Ms Fox took this as evidence that the 10-year-old centre was fulfilling its remit to prevent a repeat of incidents such as the uncritical reporting in 1998 of the claim- heavily criticised by the scientific community - made by Árpád Pusztai, a former researcher at the Rowett Research Institute in Aberdeen, that rats fed on GM potatoes had stunted growth and a repressed immune system.[32] She said that the relatively muted coverage in the UK contrasted with how the story was reported in other countries, particularly France, where it was "*front-page news everywhere*", prompting the French government to launch an inquiry into the study's findings. According to Ms Fox, the Science Media Centre's ability to gather a lot of expert comment quickly was particularly valuable in this instance because journalists who were shown the paper in advance of its publication were required to sign a highly unusual agreement that prevented them from sharing it with third parties. Critics claimed that this minimised the time journalists had to gather potentially negative commentary.

**Tony Blair, Bill Clinton, Monsanto and the Royal Society combined to discredit Dr Árpád Pusztai when he found that rats fed GM potatoes had complications. His lab was closed down**
The Pusztai scandal mentioned above involved Prime Minister Tony Blair and the Royal Society.[33] On 10 August 1998 in a Granada '*World in Action*' broadcast[34] Dr Árpád Pusztai (a GM expert leading the team at the Rowett Institute) explained his research that showed that rats fed with genetically modified potatoes had suffered immune damage. He raised questions about the safety of GM food in the human diet on the basis of the study. The news flashed around the world. Professor Robert Orskov OBE who had worked at the Rowett Institute for 33 years was told that phone calls went from Monsanto, the American firm that produces 90% of the world's GM food, to Clinton and then to Blair. "*Clinton rang Blair and Blair rang James*" (Professor James, Director of the Rowett Institute). "*There is no doubt he was pushed by Blair to do something. It was damaging the relationship between the USA and the UK, because it was going to be a huge blow for Monsanto.*" As a result, Dr Pusztai lost his job and his Laboratory in the Rowett Institute was closed down.

**Séralini's team won defamation and forgery cases on the team's GMO and pesticide research[35]**

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[31] https://www.theguardian.com/environment/2016/may/17/unwho-panel-in-conflict-of-interest-row-over-glyphosates-cancer-risk
[32] https://www.timeshighereducation.com/news/research/research-intelligence-shock-troops-check-poor-gm-study/421361.article
[33] http://www.psrast.org/pusztblair.htm
[34] http://news.bbc.co.uk/1/hi/health/149882.stm
[35] http://www.gmoseralini.org/seralinis-team-wins-defamation-and-forgery-court-cases-on-gmo-and-pesticide-research/

On 25 November 2015, the High Court of Paris indicted Marc Fellous, former chairman of France's Biomolecular Engineering Commission, for "forgery" and "the use of forgery", in a libel trial that he lost to Prof Gilles-Eric Séralini. The Biomolecular Engineering Commission has authorised many GM crops for consumption. The Parisian High Court has ruled that French Professor Gilles-Eric Séralini, a scientist known for his controversial research linking GM feed with tumour growth in rats, was right when he concluded that GMOs are unsafe for human consumption.[36]

In September 2012, an article written by Jean-Claude Jaillette in Marianne magazine said that "*researchers around the world*" had voiced "*harsh words*" about the research of Séralini and his team on the toxic effects of a GMO and Roundup over a long-term period – research that was supported by the independent organisation Committee for Independent Research and Information on Genetic Engineering (CRIIGEN) in France. The journalist wrote of a "*scientific fraud in which the methodology served to reinforce pre-determined results*".
Séralini, his team, and CRIIGEN challenged this allegation in a defamation lawsuit. They were assisted by the notaries Bernard Dartevelle and Cindy Gay. On 6 November 2015, after a criminal investigation lasting three years, the 17th Criminal Chamber of the High Court of Paris passed sentence. Marianne magazine and its journalist were fined for public defamation of a public official and public defamation of the researchers and of CRIIGEN, which is chaired by Dr Joel Spiroux de Vendômois.

**Professor Séralini, who has studied glyphosate for 30 years, says that Roundup is an endocrine disruptor and a nervous system disruptor (ENDs).**[37]
Abstract: Roundup and other glyphosate-based herbicides are the most widely used pesticides in the world; their residues are among the main pollutants in surface waters. Their use has increased through the spraying of 80% of edible agricultural GMOs, which also contain high levels of their residues. They are composed of glyphosate (35 –40% in general) and adjuvants that are around 1,000 times more toxic than glyphosate alone, and are also endocrine disruptors below toxic thresholds. All endocrine disruptors (ED) are also nervous system disruptors (ND), because they act as "spam" for cell–cell communication, in the sense that they are spurious messages (or molecules) sent to a group of organisms or cells, impeding and slowing down, and in some cases accelerating, the physiological communication system. Therefore, they should be called ENDs (endocrine and nervous system disruptors). From 0.1 ppb in chronic tests in vivo, Roundup is highly tumorigenic, provoking hormone-dependent tumours, other hormonal imbalances, and important liver and kidney toxicities. Pesticide adjuvants play the same role in other pesticide formulations. The declared active principles often appear to be by far the least toxic compounds after water in formulations. Unfortunately for public health, they are the only substances tested by companies for regulatory purposes over the long term in vivo. Thus, the acceptable daily intakes deduced from these tests are 1000 –10 000 times too high. In regulatory tests the deleterious effects in rats are compared with historical data on rat pathologies. Analysis of laboratory rodent feeds sourced from five continents reveals that they are so contaminated by pollutants that comparison to these hence inappropriate controls generally masks the chronic pathologies provoked by the pesticides and other chemicals tested. The disputes with industry representatives and lobby groups that arose in the course of this research are also summarized in this short review. Finally, potential methods of improving

[36] http://www.naturalnews.com/053378_Seralini_Monsanto_fraudulent_scientists.html
[37] http://www.amsi.ge/jbpc/31515/15-3-abs-3.htm

transparency and advancing scientific knowledge are recommended.

**US EPA describes the following papers as 'not relevant to current fit for purpose review'**
**Page 166** Benachour, N., et al. (2007). "Time- and dose-dependent effects of Roundup on human embryonic and placental cells." Arch Environ Contam Toxicol 53(1): 126-133.
**Page 168** Defarge, N., et al. (2016). "Co-Formulants in Glyphosate-Based Herbicides Disrupt Aromatase Activity in Human Cells below Toxic Levels." Int J Environ Res Public Health 13(3).
**Page 170** Gasnier, C., et al. (2009). "Glyphosate-based herbicides are toxic and endocrine disruptors in human cell lines." Toxicology 262(3): 184-191.
**Page 176** Mesnage, R., et al. (2013). "Ethoxylated adjuvants of glyphosate-based herbicides are active principles of human cell toxicity." Toxicology 313(2-3): 122-128.
Benachour, Defarge, Gasnier and Mesnage were all members of Séralini's laboratory at CRIIGEN.

**Page 181** Thongprakaisang, S., et al. (2013). "Glyphosate induces human breast cancer cells growth via estrogen receptors." Food Chem Toxicol 59: 129-136. [38]
The study found that breast cancer cell proliferation is accelerated by glyphosate in extremely low concentrations. *"The present study used pure glyphosate substance at log intervals from $10^{-12}$ to $10^{-6}$ M. These concentrations are in a crucial range which correlated to the potential biological levels at part per trillion (ppt) to part per billion (ppb) which have been reported in epidemiological studies."* Cancer Research UK reports that female breast cancer incidence rates have increased by 64% in Great Britain since the late 1970s.[39]

**Monsanto was involved in the retraction of the Séralini paper, although the Editor in Chief of FCT, Wallace-Hayes actually made the decision: this was revealed by many emails**
**Page 158** Wallace-Hayes, A. Editor in Chief of *Food and Chemical Toxicology* answers questions on retraction of the Seralini article.[40]
*"Contrary to what has been suggested by some, the appointment of Professor Richard Goodman, University of Nebraska, as an Associate Editor was not influenced by Monsanto or any other party."*
*Le Monde* journalist Stéphane Foucart examined emails between Monsanto & *Food and Chemical Toxicology* obtained under FoI from a request submitted by the food transparency organisation US Right to Know (USRTK). [41] According to Foucart, nothing in the documents consulted by *Le Monde* supports the idea that Goodman played a role in the retraction of the Séralini study - that decision was taken by Hayes.
The article shows the total subordination of Goodman to Monsanto. Goodman himself wrote in a message of 2012 that "50% of [his] salary" actually comes from a project funded by Monsanto, Bayer, BASF, Dow, DuPont and Syngenta, and consists of establishing a database of food allergens. He is also a former employee of Monsanto, which he left in 2004. It also reveals how Hayes played a double role in the retraction of the study, acting behind the scenes to encourage Monsanto scientists to join the reviewing panel that would feed their views into the decision to retract. Goodman was not at the time a member of the editorial board of FCT. On 19

[38] http://www.ncbi.nlm.nih.gov/pubmed/23756170
[39] http://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/breast-cancer/incidence-invasive#heading-Two
[40] http://www.sciencedirect.com/science/article/pii/S0278691514000076
[41] https://gmwatch.org/news/latest-news/17121-emails-reveal-role-of-monsanto-in-seralini-study-retraction

