

Open letter to
Dr Philip Campbell
Editor-in-Chief
Nature

23/01/2013

Dear Dr Campbell

Your PA acknowledged my letter of complaint of 07/01/2012. As yet you have provided me with no explanation as to how Syngenta had access to two papers submitted to *Nature*. I am aware that you are an astrophysicist. As a result of the lack of media coverage, you are to be forgiven for having little knowledge of the issues. The public is in precisely the same position as you. For two years we have been writing to Pesticide Regulatory Agencies around the world on behalf of beekeepers, scientists and farmers. Each Agency gave the same reply: “*there is no scientific evidence that the neonicotinoid insecticides are harmful to bees*”.

European Food Safety Authority (EFSA) finally admits the truth; but not *Nature*.

On 16/01/2013, EFSA announced they had reviewed available evidence and concluded that neonicotinoids insecticides, imidacloprid, thiamethoxam and clothianidin, should not be used on crops attractive to bees. They discovered large data gaps in industry risk assessments.

On the same day, one of your Editors wrote this piece; doi:1038/nature.2013.12234 Breaking News; Row over reports on bee-bothering insecticides; Syngenta brands risk assessment as hurried and inadequate by *Nature* Editor Daniel Cressey.

Daniel Cressey’s article, EFSA’s Report and the comments by senior staff in Syngenta (Basel) and Bayer CropScience (Germany) appear to have been issued on the same day. The three on-line comments on Cressey’s piece shows your Editor’s total ignorance of the issues. All that Cressey has done is to demonstrate that *Nature* is no longer a journal of high scientific integrity, but a mouthpiece for the agrochemical industry. I cannot find anything in your Editor’s CV to suggest that he is competent to comment on the topic any more than Dr Juliet Osborne could dismiss the Royal Holloway College’s bumblebee research (Nature 01/11/2012) when she is not a bumblebee expert. “*Daniel joined Nature in 2007. He reports on chemistry, nanoscience, materials, business and anything else his editors need covering. Before working for Nature he worked for the general practitioners' newspaper Pulse and the UK science policy publication Research Fortnight*”. Was this insightful and measured analysis of EFSA’s research something that “*his editors needed covering*”?

Daniel Cressey claims that *Nature* has asked EFSA to respond to this statement

“*John Atkin Chief Operating officer at Syngenta in Basel said: This report is unworthy of EFSA and its scientists.*” According to Cressey: *Nature* has asked EFSA to respond to this statement. Has *Nature* really taken up the cudgels on behalf of Bayer and Syngenta? Is the whole of *Nature*’s staff at Syngenta’s command? Was this euphemism; ‘bee-bothering’ suggested by the industry?

Chemistry World reported the truth. Incomplete regulatory data from industry

The reporter revealed that EFSA, in addition to evaluating the latest scientific research on clothianidin, imidacloprid and thiamethoxam, had requested regulatory data from Bayer and Syngenta. It was shortcomings in this data that prompted the EFSA’s advice.

<http://www.rsc.org/chemistryworld/2013/01/efsa-europe-honey-bee-decline-neonicotinoid-pesticides>

Neonicotinoid insecticides kill insects and every other invertebrate in soil and water

Independent French bee researchers (Belzunces *et al* 2001) reported an acute (48-hour) lethal dose of only 40 ng per bee, but their important discovery was that the lethal dose from chronic exposure to imidacloprid was 4000 times less: ingesting 1 pg a day was enough to kill a bee within 10 days. Moreover, they showed that imidacloprid is degraded into six metabolites, some of which were even more toxic than the parent compound. Tennekes (2010) and Tennekes and Sánchez-Bayo (2012) demonstrated that chemicals that bind irreversibly to specific receptors (neonicotinoids, genotoxic carcinogens and some metalloids) will produce toxic effects in a time-dependent manner, no matter how low the level of exposure. This is what is happening to humans. Neonicotinoid insecticides are so widely used on crops that adults and children in farming communities in the UK are now dying from the effects of pesticides (neurotoxic, genotoxic and teratogenic) to which they and their families are continually exposed. These cancers are spreading outside rural communities because neonicotinoid insecticides and herbicides such as Roundup® are also used in gardens, houses, sports fields, golf courses, greenhouses and pet products. It is possible that those living in cities have not yet seen or recognised this epidemic of cancers. But it will come, even to the cities. **These pesticides are the Silent Killers.**

Parliamentary Select Committee on Insects and Insecticides

Cressey seems to be completely unaware that there is a Parliamentary Select Committee on Insects and Insecticides in progress. Joan Walley MP, Chairman of the Environmental Audit Committee which has been questioning Bayer, Syngenta and Defra about the neonicotinoids was quoted in the Guardian on 16/01/2012: *"Our inquiry has identified apparent flaws in the assessment of imidacloprid. Despite data from field trials showing the pesticide could linger in the environment at dangerous levels, imidacloprid was approved for use in the EU. We have asked chemical giant Bayer to return to parliament to explain discrepancies in its evidence on the amount of time that imidacloprid remains in the environment. The evidence seen by the committee raises serious questions about the integrity, transparency and effectiveness of EU pesticides regulation."*

Immune suppression by neonicotinoid insecticides at the root of global wildlife declines

When Dr Sánchez-Bayo submitted our paper to *Nature* in April 2012, your Senior Biology Editor Patrick Goymer must have been in a dilemma.

