Subject: Vol100WS

Dear all,

Further to my earlier proposal on the 'order of appearance' of the chapters in the Scientific Publication, I send you herewith attached a first-draft 'Table of Contents', with titles and authors.

To be discussed:

- should the two chapters on the bio-statistical analyses be moved upward?

- should the illustrations that belong in these two chapters be kept in the Annex?

Comments/corrections/suggestions are welcome!

Robert

PS: may I propose sending this draft to Vincent, so that he can adapt and finalize his Introduction.

To: Cogliano, Vincent[cogliano.vincent@epa.gov]
From: Kurt Straif
Sent: Thur 8/27/2015 12:36:45 PM
Subject: RE: Update: EHP ms 15-09912-REV.R1

Whose birthday, who's old?
Kurt

-----Original Message-----
From: Cogliano, Vincent [mailto:cogliano.vincent@epa.gov]
Sent: 27 August 2015 14:24
To: Fritz, Jason <Fritz.Jason@epa.gov>; Martyn Smith <martynts@berkeley.edu>; 'Bernard Stewart' <Bernard.Stewart@SESIAHS.HEALTH.NSW.GOV.AU>; Caldwell, Jane <Caldwell.Jane@epa.gov>; Kavlock, Robert <Kavlock.Robert@epa.gov>; 'Paul Lambert' <plambert@wisc.edu>; DeMarini, David <DeMarini.David@epa.gov>; bucher@niehs.nih.gov; 'Chris Portier' <cportier@me.com>; Gibbons, Catherine <Gibbons.Catherine@epa.gov>; Kathryn Guyton <GuytonK@iarc.fr>; lambert@oncology.wisc.edu; hecht002@umn.edu; 'Robert Baan' <BaanR@iarc.fr>; Kurt Straif <StraifK@iarc.fr>; 'Rusyn, Ivan' <IRusyn@cvm.tamu.edu>
Subject: RE: Update: EHP ms 15-09912-REV.R1

Yes, congratulations to everyone on a seminal paper ... and to Martyn, a birthday gift for an old man.

-----Original Message-----
From: Fritz, Jason
Sent: Thursday, August 27, 2015 8:13 AM
To: Martyn Smith; 'Bernard Stewart'; Caldwell, Jane; Kavlock, Robert; 'Paul Lambert'; DeMarini, David; Cogliano, Vincent; bucher@niehs.nih.gov; 'Chris Portier'; Gibbons, Catherine; 'Kate Guyton'; lambert@oncology.wisc.edu; hecht002@umn.edu; 'Robert Baan'; 'Kurt Straif'; 'Rusyn, Ivan'
Subject: RE: Update: EHP ms 15-09912-REV.R1

Outstanding!
Congratulations to everyone, and especially thank you Martyn for your ceaseless efforts in seeing this through!
Jason

-----Original Message-----
From: Martyn Smith [mailto:martynts@berkeley.edu]
Sent: Wednesday, August 26, 2015 4:49 PM
To: 'Bernard Stewart'; Caldwell, Jane; Kavlock, Robert; 'Paul Lambert'; DeMarini, David; Cogliano, Vincent; bucher@niehs.nih.gov; 'Chris Portier'; Gibbons, Catherine; 'Kate Guyton'; Fritz, Jason; lambert@oncology.wisc.edu; hecht002@umn.edu; 'Robert Baan'; 'Kurt Straif'; 'Rusyn, Ivan'
Subject: FW: Update: EHP ms 15-09912-REV.R1

Dear all

I am pleased to report that our 'Characteristics' paper has been recommended for acceptance at EHP. Hope you've had a pleasant summer or winter depending on where in the world you are or have been.

Best regards, Martyn

-----Original Message-----
From: onbehalfof+schroederjc+niehs.nih.gov@manuscriptcentral.com [mailto:onbehalfof+schroederjc+niehs.nih.gov@manuscriptcentral.com] On Behalf Of schroederjc@niehs.nih.gov
Sent: Wednesday, August 26, 2015 8:17 AM
To: martynts@berkeley.edu

Cc: schroederjc@niehs.nih.gov
Subject: Update: EHP ms 15-09912-REV.R1

26-Aug-2015

15-09912-REV.R1 - Key Characteristics of Carcinogens as a Basis for Organizing Data on Mechanisms of Carcinogenesis

Dear Dr. Smith:

I am writing to update you on the status of your submission to Environmental Health Perspectives (EHP). The Associate Editor for your paper has recommended that it be accepted for publication. Your paper will now undergo a final internal review, which is a standard practice for all papers recommended for publication in EHP.