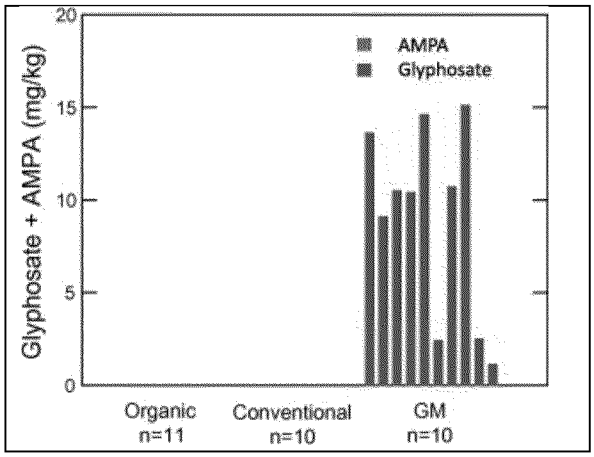
September, Foucart writes: "Goodman informed his Monsanto correspondent about the publication of Séralini's article and that he "would appreciate" it if the firm could provide him with criticisms. "*We're reviewing the paper*," the Monsanto correspondent replies. " *I will send you the arguments that we have developed.*" A few days later, Foucart writes, Goodman was named "associate editor" of FCT, on the decision of the toxicologist Wallace Hayes, then editor of the journal. In January 2015, Goodman resigned his position at the journal, due to time constraints. However, Hayes had conflicts of interest. *"Hayes clearly did play a key role in the retraction. And he has plenty of conflicts of interest that might have influenced his decision. Hayes has had a long career as an industry toxicologist. He is senior science advisor at Spherix Consulting, "a global team of experienced advisors who provide their clients in the food, dietary supplement, consumer product, and pharmaceutical industries with scientific solutions that result in regulatory success."*

There are also accounts of academic fraud and corruption: University scientists caught conspiring with Monsanto to manipulate public opinion on GMOs such as Bruce Chassy (who incidentally commented on the UK SMC when the Séralini study was republished) and University of Florida plant scientist Kevin Folta who had denied links with Monsanto.[42] Aug. 6 2015, international science journal *Nature* reported that more than 4,600 pages of emails from University of Florida plant scientist Kevin Folta *"reveal his close ties to the agriculture giant Monsanto … and other biotechnology industry interests"*…

**Page 157** Comments on the recently published Bøhn, Cuhra, Traavik et al.
*Food Chemistry* 2014 153 207-215. But the original article was not disclosed by the US EPA.

**Roundup® and AMPA residues in GM Soya: GM Soya is not 'substantially equivalent'**
Prof Thomas Bøhn's paper from Norway which found that GM soya is not 'substantially equivalent' to non-GM contrary to industry claims.[43] This paper describes the nutrient and elemental composition, including residues of herbicides and pesticides, of 31 soybean batches from Iowa, USA.
In a commentary on the paper Bøhn wrote: "Extreme Levels" of Roundup® in Food Became the Industry Norm:[44] ***"****Roundup® Ready GM-soy accumulates residues of glyphosate and aminomethylphosphonic acid (AMPA) and GM soy also differs markedly in nutritional composition compared with soybeans from other agricultural practices. Organic soybean samples also showed a more healthy nutritional profile (e.g. higher in protein and lower in saturated fatty acids) than both industrial conventional and GM soybeans. Lack of data on pesticide residues in major crop plants is a serious gap of knowledge with potential consequences for human and animal health. How is the public to trust a risk assessment system that has overlooked the most obvious risk factor for herbicide tolerant GM crops, i.e. high residue levels of herbicides, for nearly 20 years? If it has been due to lack of understanding, it would be bad. If it is the result of the producer's power to influence the risk assessment system, it would be worse."*

[42] http://www.ecowatch.com/monsantos-tobacco-files-university-scientists-caught-conspiring-with-b-1882095786.html
[43] http://www.sciencedirect.com/science/article/pii/S0308814613019201 Compositional differences in soybeans on the market: glyphosate accumulates in Roundup Ready GM soybeans.
[44] http://www.independentsciencenews.org/news/how-extreme-levels-of-roundup-in-food-became-the-industry-norm/




From: Compositional differences in soybeans (Organic, Conventional and GM.) from Iowa, USA. Reproduced by kind permission of Prof Thomas Bøhn, Genøk, Centre for Biosafety, Norway.

## How Prof Andrès Carrasco's work on teratogenicity was suppressed

**Page 158** Carrasco, A. E. (2011). "Reply to the Letter to the Editor Regarding Our Article (Paganelli et al., 2010)." Chem Res Toxicol 24(5): 610-613. The original article was not disclosed because the GTF RAR in Europe had already rejected it.

**Prof Andrès Carrasco and his team in Buenos Aires showed that glyphosate caused malformations in amphibian and chicken embryos, confirming the effects on humans**
Paganelli, A. *et al.* Glyphosate-Based Herbicides Produce Teratogenic Effects on Vertebrates by Impairing Retinoic Acid Signaling *Chem. Res. Toxicol.*, 2010, 23 (10), 1586–1595
**DOI:** 10.1021/tx1001749[45]
*Reports of neural defects and craniofacial malformations from regions where glyphosate-based herbicides (GBH) are used led them to undertake an embryological approach to explore the effects of low doses of glyphosate in development. Treated embryos were highly abnormal with marked alterations in cephalic and neural crest development and shortening of the anterior posterior (A-P) axis. It was shown that the effects were due to the glyphosate itself, rather than the additive.*

**When carrying out the Renewal Assessment Report (RAR) for glyphosate, why did the European GTF exclude papers from Latin America that reported birth defects and cancers associated with glyphosate: and why did they dismiss papers that showed teratogenicity?**
In the RAR for glyphosate a total of 18 peer -reviewed publications showing reproductive toxicity were ranked 3 – not reliable. The RAR commented on the study by *Paganelli et al.* [46] It was very revealing. Whoever reviewed itwanted it deleted, regardless of content.
This was the classic study from Professor Andrès Carrasco in the University of Buenos Aires that showed embryological evidence in frogs and chicks, of what was happening to human embryos in the Crop-sprayed towns of Argentina.

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[45] http://www.ncbi.nlm.nih.gov/pubmed/20695457
[46] Paganelli, A. *et al.* Glyphosate-Based Herbicides Produce Teratogenic Effects on Vertebrates by Impairing Retinoic Acid Signaling *Chem. Res. Toxicol.*, 2010, 23 (10), 1586 –1595. **DOI:** 10.1021/tx1001749 http://pubs.acs.org/doi/abs/10.1021/tx1001749

RAR Report: 'The study reported endocrine disruption but was deemed *"not reliable"*. The RAR commented: *"Non-Guideline study that is not sufficiently described for assessment- Inadequate positive and negative control experiments. Irrelevant routes of exposure and inappropriately high doses. Test system not adequate for human risk assessment".* [Volume 3 Annex B.6.1, p 669] Furthermore, *"multiple high quality toxicity studies and expert review panels consistently agree glyphosate is not a teratogen or reproductive toxicant. The author's justification for this research is flawed, providing no valid basis, other than an opinion, of an increase in the rate of birth defects in Argentina. Direct injection of frog embryos and through chick egg shells do not reflect real world exposure scenarios to either environmental species or humans."* [47] There were several papers on the increasing rate of birth defects in South Americawhere GM Roundup Ready crops are grown; but the European Glyphosate Task Force had excluded all of them.

**GMO Pesticides Used in South American GMO-Based Agriculture: A Review of Their Effects on Humans and Animal Models** [48]

Genetically-Engineered Corn and Roundup®-Ready Soya were introduced into the rural towns of Argentina and Paraguay in 1996. The devastation of human and animal health and biodiversity is described in this chapter: *"In South America, the incorporation of genetically modified organisms (GMO) engineered to be resistant to pesticides changed the agricultural model into one dependent on the massive use of agrochemicals. Different pesticides are used in response to the demands of the global consuming market to control weeds, herbivorous arthropods, and crop diseases. Here, we review their effects on humans and animal models, in terms of genotoxicity, teratogenicity, and cell damage. We also stress the importance of biomarkers for medical surveillance of populations at risk.*

**Cancer and detrimental reproductive effects in an Argentine agricultural community environmentally exposed to glyphosate**[49]

"*Over the last 20 years, industrial agriculture in Argentina has expanded by almost 50 %, taking over regions intended for other productions, for family farming, and most of all, forests. More and more children are born with defects in these areas, especially if the first months of pregnancy coincide with the time of spraying. Down's syndrome, spina bifida, myelo-meningocele (neural tube defect), congenital heart disease, etc. are diagnosed more frequently in those areas; in some towns and during some years, at triple the normal rates, and directly linked to increased pesticide applications around the towns... Neural tube defects are among the most common developmental birth defects observed, which is consistent with lab studies and farm observations…The model of agricultural production foisted on Argentina by international biotechnology companies has led to 858 % increase in the amount of pesticides used per year, resulting in a massive environmental and health impact in the region Glyphosate is the most commonly used toxic agrochemical in Argentina, comprising 64 % of total sales, and 200 million litres of glyphosate were applied during the last crop season…The clinical manifestations that physicians working in the crop-sprayed towns find in patients are consistent with the results of scientific research on the effects of various pesticides including glyphosate on experimental animals. Laboratory research by our Scientists show how glyphosate acts on*

[47] http://www.i-sis.org.uk/Scandal_of_Glyphosate_Reassessment_in_Europe.php

[48] Lopez, S.L. *et al* GMO Pesticides Used in South American GMO-Based Agriculture: A Review of Their Effects on Humans and Animal Models. In *Advances in Molecular Toxicology*, Vol. 6, 201 published by Elsevier: ISSN 1872-0854 http://www.sciencedirect.com/science/article/pii/B9780444593894000021

[49] http://www.amsi.ge/jbpc/31515/15-3-abs-2.htm

*embryonic development to produce birth defects, and how this poison damages DNA molecules in the cell nucleus, promoting mutant cell lines that will cause cancer if they cannot be eliminated by the individual."*
Fig 1 shows: The rise in birth defects correlates with the rise in cultivation of GM glyphosate - tolerant soybeans in Chaco, Argentina. Birth defects per 10 000 live births increased from approx. 15/10,000 live births in 1997 to approx. 82/10,000 live births in 2008.
They produced evidence of *in vitro* genotoxicity of an environmental metabolite of glyphosate (AMPA) in humans as assessed by the Comet assay and cytogenetic tests.