- Here was the answer to the problem of emerging pathogens that had been causing global epidemics and extinction in a variety of wildlife: amphibians, bees, bats, birds, butterflies, bumblebees and has resulted in massive declines in global biodiversity since 1999. The paper had produced proof of immune suppression by sub-lethal exposure in honey bees and fish. The sequence of epidemics and local extinction matched the spread of neonicotinoids around the world. The epidemics are still spreading. Distribution maps of thiamethoxam and imidacloprid on arable crops in 2002 show that, even at that time, large amounts were being used in the US.
- However, *Nature* would be exposing the pesticides industry's largest money-spinning chemicals as being the main cause of dramatic declines in wildlife. Protection Agencies would also be found guilty of failing to monitor levels in soil and water.
- If *Nature* was to publish the paper, it would be the end to University Funding by the Agrochemical Corporations.
- Based on the evidence of the close relationship between *Nature* and Syngenta I sent to you on 07/01/2013, and your subsequent silence on the matter, we are forced to assume that some editors in *Nature* did know about this fake journal: *The Journal of*

Environmental Immunology and Toxicology, set up by two employees of the US EPA to capture our paper. It is in press, but we cannot submit it to another journal.

- Our suggestion that *Nature* recover it from *JEIT*, publish it and make a public withdrawal of Dr Juliet Osborne's paper must have been unwelcome to Syngenta.

US EPA Conditional registration document for clothianidin in 2003

“Clothianidin is highly toxic to honey bees on an acute contact basis (LD50 > 0.0439 µg/bee). It has the potential for toxic chronic exposure to honey bees, as well as other non-target pollinators, through the translocation of clothianidin residues in nectar and pollen. In honey bees, the effects of this toxic chronic exposure may include lethal and/or sub-lethal effects in the larvae and reproductive effects in the queen...

However, due to evidence of effects on the rat immune system and that juvenile rats appear to be more susceptible to these effects, and due to the lack of a developmental immunotoxicity study, a 10X database uncertainty factor is applied to all dietary exposure endpoints.”

How could such lethal chemicals be registered for use?

In the US EPA, the Registration Division can over-rule scientists. George Bush granted a trade-off clause in favour of economic factors and farmers. To quote EFSA in their 275-page document on Risk Assessment for Pollinators on 18/04/2012: *“There is a trade-off between plant protection and protecting the ecosystem services: pollination, hive products and biodiversity. From a farmer's point of view plant protection may be more important than hive products.”* After 18 years of systemic neonicotinoid insecticide use in the EU, EFSA has finally exposed the regulatory shortcomings of industry data for assessment of risk to pollinators. In the US, even if the US EPA was to admit this, the decision might have come too late. Imidacloprid, the first neonicotinoid insecticide, was registered in 1991, four years before Europe. Colony collapse disorder in bees was recognised in 2006. Many US commercial beekeepers have gone out of business. There are probably not enough bees to pollinate the Californian almond crop this February, 2013.

Does the public know about the trade-off with biodiversity?

Look to the environment. Where-ever these chemicals have been used, biodiversity has been destroyed. Biological deserts have been created. This is chemically-induced ecocide on a massive scale. Insects, the canaries in the cage, have disappeared. August 2012, on a warm summer's evening in a Hampshire garden, no moths came to the candles. No bats were flying around and there was not a single insect. In the US, Craig Childs (author of *Apocalyptic Planet*) spent a long weekend trying to find insects in an Iowa cornfield. *“I listened and heard nothing, no bird, no click of insect. There were no bees. The air, the ground, seemed vacant. There's something strange about a farm that intentionally creates a biological desert to produce food for one species: us.”* A beekeeper in Penn State wrote to me at Christmas. He had watched crows gradually disappear from the countryside. He said that *“a bit of research indicated that as few as three coated seeds can kill a quail; I have concluded that farmland crows are falling victim to the same toxins that are killing the bees. Ironically in the town of State College there are crows which I assume are permanent residents who thrive on garbage while their country cousins perish in farmlands”*. Joseph Mendelson, an amphibian scientist, wrote in 2011: *“The reality of amphibian declines and extinctions (due to chytrid fungus and ranavirus) has shifted the ecological baseline in so many ecosystems, that an entire generation of biologists is conducting their research in a framework that has been very recently remodelled.”* It is not just in the US. In 2006, there were flocks of 250-400 greenfinches feeding in our field in Wales. By 2012, infection with *Trichomonas gallinae* has exterminated them. Frogs have disappeared from our pond and those of our neighbours.

