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SETAC Workshop on Pesticide Risk Assessment for Pollinators
http://www.setac.org/sites/default/files/executivesummarypollinators_20sep2011.pdf

I would like to draw the attention of your readers to this US SETAC website Workshop Summary. On 15th September the Executive Summary of the Pesticide Risk Assessment for Pollinators from the 5-day SETAC Pellston Workshop in Florida, held in January 2011, was published. The 45-page document confirms what many of us had already suspected. The pesticide companies have total control over testing and registration of their own products.

The report was written by David Fischer from Bayer CropScience and Thomas Moriarty from the US EPA Office of Pesticide Programs. The most damning statement appears on page 12 of the SETAC report: *"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".*

So, for many years, the systemic pesticide risk assessments have only involved a basic Tier 1 analysis. Page 10 ("*A Tier 1 analysis is a conservative screen that efficiently separates those compounds that will not present a potential risk from those compounds that may present a potential risk"*). The report admits that these tests are only suitable for foliar pesticides, since they are based on "*the determination of the length of time between application and when bees could be safely exposed to residues on leaves and flowers of a treated crop".* When pesticides are coated on the seed, bees cannot be protected, because toxins are excreted in pollen and nectar and can be foraged for the whole flowering period. They are also secreted in guttation drops, a physiological exudate from the xylem of plants, which bees often drink [1,2]. Consumption of these on seedlings has been shown to cause death within a few minutes [1].

The authors of the report also admitted that they still had no suitable standard tests for chronic toxicity to either adult honey bees or their larvae. Chronic toxicity tests on adult and larval bees *"require further development"*. Conference members agreed that when these were developed they should be required as part of Tier 1 testing.

So, as we suspected, the whole purpose of the SETAC meeting was to try to develop methodology and protocols for tests that are specific to systemic pesticides whilst still allowing them to remain on the market. Page 22: *"Higher tiered semi field or tunnel tests are recommended to refine the oral exposure assessment, at the colony level to both systemic and non-systemic sprayed on foliage".* Page 20: *"...but development of tiered species specific tests requires significant effort and is seen as a high priority for future research".*

The workshop participants were aware of the scientific literature from bee researchers in several Universities in France and Italy (who had been excluded from the conference). Page 22: "*Sub lethal impacts of pesticides on honey bee learning, behaviour and physiology have been well documented in the scientific literature".* Instead of accepting this as a reason

to suspend them urgently, delegates apparently agreed that further research was required. *"Additional work is needed in both* ***laboratory and field test scenarios.****"* [Much of this work has already been done. In 2003, in a 108-page document, the ***Comité Scientifique and Technique*** in France reviewed all the independent scientific evidence on systemic pesticides[3]. Their findings were that *"the treatment of sunflowers is a significant risk to bees in several stages of life"*. Tunnel tests were also done in France in 2004, by scientists from Montpellier, Orléans and Avignon Universities[4]. They demonstrated that sub-lethal doses of 6 ppb ***imidacloprid*** or 2 ppb ***fipronil*** were enough to disrupt feeding. These were precisely the effects that Bayer itself had advertised for its use in termite control. In addition, the bees also exhibited signs of intoxication].

The SETAC conference was heavily sponsored by the pesticides industry, so they were well represented; three from Bayer, two from Syngenta, two from BASF (one of whom had boasted on the net about BASF's financial contribution), one from Monsanto and one from DuPont. In December 2010, the 'buzz' we received from the global bee keeping network had been that independent bee scientists who had published the most important peer-reviewed research on neonicotinoids, that had confirmed that they were toxic to honey bees, were excluded. When they had applied to attend they were told that the conference was full! The delegates were carefully selected, and, until the last minute, the actual dates were kept secret.

The UK was represented by Mark Clook (Chemical Regulation Directorate) and Helen Thompson (Food & Environment Research Agency, FERA). Helen Thompson had worked closely with three scientists from Bayer, Syngenta and Dow on the International Commission on Plant-Bee Relationships (ICPBR) Bee Protection Group (she was the Group's secretary). The same three had also helped with the UK Defra Research SID5A (2007-2009) Systemic Pesticide Risk Assessment, which, incidentally, only got as far as protocols for Tier 1 tests. The conclusions of the ICPBR working group in 2008 were that protocols for the second and higher tier (Tunnel Tests and Field Tests) **were still to be developed.** So, members of the ICPBR must have known for **at least 3 years** that the science underpinning protocols for risk assessment for systemic pesticides was inadequate. The ICPBR have 17 members on their three bee working groups. Six are from the pesticides industry, some of whom service two groups. This may explain why the CRD, FERA, Defra and the AFSSA (French equivalent of FERA) have repeatedly advised UK and European Ministers and informed us, the public, that there was no evidence that the neonicotinoid pesticides are harmful to honey bees.