**Birth defects in seven regions of Argentina**
A report of the many types of birth defects in seven geographical areas of Argentina[50] was excluded from the BfR glyphosate re-assessment (it was in Spanish, but with an English abstract). A sample of 21,844 new born with birth defects was selected, ascertained from 855,220 births, between 1994 and 2007, in 59 hospitals belonging to the ECLAMC network. Extracts: "*High frequencies regional analysis showed the following significant results:PAM: severe hypospadias; CEN: spina bifida, microtia, cleft lip with cleft palate, polycystic kidney, postaxial polydactyly and Down syndrome; CUY: postaxial polydactyly; NOA: omphalocele, gastroschisis, cleft lip without cleft palate, cleft lip with cleft palate, anorectal atresia/stenosis, indeterminate sex, preaxial polydactyly and pectoral agenesis;PAT: cleft lip without cleft palate.*" [Metropolitana (MET); Pampa (PAM); Centro (CEN); Cuyo (CUY); Noroeste (NOA); Nordeste (NEA) and Patagonia (PAT)].

**Drastic action was taken to stop the public presentation of Carrasco's paper in Argentina**
Monsanto must have been sufficiently worried about the damaging nature of this research that showed glyphosate to be a teratogen (and a carcinogen) that someone stopped the presentation of this paper to the residents of Crop-Sprayed Towns of Argentina. Many of these rural residents had experienced birth defects and cancers that had been ignored by local health officials. On 7th August 2010 Professor Andrès Carrasco, lead embryologist at the University, Buenos Aires Medical School and the Argentinean National Research Council, came to give a talk about his research to community activists and residents gathered in La Leonesa. His research showed that glyphosate, an agrochemical used on genetically modified soy and rice in Argentina, causes birth defects in animal embryos at levels far below those frequently used in agricultural spraying. A delegation of public officials and residents from the nearby community of Resistencia also came to La Leonesa to hear the talk.[51] *"But it never took place. As the delegation walked towards the school where the talk was to be held, it was attacked by a violent mob of approximately 100 people. Three people were seriously injured. Carrasco and a colleague shut themselves in a car and were surrounded by people beating the vehicle for two hours. Witnesses believe that a local rice producer and officials had organised the attack to protect agribusiness interests. As the police seemed reluctant to intervene, Amnesty International[52] subsequently called for an investigation."*

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[50] http://www.ncbi.nlm.nih.gov/pubmed/21132229 [Births prevalence of 27 selected congenital anomalies in 7 geographic regions of Argentina]. Campaña H
[51] http://www.theecologist.org/blogs_and_comments/commentators/other_comments/686959/revealed_the_glyphosate_research_the_gm_soy_lobby_doesnt_want_you_to_read.html
[52] http://www.amnesty.org/en/library/asset/AMR13/005/2010/en/303e9ee6-9138-405f-97fc-ed58965b76d0/amr130052010en.html

The Amnesty International investigation established that: *"One person has since suffered from lower body paralysis after being hit on his spine, and another is undergoing neurological examinations after receiving blows to the head. The former provincial Sub-Secretary of Human Rights, Marcelo Salgado, was struck in the face and left unconscious. Dr Carrasco and his colleague shut themselves in a car, and were surrounded by people making violent threats and beating the car for two hours. Members of the community were injured and a journalist's camera equipment was damaged.*

**Prof Andrès Carrasco's death occurred on May 10th 2014**

A Medical Enquiry had been announced in Argentina into the effects on human health of glyphosate in GMO systems of agriculture in 2014. The problems were investigated on BBC Radio 4.[53] Prof Andrès Carrasco, who had been a member of Conicet, the National Scientific and Technical Research Council – Argentina, had continually challenged Monsanto and the pesticide regulators. **He would have been a key witness**. However, he died suddenly on May 10th 2014 at the age of 67, in the period between his giving evidence to Linda Pressly and when the BBC Radio 4 programme was broadcast on May 14th.

**Detection of Glyphosate in 38 malformed Piglets in Denmark** [54]

Glyphosate residues in different organs and tissues as lungs, liver, kidney, brain, gut wall and heart of malformed euthanized one-day-old Danish piglets (N= 38) 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 with glyphosate at 2 to 8 weeks of pregnancy.

**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. But until recently, the herbicides have never been sprayed directly on food crops, and never in this massive quantity. We must find another way"*.[55]

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[53] http://www.bbc.co.uk/programmes/b042ldz0

[54] http://omicsonline.org/open-access/detection-of-glyphosate-in-malformed-piglets-2161-0525.1000230.pdf

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

## How the International Agency for Cancer Research was sidelined

US EPA also described this paper as 'Not relevant to current fit for purpose review'.
**Page 170** Guyton, K. Z., *et al.* (2015). "Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate." *Lancet Oncology* 16(5): 490-491. It is very relevant to the issue of glyphosate and carcinogenicity and here the summary of this key WHO IARC paper.

**World Health Organisation's International Agency for Research on Cancer (IARC) has 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, whomet in Lyon, France, to assess the carcinogenicity of 5 organophosphate pesticides.[56]
*"In male CD-1 mice, glyphosate induced a positive trend in the incidence of a rare tumour, renal tubule carcinoma. A second study reported a positive trend for haemangiosarcoma in male mice. Glyphosate increased pancreatic islet-cell adenoma in male rats in two studies. A glyphosate formulation promoted skin tumours in an initiation-promotion study in mice. Glyphosate has been detected in the blood and urine of agricultural workers, indicating absorption. Soil microbes degrade glyphosate to aminomethylphosphoric acid (AMPA). Blood AMPA detection after poisonings suggests intestinal microbial metabolism in humans. Glyphosate and glyphosate formulations induced DNA and chromosomal damage in mammals, and in human and animal cells in vitro. One study reported increases in blood markers of chromosomal damage (micronuclei) in residents of several communities after spraying of glyphosate formulations. Bacterial mutagenesis tests were negative. Glyphosate, glyphosate formulations, and AMPA induced oxidative stress in rodents and in vitro. The Working Group classified glyphosate as "probably carcinogenic to humans" (Group 2A)."*
This is the first influential institute that has taken into account independent science.
However, the IARC Monograph Volume 112 20/03/2015[57] has no legal power to ban glyphosate. *"The Monographs Programme provides scientific evaluations based on a comprehensive review of the scientific literature, but it remains the responsibility of individual governments and other international organizations to recommend regulations, legislation, or public health intervention."*

**US EPA also dismissed this paper from IARC - as a 'correspondence article'**
**Page 158** paper Is dismissed as a "correspondence article." This is untrue.
Portier, C. J., et al. (2016). "Differences in the carcinogenic evaluation of glyphosate between the International Agency for Research on Cancer (IARC) and the European Food Safety Authority (EFSA)." J Epidemiol Community Health.
This published paper was from IARC, signed by 94 independent scientists and describes why IARC disagreed with EFSA: *" Serious flaws in the scientific evaluation in the RAR incorrectly characterise the potential for a carcinogenic hazard from exposure to glyphosate. Since the RAR is the basis for the European Food Safety Agency (EFSA) conclusion, it is critical that these shortcomings are corrected."*

**There was a correspondence article between Portier and the EU Commissioner: Open letter:**

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[56] http://www.thelancet.com/pdfs/journals/lanonc/PIIS1470-2045(15)70134-8.pdf Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate.
[57] http://www.iarc.fr/en/media-centre/iarcnews/pdf/MonographVolume112.pdf

**Review of the Carcinogenicity of Glyphosate by EFSA and BfR**
A group of over 90 independent scientists has written an open letter to the European Health and Food Safety Commissioner, Vytenis Andriukaitis, strongly challenging EFSA's decision and the BfR report that it was based on.[58]
They express deep concern that BfR assesses the widely used herbicide glyphosate as *"unlikely to pose a carcinogenic hazard to humans"*.
They consider the BfR evidence point by point and the two most disturbing statements were that:

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

**Use of confidential data: current EU legislation is set up in favour of the pesticides industry**
Monsanto Europe replied to Health Commissioner Andriukaitis on 04/04/2016 to say that the 24 GTF members were prepared to grant very limited access to the data.[59]
From this we learn that the current EU legislation is set up to *"protect intellectual property and confidential information from public disclosure." "All confidential data ...shall be deleted or redacted (Regulation 1107/2009, Article 63)."* Much of the industry data submitted to the German RMS was redacted. This EU regulation is set up for the industry to make money and to allow the EU citizens to be poisoned.