Does the public know about the trade-off with human health?

Here is an extract from the US Kids' Health Report October 2012: *“Children today are sicker than they were a generation ago. From childhood cancers to autism, birth defects and asthma, a wide range of childhood diseases and disorders are on the rise. Our assessment of the latest science leaves little room for doubt: pesticides are one key driver of this sobering trend.*

- **Compelling evidence now links pesticide exposures with harms to the structure and functioning of the brain and nervous system.** Neurotoxic pesticides are clearly implicated as contributors to the rising rates of attention deficit/hyperactivity disorder, autism, widespread declines in IQ and other measures of cognitive function.
- **Pesticide exposure contributes to a number of increasingly common health outcomes for children, including cancer, birth defects and early puberty.** Evidence of links to certain childhood cancers is particularly strong.
- **Emerging science suggests that pesticides may be important contributors to the current epidemic of childhood asthma, obesity and diabetes.**
- **Extremely low levels of pesticide exposure can cause significant health harms, particularly during pregnancy and early childhood.**

Appendix B page 38 Top pesticides used in agriculture and at home (from US EPA 2007).
Table B-1 *“Most commonly used pesticide active ingredient in agriculture”* and
Table B-2 *“Most commonly used active ingredient at home”*; listed by volume of use.

The pesticides identified are only the old ones (prior to 1991)

The majority of crops now sown in the US have systemic neonicotinoid insecticides applied to them, or are GMO herbicide-tolerant seeds which also have insecticides applied. The neonicotinoid insecticides; imidacloprid, thiamethoxam, clothianidin, dinotefuran, thiacloprid, acetamiprid and all the GMO seeds are absent from the list.

The US EPA pesticide figures don't add up; the neonicotinoid insecticides, glyphosate and GM have been hidden away to protect the Agrochemical Corporations

On Table 4 page 27, Pesticide usage (in the US) in all market sectors in 2007 is stated to have been 857 million pounds of active ingredient.

This figure is at odds with the US EPA fact sheet published in January 2012 which says that: *“approximately 5.1 billion pounds of pesticides are used each year in the United States”*... (The US billion has only nine 'noughts' whereas the UK billion has twelve). Even so, there is a huge difference between the 5.1 (US billion) pounds in 2012 and the 857 million pounds that the EPA claimed were used in the 2007 figures for the Kids Health Report. Presumably by only putting in the weights applied for the older pesticides, they could be exonerated from blame for effects on humans, particularly during fetal life, in infancy and in childhood when their organs are at their most vulnerable to toxins. In that case, where were all the other pesticides (and GMOs)? The US EPA has a second list on which all these pesticides appear; the allegedly *“reduced-risk pesticides”* whose concentrations in surface or ground-water water are not being monitored by any of the environmental protections agencies. This is where the neonicotinoid insecticides are hiding.

US EPA Fact sheet Jan 2012 goes on to state: *“A challenge for EPA is to ensure that pest control and pesticide use become increasingly safer each year. To meet this challenge, EPA is promoting safer pesticides and reducing risks through the re-registration process. EPA is also expediting approval of safer, reduced-risk pesticides, and assessing more completely the potential risks of pesticide products, with special protections for infants and children.”*

Cancers, birth defects and reproductive problems in farming communities globally

France: In France, 90% of the soil is treated with chemicals. In France as a whole and in villages in the region of Gard in particular, high incidences of cancers and other serious illnesses in children and adults who have been exposed to chemical pesticides in the air, the ground water and in food have been highlighted.

<http://www.idph-videos.com/nos-enfants-nous-accuseront.htm> ‘Our children will accuse us’.

Watch this devastating video clip from Barjac in the Gard District of Cévennes. Illnesses in the farming communities started in 2005. The local hospital is full of children with leukaemia and other neoplastic disorders. Many children have died. The mayor has introduced an organic revolution whereby children in schools only eat organic produce. One organic farmer showed the difference between the structure of his soil, a rich humus-clay with worm holes, and that of chemically-treated soil. The latter was stratified, there were no worm holes for water and oxygen to penetrate and the surface soils were continuously being eroded by wind and water. In the US, John Peterson Myers, one of the authors of “Our Stolen Future” showed the documentary: “***Food Beware: the French organic revolution***”, directed by Jean-Paul Jaud, to American audience. He started by asking three questions. “*How many of you have family members with cancers? How many with diabetes? How many with infertility?*” Many in the audience put up their hands to all three.