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Best regards,

Jane Schroeder
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Jane C. Schroeder, DVM MPH PhD
Science Editor, Environmental Health Perspectives DHHS, NIH, NIEHS
email: schroederjc@niehs.nih.gov
http://www.ehponline.org

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From: Fritz, Jason
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Jane C. Schroeder, DVM MPH PhD
Science Editor, Environmental Health Perspectives DHHS, NIH, NIEHS
email: schroederjc@niehs.nih.gov
http://www.ehponline.org

To: Chris Portier[cportier@me.com]
Cc: Martyn Smith[martynts@berkeley.edu]; Bernard Stewart[Bernard.Stewart@SESIAHS.HEALTH.NSW.GOV.AU]; Caldwell, Jane[Caldwell.Jane@epa.gov]; Kavlock, Robert[Kavlock.Robert@epa.gov]; Paul Lambert[plambert@wisc.edu]; DeMarini, David[DeMarini.David@epa.gov]; Cogliano, Vincent[cogliano.vincent@epa.gov]; bucher@niehs.nih.gov[bucher@niehs.nih.gov]; Gibbons, Catherine[Gibbons.Catherine@epa.gov]; Fritz, Jason[Fritz.Jason@epa.gov]; lambert@oncology.wisc.edu[lambert@oncology.wisc.edu]; hecht002@umn.edu[hecht002@umn.edu]; Robert Baan[BaanR@iarc.fr]; Kurt Straif[StraifK@iarc.fr]; Rusyn, Ivan[IRusyn@cvm.tamu.edu]
From: Kathryn Guyton
Sent: Thur 8/27/2015 5:29:03 AM
Subject: Re: Update: EHP ms 15-09912-REV.R1

Phenomenal! Many thanks, Martyn!
Best wishes,
Kate

Envoyé de mon iPhone

On 27 Aug 2015, at 04:47, Chris Portier <cportier@me.com> wrote:

> Great and congrats to all involved!
>
> Sent from my iPad
>
> > On Aug 26, 2015, at 23:49, Martyn Smith <martynts@berkeley.edu> wrote:
> >
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Jane C. Schroeder, DVM MPH PhD

Science Editor, Environmental Health Perspectives DHHS, NIH, NIEHS

email: schroederjc@niehs.nih.gov

http://www.ehponline.org

To: Martel, Susan[SMartel@nas.edu]
Cc: Soto, Vicki[Soto.Vicki@epa.gov]; Perovich, Gina[Perovich.Gina@epa.gov]; Wassel, Ray[RWassel@nas.edu]
From: Cogliano, Vincent
Sent: Thur 9/15/2016 5:00:21 PM
Subject: Re: US National Academies and EPA seek discussants for EPA Toxicological Review of ETBE

I'd do the same as you and not push for Internet participation. It would mean 10pm to midnight for him, and without seeing other participants. I offered to step in because he added me to his reply.

Maybe it would be best for you to respond as you propose, and I'll follow later along the same line and add a personal greeting.

On Sep 15, 2016, at 12:46, Martel, Susan <SMartel@nas.edu> wrote:

Vince - by asking if you can handle this - were you thinking you could influence him to participate by internet/phone?

Otherwise, I am happy to respond to him. I was surprised that he was expecting to travel to the US for a 90-minute session.

My response would be along the lines of apologizing for the confusion about how he would participate and our disappointment that he will not be able to participate, but given that it is just a one-day meeting we thought it would be too burdensome to ask him to travel.

Susan

-----Original Message-----
From: Soto, Vicki [mailto:Soto.Vicki@epa.gov]
Sent: Thursday, September 15, 2016 12:07 PM
To: Cogliano, Vincent; Martel, Susan; Perovich, Gina
Subject: RE: US National Academies and EPA seek discussants for EPA Toxicological Review of ETBE

Hi Vince, I think that since the request is for him to be an NAS identified participant that the response should come from them (Susan). Is that OK with you?