**On page 12 1.2 Evaluation of Carcinogenic Potential, US EPA has a different version of the events: it did not say that three members refused to sign because they "did not concur"**

**Even the US EPA classified glyphosate as a Group C carcinogen in 1985: why was it changed to Group E carcinogen (evidence of non-carcinogenicity for humans) in 1991?** [60]
The original Panel comprised of members of the Toxicology Branch of the Hazard Evaluation Division that examined the carcinogenic potential of glyphosate. In a consensus review on March 4 1985 the Committee classified glyphosate as a Group C carcinogen. It was based on the incidence in rats/mice of **renal tumours**, **thyroid C-cell adenomas** and **carcinomas**, **pancreatic** islet cell adenomas, **hepatocellular adenomas and carcinomas** in males. However, in 1991 The Health Effects Division Carcinogenicity Peer Review Committee met on June 26 1991 to discuss and evaluate the weight of evidence on glyphosate with particular emphasis to its carcinogenic potential. In a review of the data the Committee concluded that glyphosate

[58] http://images.derstandard.at/2015/11/30/glyphosate.pdf
[59] https://dl.dropboxusercontent.com/u/6366131/letter%20to%20Commissioner%20Andriukaitis.pdf
[60] http://www.epa.gov/opp00001/chem_search/cleared_reviews/csr_PC-103601_30-Oct-91_265.pdf

should be classified as Group E (evidence of non-carcinogenicity for humans). In order to cover themselves they declared: *"It should be emphasized, however, that the designation of an agent in Group E is based on the available evidence at the time of evaluation and should not be interpreted as a definitive conclusion that the agent will not be a carcinogen under any circumstances"*
There were signatures of the 11 members present, six members signed *in absentia* but three members refused to sign because they *"did not concur."* Presumably they knew that the change of classification of glyphosate from Group C to Group E by US EPA was fraudulent.

**Conflicts of interest in the Joint Meeting on Pesticide Residues (JMPR)**
**Page 13** US EPA states that *"In May 2016, the Joint Food and Agriculture Organization (FAO)/WHO Meeting on Pesticide Residues (JMPR), another subdivision of the WHO, concluded that glyphosate was unlikely to pose a carcinogenic risk to humans from exposure through the diet (JMPR, 2016)."*

**Alan Boobis claimed he had no conflicts of interest, but Arthur Neslen *The Guardian's* European Environment Editor showed that his organisation had received industry money**
Professor Alan Boobis, who claimed he had no conflicts of interest, is Vice President of the International Life Science Institute (ILSI) Europe , an organisation that had received money from both Monsanto and CropLife International. The following report was from Guardian journalist Arthur Neslen.[61] *"A UN panel that on Tuesday ruled that glyphosate was probably not carcinogenic to humans has now become embroiled in a bitter row about potential conflicts of interests. It has emerged that an institute co-run by the chairman of the UN's joint meeting on pesticide residues (JMPR) received a six-figure donation from Monsanto, which uses the substance as a core ingredient in its bestselling Roundup weedkiller. Professor Alan Boobis, who chaired the UN's joint FAO/WHO meeting on glyphosate, also works as the Vice-president of the International Life Science Institute (ILSI) Europe. The co -chair of the sessions was Professor Angelo Moretto, a board member of ILSI's Health and Environmental Services Institute, and of its Risk21 steering group too, which Boobis also co-chairs. In 2012, the ILSI group took a $500,000 (£344,234) donation from Monsanto and a $528,500 donation from the industry group Croplife International, which represents Monsanto, Dow, Syngenta and others, according to documents obtained by the US right to know campaign."* When Glyphosate was reassessed in 2002, Alan Boobis was also Chairman of the UN's JMPR meeting on pesticide residues.

**Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Core Assessment Group: Rome 20-29 Sept. 2004[62]**
The initial draft of the Presentation on the Toxicology of Glyphosate was prepared by two toxicologists from the BfR (see p 95) i.e. the German RMS.
Comments page 158. *"In view of the absence of carcinogenic potential in animals and the lack of genotoxicity in standard tests, the Meeting concluded that glyphosate is unlikely to pose a carcinogenic risk to humans."*
Comments page 159. *"The Meeting concluded that the existing database on glyphosate was adequate to characterize potential hazard to fetuses, infants and children."*

[61] https://www.theguardian.com/environment/2016/may/17/unwho-panel-in-conflict-of-interest-row-over-glyphosates-cancer-risk
[62] http://whqlibdoc.who.int/publications/2006/9241665203_eng.pdf?ua=1

# How US EPA dismissed Samsel & Seneff's five papers on Glyphosate: Pathways to Modern Diseases as 'not original work'

**Monsanto (or Monsanto lobbyists) attempted to deal with Samsel & Seneff's first paper by trying to get *Entropy*'s Managing Editor to close down the next Special Issue**

**How glyphosate damages human metabolism by suppressing metabolic pathways**
Samsel A and Seneff S (2013) Glyphosate's suppression of Cytochrome P450 enzymes and amino acid biosynthesis by the gut microbiome: Pathways to Modern Diseases[63]
Abstract: *Glyphosate, the active ingredient in Roundup®, is the most popular herbicide used worldwide. The industry asserts it is minimally toxic to humans, but here we argue otherwise. Residues are found in the main foods of the Western diet, comprised primarily of sugar, corn, soy and wheat. Glyphosate's inhibition of cytochrome P450 (CYP) enzymes is an overlooked component of its toxicity to mammals. CYP enzymes play crucial roles in biology, one of which is to detoxify xenobiotics. Thus, glyphosate enhances the damaging effects of other food borne chemical residues and environmental toxins. Negative impact on the body is insidious and manifests slowly over time as inflammation damages cellular systems throughout the body. Here, we show how interference with CYP enzymes acts synergistically with disruption of the biosynthesis of aromatic amino acids by gut bacteria, as well as impairment in serum sulfate transport. Consequences are most of the diseases and conditions associated with a Western diet, which include gastrointestinal disorders, obesity, diabetes, heart disease, depression, autism, infertility, cancer and Alzheimer's disease. We explain the documented effects of glyphosate and its ability to induce disease, and we show that glyphosate is the "textbook example" of exogenous semiotic entropy: the disruption of homeostasis by environmental toxins.*

**Prof Dr Kevin H Knuth, Editor-in-Chief of *Entropy*, deserves the thanks of independent scientists from all over the world for maintaining the principles of scientific truth**
Professor Knuth stood firm against the publishers MDPI to stop the series of Special Issues. A paper by the late Dr Mae-Wan Ho would have been lost without his timely intervention. On 31/10/2013 a Managing Editor at *Entropy* wrote and told Dr Mae-wan Ho that: "*since we published the paper "Glyphosate's Suppression of Cytochrome P450 Enzymes and Amino Acid Biosynthesis by the Gut Microbiome: Pathways to Modern Diseases" it had bought some negative comments for Entropy. After careful consideration and discussion by our internal control system recently, we decided to close down this special issue. We suggest you submit your paper to a more relevant journal like the public health journal. Please accept my sincere apologies for any inconveniences that cause".*
The paper in question was a Review of GM (which had already been thoroughly examined by six reviewers) and was on the verge of publication. Fortunately the Editor-in-Chief found out just in time and it was published on line immediately.
Following on from these events, a new statement about Controversial Articles[64] was posted on the *Entropy* website on 06/12/2013. Among the most significant statements are: "*Motivations* (for casting doubt on the accuracy of the publication) *vary widely and can include political or corporate agendas, and competing economic or intellectual interests. The policy for our journals*

[63] http://www.mdpi.com/1099-4300/15/4/1416
[64] http://www.mdpi.com/about/controversial-articles

*is to widely ignore the blogosphere, where competing interests, corruption, and anonymity prevail. Scientists contesting an article in one of MDPI's journals are asked to prepare a scientifically rigorous Comment and submit it to the Editors of the journal for editorial review. The authors of such Comments are asked to declare all competing interests and their identity in the Comment, which will be published in the regular issue of the journal if it passes editorial review."*

**Glyphosate, pathways to modern diseases II: Celiac sprue and gluten intolerance.**[65]

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

**Glyphosate, pathways to modern diseases III: Manganese, neurological diseases, and associated pathologies**[66]

Abstract: *Manganese (Mn) is an oftenoverlooked but important nutrient, required in small amounts for multiple essential functions in the body. A recent study on cows fed genetically modified Roundup®-Ready feed revealed a severe depletion of serum Mn. Glyphosate, the active ingredient in Roundup®, has also been shown to severely deplete Mn levels in plants. Here, we investigate the impact of Mn on physiology, and its association with gut dysbiosis as well as neuropathologies such as autism, Alzheimer's disease (AD), depression, anxiety syndrome, Parkinson's disease (PD), and prion diseases. Glutamate overexpression in the brain in association with autism, AD, and other neurological diseases can be explained by Mn deficiency. Mn superoxide dismutase protects mitochondria from oxidative damage, and mitochondrial dysfunction is a key feature of autism and Alzheimer's. Chondroitin sulfate*