Canada and the US: From 2004 onwards, at least five studies have shown positive relationships between exposure to pesticides and development of some cancers, particularly of the brain, prostate, kidney, non-Hodgkin’s lymphoma, leukaemia in farming communities. A number of the studies on children found increased risk of cancer associated with critical periods of exposure, both prenatal and postnatal, and with parental exposure at work.

In the UK: Georgina Downs Pesticides UK has been collecting data from rural communities since 2001: chronic illnesses in children and adults, which include clusters of various cancers, leukaemia, non-Hodgkin’s lymphoma, neurological conditions, including Parkinson’s disease and ME, asthma, allergies, along with many other medical conditions.

This is chemically-induced genocide on a massive scale.

A link to neurological degenerative disorders in France; a prospective study

Baldi, I. *et al.* Neurobehavioral effects of long-term exposure to pesticides: results from the 4-year follow-up of the PHYTONER Study. *Occup. Environ. Med* **68**: 108-115 (2011).

This was the first study to provide prospective data on farmer workers in the Bordeaux area of France (1997-98 and 2001-03). It showed long-term cognitive effects of chronic exposure to pesticides and raised the issue of evolution towards dementia

Disastrous effects of GMO-based agriculture in Argentina and Paraguay

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: *Advances in Molecular Toxicology*, Vol. 6, published by Elsevier: ISSN 1872-0854 (2012). Chapter Title: GMO Pesticides Used in South American GMO-Based Agriculture: A Review of Their Effects on Humans and Animal Models

Abstract: *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 and propose the use of biosensors as sensitive resources to*

detect undesirable effects of new molecules and environmental pollutants. The compatibility of glyphosate, the most intensively used herbicide associated to GMO crops, with an integrated pest management for soybean crops, is also discussed.

Here are two photographs (by kind permission of Argentinian lawyer Dr Graciela Gomez) to show the severity of some of the neural tube deformities from Monsanto's formulated glyphosate Roundup®. Look at the Monsanto website on Latin America where Monsanto boasts about how they have saved rural farmers... in the very towns that these birth defects, cancers and reproductive problems have occurred. Does *Nature* know that it is supporting agrochemical corporations in these criminal activities?



Above: A baby with a meningomyelocele. Hospital de Posadas. Misiones, Argentina.

Right: Julieta, who died aged 7 months from multiple abnormalities in 2010 Bandera Santiago del Estero. Photographs by kind permission of Dr Graciela Gomez.

Letter to Dirk Detken, Senior Attorney for EFSA 22/10/2012

“I have been following the argument about the science and statistics of the Séralini study (on GM Roundup Ready Maize and rat tumours) between GM industry scientists and independent ones with mounting incredulity. I am not a toxicologist or a statistician. I am a medical doctor. As Senior Attorney to EFSA, I presume that your CEO Ms Catherine Geslain-Lanuëlle must, on occasions, take your advice. Perhaps you would like to point out to her the trail of disasters to human health and the environment that has followed the planting of GM maize and Roundup Ready® crops in both Latin America and the US since they were first grown in 1996. These statistics are real, not theoretical laboratory ones. Are these the disasters that she would want to see repeated in Europe? Does she want to reject outright the Séralini study on rats and continue to insist that 90 days testing is adequate for the registration of GM crops? The first rat tumours in Séralini's study appeared in males at 4 months.”

The US Kid's Health Report was attached. The US EPA mismatch was pointed out.

Postal questionnaire sent to farmers about GM oilseed rape 22/01/2013

A postal survey sent to English farmers by the Centre for Agricultural Strategy at Reading University gives inaccurate and misleading information about coexistence of GM and conventional oilseed rape. The documents say it is: “*designed to explore the feasibility and costs of a number of potential coexistence measures to help inform the decisions of policy makers*”. Who is funding this? According to GM Freeze, similar questionnaires have been sent to farmers in the Czech Republic, Germany, Portugal, Romania and Spain. Examples of the inaccurate information include:

- GM oilseed rape could be available for planting in the UK in 2015 when the only applications on the table were rejected in the UK in 2004 following the field scale evaluations that showed potential harm to fragile wildlife.
- GM oilseed rape that repels insects could be available by 2015 when no authorisation applications for such varieties exist.
- The potential impact of GM oilseed rape on the willingness of beekeepers to place hives in or near GM crops and the potential loss of yield if these services are withdrawn is not discussed.
- The impacts arising from the need to protect non-GM certified seed producers and farmers who save their own seeds from GM contamination.
- The need to adopt strategies to prevent the development of weed resistance in herbicide tolerant GM crops is not discussed.
- The costs associated with the above.

Link to US farmers protest against Dow’s GMO corn, tolerant to 2,4-D and glyphosate.