In January 2011, on the US EPA Home Page, one of Administrator Lisa Jackson's mission statements was**: *"We have greater opportunity to protect human health and the environment than before".*** Yet, on December 13th 2010 her Office of Pesticide Programs had run a workshop: ***Streamlining the Risk Assessment Process.*** Robert Schulz had designed an electronic programme (e-Builder Dossier) to facilitate the registration of pesticides by the applicants. According to slide 18, the prime benefits were "*reduced cost to the EPA"*, and "*quicker processing"*. There was no mention of human health or the environment on any of the 67 power point slides. On looking on the SETAC website it became apparent that the relationship between US SETAC, the EPA OPP and the pesticides industry was unhealthily close. One Ralph.G.Stahl of USA DuPont heads the most important of the three work groups on SETAC's Ecological Risk Assessment branch, the EcoValuation group.

Research and Recommendations. On pages 39-41 of the SETAC report, there were 12 items for 'future' consideration. None had got beyond the 'ideas' stage. If actually followed up and developed, most of them would take the industry and protection agencies many years to

achieve. Many are very basic to safety, such as chronic toxicity studies on honey bees and larvae. In the case of most of the items for "future research", the studies have already been done by independent scientists and have been published in peer-reviewed journals. Many scientific studies from around the world now confirm the acute and chronic toxic effects of systemic neonicotinoid pesticides on bees. The following are just a small sample from literature; sub-lethal exposure makes bees susceptible to infections and increases mortality[5,6]; sub-lethal exposure causes abnormal foraging behaviour [4,7]; ingestion of dust from maize coated seeds during sowing kills bees [8]; consumption of guttation drops in seedlings causes death[1] and independent laboratory tests show that neonicotinoids are toxic to bees [9].

The whole point of the SETAC Pellston conference should have been for global experts to create standardised protocols. Instead, the pesticides industry achieved their aim of keeping the systemic neonicotinoids on the market by excluding the real experts. The Executive Summary proves it was a talking shop, just for public show. Scientific jargon was used to confuse non-expert members, such that one delegate subsequently reported: *"We are generally pleased with the increased intensity of pesticide screening discussed."*

Yet Bayer CropScience must have known for many years that honey bees were at risk. In April 2004, the President of the French Beekeepers, Henri Clément, survived a personal court action against him by Bayer (the charge was that he had defamed their products). He was able to defend himself against the might of Bayer's lawyers, by citing the 2003 findings of the *Comité Scientifique and Technique* that linked low doses of *imidacloprid* to the disorientation and disruption of foraging[3].

In Italy in September 2008 the Ministry of Health and the Ministry of Agriculture decided to apply the precautionary principle and suspended on an annual basis the insecticides on maize treated seeds (*clothianidin, thiamethoxam, imidacloprid and fipronil*). According to a letter of July 8th 2011, sent by Dr Porrini and Professor Maini to the European Commission Enquiry into Bee Health [10]: "*Winter beehive losses declined from 37.5% in 2007-2008 to around 15% in 2010-2011. No major ground-based pest attacks were observed even without using treated seed."* As a result, in a court in Turin, July 2011, Prosecutor Guariniello, who had conducted an investigation into the memory of bees, sent a warning to the managing directors of Bayer CropScience in Milan and Syngenta Crop Protection in Italy. They would be charged with the spreading of disease to animals (or plants) which pose a danger for the national economy. If the managers are found guilty of these offences, the penalty ranges from 1-5 years[11].

In the US, beekeepers are reported to be losing, on average, 30-50% of their hives each year; it is obvious that these losses cannot be sustained for much longer. Despite this, the US EPA has consistently claimed that it was *"not aware of any data that reasonably demonstrates that bee colonies are subject to elevated losses due to chronic exposure to this pesticide".*
The situation in Europe is similar. In November 2010, the Corporate Observatory Europe and the European Beekeeping Coordination wrote a 7-page Report[12]: **Is the Future of Bees in the hands of the Pesticides Lobby? European Commission allows corporations to shape the pesticide rules.** In Europe, the Draft Assessment Reports are written by the pesticide companies themselves. As in the US EPA, the Protection Agencies deny absolutely that systemic neonicotinoids have toxic effects on honey bees. On 25th January 2011, John Dalli, European Commissioner wrote: *"on the basis of current knowledge a ban would not be justified".* On 15th February 2011 the UK CRD wrote: *"the data have not raised any cause for concern".* However, by SETAC's own admission, all the Protection Agencies have been

giving registration for systemic pesticides at an extremely basic level (Tier 1) and, as it turns out, using inadequate and inappropriate tests and protocols.

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