[65] http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3945755/

[66] http://www.surgicalneurologyint.com/temp/SurgNeurolInt6145-4381109_121011.pdf

*synthesis depends on Mn, and its deficiency leads to osteoporosis and osteomalacia. Lactobacillus, depleted in autism, depends critically on Mn for antioxidant protection. Lactobacillus probiotics can treat anxiety, which is a comorbidity of autism and chronic fatigue syndrome. Reduced gut Lactobacillus leads to overgrowth of the pathogen, Salmonella, which is resistant to glyphosate toxicity, and Mn plays a role here as well. Sperm motility depends on Mn, and this may partially explain increased rates of infertility and birth defects. We further reason that, under conditions of adequate Mn in the diet, glyphosate, through its disruption of bile acid homeostasis, ironically promotes toxic accumulation of Mn in the brainstem, leading to conditions such as PD and prion diseases*

**Glyphosate, pathways to modern diseases IV: cancer and related pathologies** [67]

Abstract: *Glyphosate is the active ingredient in the pervasive herbicide, Roundup, and its usage, particularly in the United States, has increased dramatically in the last two decades, in step with the widespread adoption of Roundup®-Ready core crops. The World Health Organization recently labelled glyphosate as "probably carcinogenic." In this paper, we review the research literature, with the goal of evaluating the carcinogenic potential of glyphosate. Glyphosate has a large number of tumorigenic effects on biological systems, including direct damage to DNA in sensitive cells, disruption of glycine homeostasis, succinate dehydrogenase inhibition, chelation of manganese, modification to more carcinogenic molecules such as N-nitrosoglyphosate and glyoxylate, disruption of fructose metabolism, etc. Epidemiological evidence supports strong temporal correlations between glyphosate usage on crops and a multitude of cancers that are reaching epidemic proportions, including breast cancer, pancreatic cancer, kidney cancer, thyroid cancer, liver cancer, bladder cancer and myeloid leukaemia. Here, we support these correlations through an examination of Monsanto's early studies on glyphosate, and explain how the biological effects of glyphosate could induce each of these cancers. We believe that the available evidence warrants a reconsideration of the risk/benefit trade-off with respect to glyphosate usage to control weeds, and we advocate much stricter regulation of glyphosate.*

**Glyphosate pathways to modern diseases V: Amino acid analogue of glycine in diverse proteins** [68]

Abstract**:** *Glyphosate, a synthetic amino acid and analogue of glycine, is the most widely used biocide on the planet. Its presence in food for human consumption and animal feed is ubiquitous. Epidemiological studies have revealed a strong correlation between the increasing incidence in the United States of a large number of chronic diseases and the increased use of glyphosate herbicide on corn, soy and wheat crops. Glyphosate, acting as a glycine analogue, may be mistakenly incorporated into peptides during protein synthesis. A deep search of the research literature has revealed a number of protein classes that depend on conserved glycine residues for proper function. Glycine, the smallest amino acid, has unique properties that support flexibility and the ability to anchor to the plasma membrane or the cytoskeleton. Glyphosate substitution for conserved glycines can easily explain a link with diabetes, obesity, asthma, chronic obstructive pulmonary disease (COPD), pulmonary edema, adrenal insufficiency, hypothyroidism, Alzheimer's disease, amyotrophic lateral sclerosis (ALS), Parkinson's disease, prion diseases, lupus, mitochondrial disease, non-Hodgkin's lymphoma,*

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[67] https://www.academia.edu/17751562/Glyphosate_pathways_to_modern_diseases_IV_cancer_and_related_pathologies

[68] http://www.amsi.ge/jbpc/11616/03SA16A.pdf

*neural tube defects, infertility, hypertension, glaucoma, osteoporosis, fatty liver disease and kidney failure. The correlation data together with the direct biological evidence make a compelling case for glyphosate action as a glycine analogue to account for much of glyphosate's toxicity. Glufosinate, an analogue of glutamate, likely exhibits an analogous toxicity mechanism. There is an urgent need to find an effective and economical way to grow crops without the use of glyphosate and glufosinate as herbicides.*

**One of Monsanto's own long term studies in rats in 1990[69] showed an increased risk of cataracts following exposure to Roundup®**

**Annual rates of admission for cataract surgery in England rose 10-fold from 1968 to 2003**: from 62 episodes per 100,000 population in 1968 to 637 in 2004. The rate of cataract surgery in England "*increased very substantially*" between 1989 and 2004 from 173 (1989) to 637 (2004) episodes per 100,000 population.[70]

A 2016 study by the WHO also confirmed that the incidence of cataracts had greatly increased:[71] 'A global assessment of the burden of disease from environmental risks.' says that cataracts are the leading cause of blindness worldwide. Globally, cataracts are responsible for 51% of blindness – an estimated 20 million individuals suffer from this degenerative eye disease.

The rat study on cataracts was one of many that Anthony Samsel obtained under FOI from US EPA. He obtained between 50-100,000 pages on Monsanto studies as well as many, many DUPONT trade secret studies.

Anthony Samsel gave a slide presentation lasting about an hour in June 2016 before the EPA, in a closed-door meeting along with other colleagues. According to him: *"There was silence and no questions."* The EPA filmed the meeting. He said: *"It was after that presentation that the EPA began referring to glyphosate as an amino acid."*

## What Monsanto failed to reveal to the US EPA

**Glyphosate has four patents**

On 12/05/2014 I wrote to Gina McCarthy US Environmental Protection Agency Administrator and asked her among other things, if she knew that four different patents had been filed and granted for glyphosate.

- As a chelator of heavy metals and a wetting agent in 1961[72]
- As a herbicide in 1968[73]
- As an antibiotic in 2002[74]
- As an anti-protozoal agent in 2003[75]

I had a reply from the Office of Chemical Safety and Pollution Prevention US EPA on 19 June

[69] Stout, L.D. & Ruecker, F.A. Chronic study of glyphosate administered in feed to albino rats. Unpublished Study, Project No. MSL-10495. Monsanto Agricultural Company (2,175 pp.) EPA MRID 416438-01 (26 September 1990)

[70] http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955650/

[71] http://apps.who.int/iris/bitstream/10665/204585/1/9789241565196_eng.pdf

[72] http://www.google.com/patents/US3160632

[73] http://www.google.com/patents/US3455675

[74] http://www.google.com/patents/US7771736

[75] http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=%2Fnetahtml%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=7771736.PN.&OS=PN/7771736&RS=PN/7771736

2014. "*Monsanto has not informed us of these claims you make and, to date, such claims have not been supported by rigorous scientific studies…The US EPA ensures that a pesticide, when used according to label directions, does not cause unreasonable adverse effects to human health or the environment.*"

**Page 12 Background: Regulators have no knowledge of human physiology**
*"The herbicide acts by inhibiting the 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) enzyme, which is not present in mammalian systems."* The Glyphosate Task Force (GTF) claims that this enzyme is only found in plants, fungi and bacteria.[76] **This claim by the GTF and Monsanto is false: glyphosate poisons humans in the same way as it poisons plants**.
Humans and animals have exactly the same pathway; 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. Pesticide scientists, plant scientists and regulators have based their assessment of herbicides on complete ignorance of human physiology.
Chatelier, E.L. *et al.* Richness of human gut microbiome correlates with metabolic markers *Nature* 29 August 2013; **500**: 541-550.[77] "*We are facing a global metabolic health crisis provoked by an obesity epidemic.*" In a multi-author study of obese and non-obese individuals, those with *"low bacterial richness in the gut (23% of the population) are characterized by more marked overall adiposity, insulin resistance and dyslipidaemia and a more pronounced inflammatory phenotype when compared with those with high bacterial richness…Low richness of gut microbiota has been reported in patients with inflammatory bowel disorder…Also notable diversity differences were observed between the urban US populationand rural populations from two developing countries*". Current research is underway to try to find the links between obesity, type 2 diabetes and cancers.
Diet rapidly and reproducibly alters the human gut microbiome[78] "*Long-term dietary intake influences the structure and activity of the trillions of microorganisms residing in the human gut*"… *In concert, these results demonstrate that the gut microbiome can rapidly respond to altered diet, potentially facilitating the diversity of human dietary lifestyles*
**This is a false claim by Monsanto. US EPA should sue Monsanto for it. See next page.****

**Monsanto found guilty in courts around the world for false claims about Roundup®**
Glyphosate is not environmentally benign. Monsanto Corporation has been repeatedly convicted in Law Courts around the world for not telling the truth about the safety of its best-selling weed-killer, Roundup®. Despite being found guilty every time Monsanto continues to promote the myth.[79]

- In 1996 Monsanto was found guilty by the Attorney General of New York for false claims about Roundup®. The Attorney General of the State of New York, Consumer Frauds and Protection Bureau, Environmental Protection Bureau successfully brought a case against Monsanto with regard to: False advertising by Monsanto regarding the safety of Roundup® herbicide (glyphosate). In particular, in many advertisements, Monsanto implied that Roundup® could be used safely in aquatic environments. However, the US EPA-approved label said: *Do Not Contaminate water…minute*