<http://www.reuters.com/article/2013/01/18/dow-biotech-idUSL1E9CIBN320130118>

The Industry secret meeting to get GM into the UK

Monsanto, Syngenta, Bayer and BASF and their industry body, the Agricultural Biotechnology Council (ABC) are setting the agenda for UK agricultural research with a view to bringing GM crops into the UK and exporting them overseas. Two Ministers and two MPs met with scientists from Defra, the John Innes Centre, Rothampsted Research and the NFU. They had a round table discussion including how to overcome the barriers that currently prevent the UK achieving these outcomes and a strategy to attain them. The Summary was written by Dr Julian Little of Bayer CropScience. This is the same Dr Little that lied to MPs at the Select Committee on 28/11/2012 in Parliament on at least three occasions.

[1] Going for Growth roundtable discussion, Tuesday, 26 June 2012, BIS Conference Centre:

- Attendees on: <http://tinyurl.com/9jbce4g> (pdf 16kb)
- Agenda on: <http://tinyurl.com/8ahylza> (pdf 64kb)
- Summary on: <http://tinyurl.com/92rrajn> (pdf 88kb)

The presence at the meeting of the Rt Hon David Willetts, Lord Taylor, George Freeman MP, Roger Williams MP, Peter Kendal NFU and Prof Richard Tiffin Centre for Food University of Reading could account for the above letter to farmers. This must have been the third phase of the plan to deceive the public into accepting GM crops and GM food. The first was the controversial BBC Countryfile programme, the second the misleading ComRes Poll and this is the third. Mailing of farmers in the EU must have been about: “*exporting them overseas*”.

New GM research from EFSA scientists shows an unidentified viral gene

Podevin, N. and du Jardin, P. 2012 Possible consequences of the overlap between the CaMV 35S promoter regions in plant transformation vectors used and the viral gene VI in transgenic plants. *GM Crops and Food* 3:296-300.

<http://dx.doi.org/10.4161/gmcr.21406>

The existence of the hitherto unidentified Gene VI viral gene in many widely grown GM crops, including Monsanto's Roundup Ready MON soya, NK 603 maize and other crops imported for food and animal feed, is worrying. Up until now, regulators have assured the public that the technology is predictable and the crops are safe. Bearing in mind the EFSA change of heart when they analysed industry data on the neonicotinoid insecticides, there should be a ban, rather than a retrospective review. The human and animal health effects of the GMO-based system of agriculture in Latin America are fully documented.

Humboldt Forum for Food and Agriculture

There is a note of desperation in Syngenta and Bayer's attempts to protect their income from sales of these widespread, lethal neurotoxins. *Nature's* Editor was not the only journalist employed on behalf of the agrochemical giants. On 15/01/2013, the day before the EFSA Report on Pollinators, The Farmer's Guardian published a review by the Humboldt Forum for Food and Agriculture about the socio-economic consequences of restricting the chemicals. UK RESTRICTIONS ON NEONICOTINOID SEED TREATMENT WOULD PUT £630 MILLION OF ECONOMIC ACTIVITY AT RISK, SAYS NEW REPORT

New EU-wide report highlights major socio-economic consequences for UK winter wheat production. Incomes for 15,000 UK growers could be affected EU-wide restrictions could increase food commodity prices by up to 2%...

At least the journalist stated that the review had been funded by Bayer Crop Science and Syngenta with support of the European Seed Association, EU farming body Copa-Cogeca and the European Crop Protection Association.

Evidence of damage caused by developmental exposure to environmental chemicals

The foetal brain is particularly susceptible. In the US, compelling evidence now links pesticide exposures with harms to the structure and functioning of the brain and nervous system. *Neurotoxic pesticides are clearly implicated as contributors to the rising rates of attention deficit/hyperactivity disorder, autism, widespread declines in IQ and other measures of cognitive function.*

Extracts from The Faroes Statement (2007): Philippe Grandjean *et al.* Human Health Effects of Developmental Exposure to Chemicals in Our environment: Doi: 10.1111/j.1742-7843.2007.00114.x

The developing embryo and foetus are extraordinarily susceptible to perturbation of the intrauterine environment. Chemical exposures during prenatal and early postnatal life can bring about important effects on gene expression, which may predispose to disease during adolescence and adult life. Some environmental chemicals can alter gene expression by DNA methylation and chromatin remodelling. These epigenetic changes can cause lasting functional changes in specific organs and tissues and increased susceptibility to disease that may even affect successive generations.

The immune system also undergoes crucial developmental maturation both before and after birth. New evidence suggests that a number of persistent and non-persistent environmental pollutants may alter the development of the immune system.

Three aspects of children's health are important in conjunction with developmental toxicity risks. First, the mother's chemical body burden will be shared with her foetus or neonate, and the child may, in some instances, be exposed to larger doses relative to the body weight. Second, susceptibility to a wide range of adverse effects is increased during development, from preconception through adolescence, depending on the organ system. Third, developmental exposures to environmental chemicals can lead to life-long functional deficits and disease.