[76] http://www.glyphosate.eu/glyphosate-basics/how-glyphosate-works
[77] http://www.nature.com/nature/journal/v500/n7464/abs/nature12506.html
[78] http://www.nature.com/nature/journal/vaop/ncurrent/full/nature12820.html
[79] http://www.monsanto.com/products/Documents/glyphosate-background-materials/Agronomic%20benefits%20of%20glyphosate%20in%20Europe.pdf

*amounts of this herbicide can cause severe damage or destruction to the crop, plants or other areas on which the treatment was not intended.*[80] But the false claim from Monsanto has not been corrected and many countries now use glyphosate freely on invasive aquatic species.[81]

**On Page 15** of the EPA document on Issues with Glyphosate it says: ***Pesticide labels are legally enforceable and all carry the statement *"it is a violation of Federal law to use this product in a manner inconsistent with its labeling. In other words, the label is law."** Why isn't US EPA enforcing this law that is being broken everywhere ?**

- 2001 French environmental groups had brought the case on the basis that glyphosate, Roundup®'s main ingredient, is classed as "*dangerous for the environment*" by the European Union. France's highest court confirmed an earlier judgment that Monsanto had falsely advertised its herbicide as "*biodegradable*" and claimed it "*left the soil clean.*"
- 2004 Brazil. *"To affirm in advertising that transgenic soyseeds were beneficial to the environment, has cost to the multinational Monsanto American Agrochemicals fined $250,000 by the Federal Regional Court of Brazil. Monsanto used misleading advertising to promote the soybeans, in year 2004, encouraging consumption of GM seeds when even they were prohibited in Brazil. And they not only encouraged their consumption, but also claimed that these seeds were highly beneficial to the environment. This consideration took into account to the Court of Justice headquartered in the Porto Alegre City"*[82].
- 2007/2008 *"In the latest ruling, France's Supreme Court upheld two earlier convictions against Monsanto by the Lyon criminal court in 2007, and the Lyon court of appeal in 2008, the AFP news agency reports."*
- *"In Brazil, Monsanto has been convicted by a court for false advertising claims that GM soy and the herbicide glyphosate, as used in the 'no-till with herbicides' model of cultivation, are beneficial to the environment. This is not the first time Monsanto has been convicted by a court for false advertising over claims that its glyphosate-based herbicides are safe and environmentally friendly. Court rulings against Monsanto's misleading advertising of glyphosate herbicides as safe for human health and the environment date back to the 1990s"*.

**Monsanto has used British journalists, politicians and farmers as guinea pigs too**

All these organisations have been misguidedly protecting Monsanto's interests. However, Monsanto has concealed its secret studies of glyphosate's carcinogenicity in the US EPA. Studies that gained glyphosate's authorisation in the first place were fraudulent.

Hugh Grant CEO of Monsanto, in an interview with *Here and Now*'s Robin Young and Jeremy Hobson in March 2016 reported in Real Independent News and Film (RINF) said:[83] *"Roundup is not a carcinogen. It's 40 years old, it's been studied; virtually every year of its life it's been under a review somewhere in the world by regulatory authorities."* **But Grant is lying**.

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[80] http://www.mindfully.org/Pesticide/Monsanto-v-AGNYnov96.htm

[81] http://agr.wa.gov/plantsinsects/weeds/npdespermits/docs/IPMFreshwaterEmergentNoxiousQuarantineListedWeeds.pdf

[82] http://cimalatinamerica.blogspot.co.uk/2012/08/brazil-brazilian-court-convicts-monsanto.html

[83] http://rinf.com/alt-news/latest-news/monsanto-ceo-hugh-grant-insists-roundup-safe-adamantly-denies-cancer-link/

Prior to entering the seed business, Monsanto produced polychlorinated biphenyls, commonly known as PCBs, from 1935 to 1979. The toxic compounds were used to insulate electronics before being outlawed by the U.S. Environmental Protection Agency due to human health and environmental concerns.
Internal memos prove the seed giant knew about the toxicity of PCBs as far back as 1970 but continued production, focusing only on profit revenue; Monsanto earned $10 million off the pollutants, which are now realized to have contaminated waterways all over the world.
Grant had previously told Bloomberg that genetically modified foods are good for poor people who can't afford organic.[84] He said: *"Opponents of GM who want to block genetically modified foods are guilty of 'elitism' that's fanned by social media and fail to consider the needs of the rest of the world."*[85]

**Just as with PCBs, sealed documents from the US EPA show that Monsanto knew that glyphosate caused cancer in animals but manipulated the data**
Monsanto has known since the 1970s that glyphosate causes cancer, according to this paper b researchers Anthony Samsel and Stephanie Seneff. Samsel is the first independent researcher to examine Monsanto's secret toxicology studies on glyphosate…this time i**pristine condition and without redactions** because Monsanto thought they were safely concealed in the US EPA. Samsel obtained the studies through a request to his Senator. With Dr Stephanie Seneff of MIT, he reviewed Monsanto's data. Samsel and Seneff wrote paper IV on Glyphosate: Glyphosate, pathways to modern diseases IV: cancer and related pathologies[86] and concluded that: *"significant evidence of tumours was found during these investigations".*
Extract from IV: *Glyphosate has a large number of tumorigenic effects on biological systems, including direct damage to DNA in sensitive cells, disruption of glycine homeostasis, succinate dehydrogenase inhibition, chelation of manganese, modification to more carcinogenic molecules such as N-nitrosoglyphosate and glyoxylate, disruption of fructose metabolism, etc. Epidemiological evidence supports strong temporal correlations between glyphosate usage on crops and a multitude of cancers that are reaching epidemic proportions, including breast cancer, pancreatic cancer, kidney cancer, thyroid cancer, liver cancer, bladder cancer and myeloid leukaemia.*

**Governments and leading scientific institutions have systematically misrepresented the facts about GMOs and the scientific research that casts doubt on their safety**
On 4 March 2015 the Organization Beyond GM facilitated the Press Release of American public interest attorney Steven Druker's acclaimed new book, Altered Genes, Twisted Truth: How the Venture to Genetically Engineer Our Food Has Subverted Science, Corrupted Government and Systematically Deceived the Public.[87]
His book reveals how governments and leading scientific institutions have systematically misrepresented the facts about GMOs and the scientific research that casts doubt on their

[84] http://2paragraphs.com/2013/05/monsanto-ceo-says-gmo-food-good-for-poor-people/
[85] http://www.bloomberg.com/news/2013-05-15/monsanto-sees-elitism-in-social-media-fanned-opposition.html
[86] https://www.academia.edu/17751562/Glyphosate_pathways_to_modern_diseases_IV_cancer_and_related_pathologies
[87] http://beyond-gm.org/new-book-exposes-systematic-government-and-scientific-fraud-over-gm-food/

safety.[88]
GM Watch reported: *"The book features a foreword by the renowned primatologist Dame Jane Goodall, who will also speak at the conference, hailing it as "without doubt one of the most important books of the last 50 years."*
*The book's revelations come at a crucial time when the UK is considering the commercial planting of GM crops following the European Parliament's decision to allow member states to opt out of the blockade that has barred them from the EU until now. Based on the evidence presented in the book, Druker and Goodall will assert that it would be foolhardy to push forward with a technology that is unacceptably risky and should never have been allowed on the market in the first place. The book is the result of more than 15 years of intensive research and investigation by Druker, who came to prominence for initiating a lawsuit against the US Food and Drug Administration (FDA).*

**Steven Druker initiated a lawsuit against the US Food and Drug Administration (FDA) that forced it to open its files on GM foods**
*Those files revealed that GM foods first achieved commercialization in 1992 only because the FDA:*
** Covered up the extensive warnings of its own scientists about their dangers*
** Lied about the facts*
** And then violated federal food safety law by permitting these foods to be marketed without having been proven safe through standard testing*
*"Druker's well-referenced book points out that if the FDA had actually heeded its own experts' advice, told the truth, and obeyed the law, the GM food venture would have imploded and never gained traction anywhere."* There were extensive media resources[89] but the launch was not reported in the newspapers. It is hardly surprising since many UK scientists who have been elected to eminent bodies, or are editors of scientific journals or are philanthropists in the UK & US, are supporting GM.[90]

**We learned this week thatUS EPA has been entrusted with Bayer and Syngenta's unpublished field trials on neonicotinoid insecticides showing their products cause serious harm to honeybees at high levels[91]**
Bayer CropScience has had an unlucky week or two. First it buys up Monsanto, a corporation not noted for telling the truth… then these studies of neonicotinoid's harm to bees obtained under FoI by Greenpeace.
Syngenta had told Greenpeace in August 2016 that: *"none of the studies Syngenta has undertaken or commissioned for use by regulatory agencies have shown damages to the health of bee colonies"*. Prof Dave Goulson, a UK bumblebee researcher at the University of Sussex, said: *"That clearly contradicts their own study*.

[88] http://www.gmwatch.org/index.php/news/archive/2015-articles/15973
[89] http://beyond-gm.org/altered-genes-twisted-truth-media-resources/
[90] Royal Society, Wellcome Foundation, Bill & Melinda Gates, Lord David Sainsbury and the Gatsby Foundation, Rothamsted Research, John Innes Centre, Sainsbury Laboratory, Civil Servants from Defra, the NFU, James Hutton Institute, BIS, Offices of Life Sciences, Centre for Food Security, Food Standards Agency, *etc.*
[91] https://www.theguardian.com/environment/2016/sep/22/pesticide-manufacturers-own-tests-reveal-serious-harm-to-honeybees

**That harm to honey bees was already established in 2011, at the Workshop on Pesticide Risk Assessment for Pollinators January 15-21 2011 SETAC Pellston Florida**

**The Executive Summary, written by David Fischer of Bayer CropScience and Tom Moriarty US EPA, came up with three admissions that, up to then, industry had denied**
a) That the systemic neonicotinoid pesticides are harmful to bees.
b) That the tests and protocols that had allowed registration of the systemic pesticides were not adapted to assess potential hazard and risk from this type of pesticide.
c) Despite knowing all this, the Protection Agencies have allowed the pesticides industry to keep the neonicotinoids on the market.
That was more than five years ago, but Syngenta and Bayer are still denying it!

I have attempted to email this to **David Fischer**, but if it is not the correct email address perhaps **Tom Moriarty** would forward it to him. I think that he would like to know, having taken over Monsanto, that he ought to eat organic food without glyphosate residues.

## Open letter from America to the Prime Minister warning the UK against GM crops: November 2014

**The Open Letter from America**[92] was from 60 million American citizens to David Cameron (and the rest of the EU) warning them not to authorize GM crops because of the devastating effects on human health and the environment. It was delivered to 10 Downing Street on 11 November 2014.[93]

*"In our country, GM crops account for about half of harvested cropland. Around 94% of the soy, 93% of corn (maize) and 96% of cotton grown is GM. The UK and the rest of the EU have yet to adopt GM crops in the way that we have, but you are currently under tremendous pressure from governments, biotech lobbyists, and large corporations to adopt what we now regard as a failing agricultural technology…Studies of animals fed GM foods and/or glyphosate, however, show worrying trends including damage to vital organs like the liver and kidneys, damage to gut tissues and gut flora, immune system disruption, reproductive abnormalities, and even tumors.*[35]*…These scientific studies point to potentially serious human health problems that could not have been anticipated when our country first embraced GMOs, and yet they continue to be ignored by those who should be protecting us. Instead our regulators rely on outdated studies and other information funded and supplied by biotech companies that, not surprisingly, dismiss all health concerns.*
***Through our experience we have come to understand that the genetic engineering of food has never really been about public good, or feeding the hungry, or supporting our farmers. Nor is it about consumer choice. Instead it is about private, corporate control of the food system.***
***Americans are reaping the detrimental impacts of this risky and unproven agricultural technology. EU countries should take note: there are no benefits from GM crops great enough to offset these impacts. Officials who continue to ignore this fact are guilty of a gross***

[92] www.theletterfromamerica.org
[93] https://twitter.com/beyond_gm/status/532224079605288960

***dereliction of duty."***

Most of the countries in the EU took that advice and opted out of GM (including Scotland, Wales and Ireland).

**David Cameron ignored that advice on behalf of England. He and Defra concealed the letter from the British public. The European Commission and the European Food Safety Authority also ignored it and continued to approve GM Crops for growing and for food and feed in the European Union.**
This was despite these grave warnings from American citizens of their experiences (Living with GMOs) and from independent organisations in Europe, such as Testbiotech (Germany), CRIIGEN (France), Corporate Europe Observatory, Earth Open Source and Pesticides Action Network.

**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 57 million citizens from the US, but relied on signing Defra's letter of denial[94]
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."***

**Gottfried Glöckner and Gilles-Éric Séralini have published new scientific data on Bt toxins and a thorough study of the records show that this GMO Bt maize is most probably toxic over the long term.[95]**
Pathology reports on the first cows fed with Bt176 maize (1997–2002)
*"Over the years, and coinciding with regular increases in GMO content of the diet (0–40%), the proportion of healthy cows with high milk yield diminished from 70% (normal rate) to only 40%. At the peak of mortalities in 2002, 10% of the cows died, preceded by a long-lasting paresis syndrome without hypocalcemia or fever, but with kidney biochemical failure and mucosa or epithelial problems."* The only toxicological test, before being commercialized, was conducted by Novartis (subsequently Syngenta) in the United States, and consisted of feeding 4 cows for 15 days; one cow died after a week. This was the GM maize Bt176, which produced an insecticidal Bt toxin and contained an antibiotic resistance marker gene. Prof Séralini had access to the veterinary records as well as the farmer's archives.
Syngenta (Germany)[96] was subsequently charged with lying; they had never informed Glöckner about the outcome of their US study nor of numerous other dangers from feeding with Bt176 corn that were already known to them. They were legally obliged to do so and because they did not do so, the company is liable for the destruction of Glöckner's 65 cows.

## The Secret History of the US EPA

[94] http://beyond-gm.org/wp-content/uploads/2015/01/BGM_Defra-letter_151214.pdf
[95] http://scholarly-journals.com/sjas/archive/2016/January/pdf/Glöckner%20and%20Séralini.pdf
[96] http://www.gmwatch.org/latest-listing/1-news-items/13926-syngenta-charged-with-lying-over-cattle-deaths

**Poison Spring: The Secret History of Pollution and the EPA (Environmental Protection Agency)**

*"Poison Spring* [97] 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."* 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."... "In my 25-year experience at the US EPA, nothing illustrated the deleterious nature of "pesticides" and "regulation" better than the plight of honeybees.*[98] *Here is a beneficial insect pollinating a third of America's crops, especially fruits and vegetables, and we thank it with stupefying killing.*

*Poisoning of honeybees became routine in the mid-1970s with the EPA's approval of neurotoxins encapsulated in dust-size particles that took days to release their deadly gas.*

*Some of my EPA colleagues denounced such misuse of science and public trust. They told their bosses those encapsulated neurotoxins were weapon-like biocides that should have no standing in agriculture and pest management. Indeed, one of those EPA ecologists discovered the neurotoxic plastic spheres in the honeybee queens' gut. This meant poison in the honey.*

*EPA acted with fury. It forced the scientist out of his laboratory and into paper pushing in Washington. Approval of the industry's neurotoxins expanded to cover most major crops. This meant honeybees had less and less space to search for food without dying.*

*The blowback of this almost criminal policy is the massive death of honeybees all over the country. Government officials and industry executives cooked up an obscure name, "colony collapse disorder," to cover up the pesticide killers of the honeybees."*

Extract on Fracking: "*The upshot all this is that there are more than a thousand cases of fracking-related water contamination in 34 states, and documented cases of both human harm and severe health on wildlife and farm animals. In Colorado alone, where drilling increased by 50% between 2003 and 2008, there are more than 1,500 fracking spills.*" page 227.

One of the authors, E.G.Vallianatos, had worked for the US EPA for 25 years.

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

Extracts: [99] 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*

[97] http://www.independentsciencenews.org/health/poison-spring-the-secret-history-of-pollution-and-the-epa/

[98] http://www.huffingtonpost.com/evaggelos-vallianatos/honeybees-on-the-verge-of_b_4326226.html

[99] http://www.truth-out.org/news/item/30097-failure-to-regulate-pesticide-data-fraud-comes-home-to-roost

*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. All but forgotten now, the IBT fraud shook the chemical and pharmaceutical industries and regulatory agencies around the world. In 1983, a six-month-long criminal trial resulted in the convictions of three IBT officials. The trial revealed a vast, lucrative business of deceptive safety testing:

- New animals routinely substituted - often *en masse* - for test animals that died, without noting deaths or substitutions in lab reports;
- Entire test data and lab reports for one test product copied into reports for other products;
- "Magic pencil" studies substituted false data for tests never done or results implicating test products' adverse or fatal effects;
- Signatures of lab techs who had refused to sign false reports were forged by managers on the false reports;
- Rats listed as dead and autopsied in one section of a report reappeared alive and breeding in another section of the same report ("Now IBT did some strange and unusual things," Dr. Adrian Gross, who first revealed the IBT scandal, remarked, "but bringing back the dead wasn't one of them.");
- Substitution of unexposed control animals for test animals that died;
- Substitution of dogs for rats when all the rats in one test died, then reporting them to be rats;
- Wholesale concealment and falsification of cancers, testicular atrophy, death and othe effects in test animals;
- 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*."
- Massive, frequent die-offs of test animals due to staff failing to feed and water them over holidays, rodents dying from unhygienic conditions, rats dying from rat poison fed them by mistake, rodents escaping, rats and mice being shifted from one cage to another, contaminating and eating each other; frequent "search and destroy" hunts for escaped rodents, with scientists and lab techs dashing about squirting chloroform to "slow down" the escapees, often killing the test animals as well;
- After Gross' first visit to IBT in 1976 and before he could return with auditors, the company equipped its offices with paper shredders and "strip filed" huge volumes of raw data, studies and client lists, including all of its studies on 2,4-D, six other herbicides (never identified), artificial sweeteners, cyclamates and plastics components.

Almost all of the products tested by IBT, including 2,4-D, glyphosate, atrazine and many of the 66 products banned on California red-legged frog habitat, are still on the market today.