Human Health and Global Biodiversity is in the hands of the pesticides agency

For more than two years, we have been challenging the Regulatory Agencies around the world. They have all claimed that there was no evidence that neonicotinoids are harmful to bees. Now the first cracks are starting to appear. EFSA has looked at new independent evidence on risks to bees and has examined industry data and found it to be incomplete.

Evidence that the UK Regulatory Agencies are being controlled by Syngenta

In 1997, Dr Peter Campbell went through the revolving doors, straight from being Head of Ecotoxicology in the Pesticides Safety Directorate in York to the post of Head of Ecological Sciences at Syngenta. He had previously worked at the HSE. He took his staff with him. They supported him wholeheartedly in their denial of the rôle of the neonicotinoid insecticides in bee declines. Dr Peter Campbell was on the Panel to choose the Pollinator Initiative Projects, presumably to avoid research on neonicotinoid insecticides.

Syngenta had representatives on both the ACP (which is meant to be independent) and COT. Syngenta collaborated in The Foresight Future of Food and Farming Report. *“A public-private partnership between Syngenta and the International Maize and Wheat Improvement Center (CIMMYT) will focus on the development and advancement of technology in wheat through joint research and development in the areas of native and GM traits, hybrid wheat and the combination of seeds and crop protection to accelerate plant yield performance. The partnership will leverage Syngenta’s genetic marker technology, advanced genetic traits platform and wheat-breeding for the high-income countries, as well as CIMMYT’s access to wheat genetic diversity, global partnership network, and wheat-breeding programme targeted to the low-income countries.”*

Syngenta applied to EFSA for placing on the market of a GM, herbicide-tolerant (glyphosate) maize GA21 for food and feed uses, import, processing and cultivation in the UK.

Thiamethoxam (Syngenta) usage in the UK increased 10-fold between 2009 and 2010 from a total treated area 22,567 ha to 298, 007 ha.

Dr Helen Thompson: (Bee Scientist, Fera, York) Dr Thompson, in collaboration with scientists from Bayer CropScience, Syngenta and Dow, undertook the UK Defra Research SID5A (2007-2009) Systemic Pesticide Risk Assessment. This only involved Tier 1 testing. Conclusions at the 2008 Bucharest ICPBR meeting were that protocols for the second and higher tier (Tunnel Tests and Field Tests) were still to be developed. In January 2011 a Workshop (by invitation only) was held on Pesticide Risk Assessment for Pollinators, SETAC, Pellston, Florida. The UK was represented by Mark Clook (Chemical Regulation Directorate) and Dr Helen Thompson. The authors of the Executive Summary published in September 2011 were David Fischer from Bayer CropScience and Thomas Moriarty from the US EPA Office of Pesticide Programs. The key admission from the meeting was: *“Many who are familiar with pesticide risk assessment recognize that the methodology and testing scheme for foliar application products (where exposure may be primarily through surface contact) is not adapted to assess potential hazard and risk from systemic pesticides”*.

Yet, on their return to the UK (22/01/2011), Clook and Thompson advised Ministers that there was no evidence that the neonicotinoid pesticides were harmful to honey bees.

On 04/04/2011, she told Channel 4 News: *“the Government has reviewed all the data on a link between insecticides and bees, and concluded they are not the primary cause of the decline... There have been a lot of studies undertaken, across Europe and here in the UK and there’s been no strong evidence they are linked to bee losses at all.”*

She wrote a criticism of the Buglife Report and she refuted the findings of Girolami about guttation drops being an important source of water for bees during springtime and from which they were exposed to high doses of pesticides. Marzaro’s paper on lethal effects on

honey bees on exposure to dust from seed coatings during sowing was dismissed as being extremely unlikely in the UK. With Dr James Cresswell (Syngenta-funded, at Exeter University) together they criticised the paper by Henry which showed that thiamethoxam (Syngenta) decreases foraging success and survival in honey bees.

Fera: In almost three years of the Healthy Bees Plan Project Management Board (HBPP PMB) and Science and Evidence Advisory Group (SEAG), the minutes never mentioned neonicotinoid pesticides as a possible cause of bee declines, only *Varroa*. Finally, the newly constituted Science Advisory Council on its third meeting asked Defra for a briefing on neonicotinoids (26/06/2012). The ACP, as a result of examining the 2009 Buglife Report, had asked for studies on over-wintering losses associated with systemic neonicotinoids. There is no evidence to confirm that they were ever done. Dr Chris Connolly organised an over-wintering survey in Scotland. He said: “*In summary, the presence of oil seed rape (OSR) correlated with a 2-fold increase in over-wintering failure in Scotland 2011-2012. This finding supports the hypothesis that neonicotinoid-treated OSR may be contributing to the honey bee decline in the UK.*” Fera never mentioned the study.