IBT, it turned out, was but the tip of a huge iceberg. Subsequent audits of 82 other testing laboratories found that more than half - 47 labs - had serious "deficiencies," including some 22 labs that had destroyed all lab reports and raw data, making audits impossible and conclusions unsupported. Peter von Stackelberg, a reporter for the Regina, Saskatchewan Leader-Post, was the first to expose the true extent of what the EPA called mere "deficiencies" in those other labs:

The kinds of things they found were IBT all over again. Rats listed as "dead" were also listed as

having been mated at the same time. Rats were listed as having died twice. There were autopsy records for test animals that were still alive, and EPA found that tumors and other adverse effects were "under-reported."
Ever since publication of von Stackelberg's articles in 1980, however, the EPA has refusedto disclose which pesticides has been tested by these other labs, and to this day, no one knows or is telling. Nor was any pesticide registration canceled on the basis of fraudulent, invalid or "deficient" testing. Instead, the EPA and industry maneuvered Congress into changing the pesticide law to allow registrations based on such false data to continue indefinitely as "conditional registrations" until manufacturers submitted replacements for the "deficient" tests, which could take many years. (For example, more than eight years after discovering the IBT fraud, the EPA continued to allow atrazine sales despite the manufacturer's repeated failure to replace IBT's fraudulent tests. (2) As noted below, the EPA's subsequent policy changes prevent any public scrutiny of what tests, if any, or their validity, support current atrazine registrations.)"

**US EPA Office of Pesticides Programs (OPP) Workshop: 'Streamline the Risk Assessment Process of Pesticides Registration' No mention of human health or the environment in the**
On December 13th 2010 the EPA OPP ran a Workgroup to 'Streamline the Risk Assessment Process of Pesticides Registration.' [100] 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"*

# Appendix

**The Monsanto Tribunal**: www.monsanto-tribunal.org

**The Monsanto Tribunal 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.**

**Monsanto Tribunal on 1416th October: www.monsantotribunal.org/program**

## Provisional Agenda Monsanto Tribunal

**Location:** Institute of Social Studies, Kortenaerkade 12, 2518 AX Den Haag.

**October 14th, 2016**

Formal start of the Monsanto Tribunal. For more information, please scroll down to the agenda of the People's Assembly.

**October 15th, 2016**

Hearings of the victims and their lawyers.

**9.00 – 13.00**

[100] http://www.epa.gov/oppfead1/cb/ppdc/pria/2010/december/update-presenta.pdf

**Impact on human health**
9.00-9.30 Sabine GRATALOUP & Maria Liz ROBLEDO, victims RoundUp, France and Argentina.
9.30-10.00 Christine SHEPPHARD, victim RoundUp, USA & Timothy LITZENBURG, lawyer, USA.
10.00-10.30 Klomon SAMAN & Chana JAYASUMANA, victim and expert environmental health, Sri Lanka.
10.30-10.55 Damian VERZEÑASSI, doctor public health, Argentina.
10.55-11.25 Marcelo FIRPO, expert epidemiological research, pesticides Brasil.

**Impact on soils and plants**
11.45-12.10 Diego FERNANDEZ, GMO farmer, Argentina.
12.10-12.35 Don HUBER, biologist, USA.

**14.00–16.10**

**Impact on animal health**
14.00-14.25 Art DUNHAM, veterinary, USA.
14.25-14.50 Monika KRUEGER, scientist, Germany.
14.50-15.15 Id Borup PEDERSEN, farmer hogs with birth defects, Denmark.

**Impact on biodiversity**
15.15-15.40 Feliciano UCAN POOT or Angelica EL CANCHE, beekeepers, and María Colin, lawyer, Mexico.
15.40-16.05 Steve MARSH, GMO contamination, Australia.

**16.30–18.40**

**Impact on farmers and the right to food**
16.30-16.55 To be confirmed, GMO Cotton, Burkina Faso,
16.55-17.20 Krishan BIR CHAUDHARY, farmers' suicides, India
17.20-17.45 Farida AKTHER, GMO eggplant, Bangladesh
17.45-18.10 To be confirmed, Expert on IPR/patents

**October 16th, 2016**

Hearings of the victims and their lawyers.

**9.00 – 13.00**

**Pressures on stakeholders and institutions**
9.00-9.25 Pedro PABLO MUTUMBAJOY, victim Plan Colombia
9.25-9.50 Paul FRANCOIS, Lasso victim, France
9.50-10.15 Juan Ignacio PEREYRA, victims' lawyer of spray, Argentina
10.15-10.45 Miguel LOVERA, Expert on health, Paraguay
11.15-11.40 Gilles-Eric SERALINI, academic research, France
11.40-12.05 Shiv CHOPRA, expert regulatory agency, Canada
12.05-12.30 Michael ANTONIOU, academic research, United Kingdom
12.30-13.00 To be confirmed, expert WHO, USA

**14.30 – 17.00**

14.30-15.00 Lawyer of the Monsanto Tribunal, Right to healthy environment, Right to health and to food
15.00-15.30 Lawyer of the Monsanto Tribunal, right to information
15.30-16.00 Lawyer of the Monsanto Tribunal, Maogato Jackson, War crimes
16.30-17.00 Lawyer of the Monsanto Tribunal, Ecocide

Provisional agenda People's Assembly
Subject to changes
**Location:** Bazaar of Ideas (next to the Student Hotel) - Hoefkade 9, 2526 BN Den Haag

October 14th, 2016

**10.00 – 11.00 Start registration**

**11.00 – 12.00 Opening Session and Press Conference**

* Welcome by prominent members of Organising Committee: Marie-Monique Robin, Vandana Shiva, Hans Herren, André Leu, Ronnie Cummins, Corinne Lepage
* Judge on the process of the Monsanto Tribunal – a citizen's tribunal
* Witness on the importance of the Tribunal
* Ambassadors: Renate Künast and Nnimmo Bassey

**13.30 – 15.30 A Century of Ecocide and Genocide**

* Owning Life and Poisoning Life: Vandana Shiva, Percy Schmeiser, Fernando Cabaliero (Argentina)
* Poisoning Life: André Leu, François Veillerette (PAN Europe), Stephanie Seneff, Marcelo Firpo (Brazil)

16.00 – 18.00 *Attack on Farmers and Farming: Nnimo Bassey (Nigeria), Chito Medina (Filipines), Ali Tapsoba (Burkina Faso), Nivia Silva (MST Brazil, La Via Campesina), Farida Ahktar (Bangladesh), Xiulin Gu (China)
*Attack on science and scientists: Gilles-Eric Seralini, Claire Robinson, Shiv Chopra

October 15th, 2016

**09.30 – 10.00 Opening speech and order of the Day**

**10.00 – 12.15 Workshop Session 1**

Each workshop starts with 15 min introduction by expert followed by interaction between participants towards action plan

* How to ban GMOs worldwide
* Ideas to ban Pesticides and toxic chemicals
* Steps towards Seed Freedom
* Steps to hold TNCs responsible for their acts
* Promoting agroecology to feed the world

**14.00 – 16.00 Workshops session 2**
**16.30 – 17.45 Plenary session – reports from workshops**
**17.45 – 18.00 Conclusions by prominent committee member**

**18.00 - 20.00 Corporate Control and New Threats**

* Attack on Food Freedom and Democracy: Ronnie Cummins, Bart Staes, Rachel Parent, Miguel Lovera (Paraguay)
* Bill Gates as a threat to food freedom: Vandana Shiva
* Corporate Lobby: Nina Holland
* New corporate concentration – the Monsanto-Bayer Merger: CBG network
* New Free Trade Agreements – TPP and TTIP: to be confirmed
* New GMO Technologies, synthetic biology and gene editing: Michael Antoniou, Etc Group (to be confirmed)

October 16th, 2016

09.30 – 09.45 Short recap of Saturday

09.45 - 10.00 Theater
10.00 - 11.00 Back to work: workshops 3 – forming concrete actions and coalitions
11.00 - 12.15 Interaction between the workshops
*12.15 - 14.00 Lunchbreak*

**14.00 - 16.00 People's vision for the future of food and the future of planet**

* Right to safe and healthy food: Renate Kunast
* Organic Agriculture and Poison Free food: Andre Leu
* From Degeneration to Regeneration: Ronnie Cummins
* End Ecocide on Earth: Valérie Cabanes (to be confirmed)
* Sowing the Seeds of Earth Democracy: Vandana Shiva
* Agro-ecology nourishes the world: Hans Herren

**16.00 - 16.15 Feedback from PA's and Marches Against Monsanto across the world**

16.15 – 16.30 Collective Launch of Global Participatory Declaration for the future of food and future of the planet
16.30 - 17.00 Sharing of Seeds and Sharing of Bread: Bernward Geier and Chef Sarah Wiener
17.00 - 17.30 Closing speech: Marie-Monique Robin

**The International Criminal Court in The Hague is extending its remit** [101]

The UN-backed court, which sits in The Hague, has mostly ruled on cases of genocide and war crimes since it was set up in 2002. It has been criticized for its reluctance to investigate major environmental and cultural crimes, which often happen in peacetime. In a change of focus, the ICC said on Thursday it would also prioritize crimes that result in the "destruction of the environment", "exploitation of natural resources" and the "illegal dispossession" of land. It also included an explicit reference to 'land-grabbing'. Environmental destruction and land-grabs could lead to governments and individuals being prosecuted for crimes against humanity by the international criminal court.[102]

Rosemary Mason MB, ChB, FRCA

27th September 2016

[101] https://www.theguardian.com/global/2016/sep/15/hague-court-widens-remit-to-include-environmental-destruction-cases
[102] https://www.icc-cpi.int/Pages/item.aspx?name=pr1238