Dr Thompson was on the Editorial Board of Ecotoxicology. I wrote a letter to the Editor to comment on the 2012 Blacquièrè paper and quoted the above SETAC statement. On her advice, the Editor rejected it (the advice was anonymous, but she made the error of adversely commenting on my immune deficiency hypothesis, which I had never mentioned).

Advisory Committee on Pesticides: In 2004, Pesticides UK sent the ACP the Ontario Review from Canada: Systematic Review of Pesticide Human Health Effects. The committee dismissed it as being “*seriously flawed*”. Since then, there have been at least five (two from the US, two from Canada and one from the UK) more documents about the association between pesticides and cancers. ACP appears not to have considered any of them. This was despite the recommendations of (EC) No 1107/2009: *Research programmes aimed at determining the impacts of pesticide use on human health and the environment, including studies on high-risk groups, should be promoted*.

COT: The Chairman of COT, Prof David Coggon said that they were reviewing evidence on possible adverse neurological effects of low-level exposure to organophosphates. We were unaware that organophosphates were still on the market. Defra said that purchasers had to first go on a training course. Defra had always denied a link between OP use as a sheep dip in the 1980s and neurological problems in farmers. However, a new independent study contradicted the Defra findings. Mackenzie Ross, S.J. *et al.* Neurobehavioural problems following low level exposure to organophosphate pesticides: A systematic & meta-analytic review. *Clinical Reviews in Toxicology*; 2012. A review of 14 studies (looking at 1600 participants) has shown a relationship between low level exposure to organophosphates and impaired neurobehavioural functioning. It targets memory, information processing speed, the ability to plan and have abstract thoughts. These findings have implications for working practice and for other occupational groups exposed to OPs such as Aviation Workers and Gulf War Veterans.

Defra: Many of the key parts of the Sustainable Use of Pesticides (EC) No 1107/2009) were rejected by the Government in 2010 as being unnecessary. Specific areas: We do not consider it necessary to prohibit the use of pesticides in public spaces or conservation areas or to impose new statutory controls on pesticide use in these areas. Aerial spraying: We do not consider that responsible application of pesticides by aerial spraying poses an unacceptable risk to human health and the environment, and consequently we will use the derogation. Indeed, new instructions for aerial spraying were issued on the Defra website in July 2012.

Buffer zones: *Current statutory and voluntary controls related to pesticides and the protection of water, if followed, afford a high degree of protection to water courses and cover specific measures detailed in the Directive. The Government will primarily seek to work with*

the pesticides industry to enhance voluntary measures. Later from Prof Coggon: The government is right in concluding that a statutory buffer zone would be a disproportionate response to scientific uncertainty Advanced notice of spraying: We do not believe that it is appropriate to introduce a statutory requirement for operators to give advanced notice of planned spray operations to members of the public living adjacent to sprayed land. We will continue to encourage farmers and spray operators to develop good relations with their neighbours.

Legal battles with Defra

On behalf of Pesticides UK, Georgina Downs has been a courageous (but little publicised) campaigner for rural communities since 2001 and has won awards for her courage. She has complained to Defra on many occasions. She has lived in a farming area for 30 years and has suffered from chronic illnesses, including neurological problems, since childhood. She has collected evidence of chronic illnesses and cancers from farming communities around the UK. Her evidence was supported by a paper *JAMA*. 2005; 294(4):455-465.

doi:10.1001/jama.294.4.455. Walter A. Alarcon *et al.* **Acute Illnesses Associated With Pesticide Exposure at Schools**. The rate of illnesses in children linked to pesticides and similar chemicals rose sharply between 1998 and 2002. Georgina Downs' evidence to the EAC can be summarised as follows.

- UK Government policy and approvals system fundamentally fails to protect people in the countryside from pesticides, particularly rural residents.
- The Government only assesses effects of sprays on *bystanders*. Residents are **not** the same as transient *bystanders* because they are exposed all the year round. It **fails entirely** to address the chronic, long-term, repeated and cumulative exposure of residents.
- There were multiple incidents of exceedances of the AOEL. [Even just by 1 time over is supposed to lead to authorizations being refused, or trigger prohibition if already approved.] It failed to act on its own findings of mm82 exceedances (in realistic exposure scenarios for residents) of the limits set for exposure (the AOEL), in some cases the AOEL was exceeded up to 20 to 30 times over.
- Ms Downs has fought legal battles against Defra. She had a landmark victory in the High Court in November 2008 that ruled that the UK Government's policy on pesticides was not in compliance with European legislation. It was the first known legal case of its kind to reach the High Court to directly challenge the Government's pesticide policy and approach regarding crop-spraying in rural areas. However, the Court of Appeal overturned the High Court Judgment in May 2009. Chief Executive, Kerr Wilson's Witness Statements cited various reasons for preserving the *status quo*. They were related to alleged financial and economic impacts on manufacturers, farmers and distributors, or the impact on agricultural productivity. On behalf of Defra he did not display any concern whatsoever in relation to the protection of public health. His main concern was with protection of industry and business interests. "*The annual market value of pesticide sales is approximately £490m which delivers benefits to farmers, significantly improving agricultural productivity*" "*If, as a result of the Declaration, new approvals could not be granted, there would be important ramifications.*" Press reports at the time supported the Government's stance. That if the High Court Judgment stood then the "*Government's pesticide policy would be fundamentally undermined*" and that the policy and approvals system "*might even grind to a halt.*"
- Ms Downs complained about the Pesticides Forum Annual Report 2011. This stated that: "*The work of the UK Pesticides Forum in 2011 confirms that the use of*

pesticides is not adversely impacting on the health of UK citizens or the environment. This is testimony to the effectiveness of both statutory and voluntary controls.

Other evidence that the ACP is working for the benefit of industry

Atrazine: It was banned in the EU in 2004 (Decision 2004/248/EC) but in the UK the ban did not come into force until 2007 to allow Syngenta to use up stockpiles. In 2008 in Northfleet in Kent, it was reported that nine babies within 12 years were born in the same street, with the same condition, gastroschisis. Gastroschisis is a congenital defect in the abdominal wall, almost always to the right of the navel, through which the abdominal contents freely protrude. The condition normally affects one-in-seven thousand babies. Southern Water acknowledged that atrazine had been found in tap water in 2008. The conclusions of the Public Health Report from Kent on 05/03/2012 were that there was ‘*no evidence that this cluster around Waterdales Road is any more concentrated than we can explain by the normal pattern of occurrence of rare diseases.*’ Syngenta said: “*There is no proven link between atrazine and these defects. Atrazine does not cause developmental abnormalities*”. There is a proven link. Waller SA, Paul K, Peterson SE, *et al.* Agricultural-related chemical exposures, season of conception, and risk of gastroschisis in Washington State. *Am J Obstet Gynecol* 2010;202:241.e1-6. The paper concluded that maternal exposure to surface water atrazine is associated with fetal gastroschisis, particularly in spring conceptions.

In 2008, Dr Jo Kennedy of the Environment Agency gave an update on the Water Frame Directive on groundwater status in the UK to the Pesticides Forum. It showed that atrazine and/or its two breakdown products were found at more than 25% of monitoring sites and were present in quantities in excess of 0.1µg/l. At that time the EU legal limit was less than 0.1µg/l, but this limit was removed from the 2009 legislation (EC) 1107/2009.

Jo Kennedy Pesticides_Forum_Oct_2008_WFD.pdf

The herbicide aminopyralid (Dow Agrosciences Ltd) was approved in 2006. Complaints to Gardeners’ Question Time about amateur gardeners’ crops failures led to the link between use of this herbicide and manure from animals that had been fed on hay from fields where aminopyralid had been used. This discovery led to its suspension in July 2008. Dow then applied to the ACP to have it reintroduced. The ACP advised Ministers that it could be re-introduced in 2009 with label changes (but the public was not aware). In 2010 there were still problems with the manure. Dow gave advice to farmers and gardeners to check the provenance of the manure and sales were restricted to Scotland, SW England and Ireland.

Organophosphates are still on the market (also unbeknown to the public) according to Farming Today 04/12/2012. Defra said purchasers have to first go on a training course. Defra had always denied a link between OP use as a sheep dip in the 1980s and neurological problems in farmers. However, a new independent study contradicted the Defra findings. Mackenzie Ross, S.J. *et al.* Neurobehavioural problems following low level exposure to organophosphate pesticides: A systematic & meta-analytic review. *Clinical Reviews in Toxicology*; 2012. A review of 14 studies (looking at 1600 participants) has shown a relationship between low level exposure to organophosphates and impaired neurobehavioural functioning. It targets memory, information processing speed, the ability to plan and have abstract thoughts. These findings have implications for working practice and for other occupational groups exposed to OPs such as Aviation Workers and Gulf War_Veterans.

Plant immune systems are similar to those of animals

Prof Jeff L Dangl of North Carolina, Chapel Hill is an expert on the plant immune systems. “*Many of these proteins (in plants) fall into a class of proteins that has related members which function in innate animal immunity*”... “*Thus activation of plant immune systems is*

akin to that of animal immune systems where 'modified self' can be recognised to trigger an appropriate response..” In view of this similarity, could the fungal and other tree diseases that have occurred in the last 15 years have their origins in immune suppression by the neonicotinoid insecticides?

When will the public learn the truth about this chemical contamination of the environment?
Is *Nature* a journal of scientific integrity?
Or is it in the hands of the Agrochemical Corporations?

I look forward to receiving a reply.

Yours sincerely

Rosemary Mason MB ChB FRCA

On behalf of a global network of beekeepers, scientists and farmers