Vicki

-----Original Message-----
From: Cogliano, Vincent
Sent: Thursday, September 15, 2016 11:13 AM
To: Martel, Susan <SMartel@nas.edu>; Perovich, Gina <Perovich.Gina@epa.gov>; Soto, Vicki <Soto.Vicki@epa.gov>
Subject: FW: US National Academies and EPA seek discussants for EPA Toxicological Review of ETBE

Any objections to my handling this? I'd say that I was really pleased when his name came up, but that I wouldn't dream of asking someone to sit on planes for 2 days for what is at most a 2-hour discussion. I wouldn't fly that long myself!

It's good to be reminded that my name meant something before coming to IRIS.

-----Original Message-----
From: 津田 洋幸 [mailto:htsuda@phar.nagoya-cu.ac.jp]
Sent: Wednesday, September 14, 2016 9:34 PM
To: Martel, Susan <SMartel@nas.edu>
Cc: Cogliano, Vincent <cogliano.vincent@epa.gov>; 津田研究室 秘書 <aiezaki@phar.nagoya-cu.ac.jp>

Subject: Re: US National Academies and EPA seek discussants for EPA Toxicological Review of ETBE

Dear Ms Susan Martel,
CC: Dr. Vincent Cogliano

I overlooked your e-mail on August 19th. In your mail on Sept. 12, I found Dr. Vincent Cogliano's name and read through. I learned the meeting is important and I could contribute by presenting the background data of 2-stage carcinogenesis models which were used for the assay of ETBE.

My understanding was to participate in Face-to-Face discussion using a slide presentation. In the followup e-mail that I read, it appeared that I would be able to physically attend the conference, and I accepted the invitation. Unfortunately, in the e-mail I received on Sept. 13, the only option for attending the conference was by internet/telephone. I apologize I will not participate in the internet/internet discussion.

Best wishes,

Hiroyuki Tsuda
Professor, Nanotoxicology Project Lab.
3-1 Tanabedohri, Mizuho-ku
Nagoya 467-8603, Japan
Phone：052-836-3496
FAX: 052-836-3497
http://www.med.nagoya-cu.ac.jp/moltox.dir/nanotoxlab/

> 2016/09/13 23:42、Martel, Susan <SMartel@nas.edu> のメール：
>
> Dear Professor Tsuda,
>
> We are pleased to learn that you are interested in participating in the EPA meeting, and we can arrange for you to participate in the meeting via the internet/telephone. We expect the agenda to be divided into three 90-minute sessions. Because of the time difference (Japan is 13 hours ahead of Virginia), we would schedule the session you would participate in first. That would mean that you would participate from Japan sometime between 10:00 pm to 12:00 am in the evening of October 26. Could you please confirm that you would be willing to participate in the meeting from Japan in the late evening?
>
> Regards,
> Susan Martel
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> -----Original Message-----
> From: 津田 洋幸 [mailto:htsuda@phar.nagoya-cu.ac.jp]
> Sent: Tuesday, September 13, 2016 4:41 AM
> To: Martel, Susan
> Cc: 津田研究室 秘書
> Subject: Re: US National Academies and EPA seek discussants for EPA
> Toxicological Review of ETBE
>
> Dear Susan Martel
> Senior Program Officer
> Board on Environmental Studies & Toxicology The National Academies of
> Sciences, Engineering, and Medicine
>
> I am pleased to accept your invitation to participate in the EPA's Integrated Risk Information System (IRIS) toxicological review of Ethyl tert-Butyl Ether (ETBE) to be held on the 26th of October, 2016.
>

> I look forward to receiving details of the meeting schedule.
>
> Best wishes,
>
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> Nagoya 467-8603, Japan
> Phone：052-836-3496
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> http://www.med.nagoya-cu.ac.jp/moltox.dir/nanotoxlab/
>
>> 2016/09/12 21:54、Martel, Susan <SMartel@nas.edu> のメール：
>>
>> Dear Dr. Tsuda,
>>
>> I'm following-up on my email below about your possible participation in an EPA workshop to give your perspectives on the use of 2-stage carcinogenesis bioassays.
>> Please let me know if you have any questions.
>>
>> Regards,
>> Susan Martel
>>
>> From: Martel, Susan
>> Sent: Thursday, August 18, 2016 11:29 AM
>> To: 'htsuda@phar.nagoya-cu.ac.jp'
>> Subject: US National Academies and EPA seek discussants for EPA
>> Toxicological Review of ETBE
>>
>> Dear Dr. Tsuda,
>>
>> I'm contacting you on behalf of the National Academies of Sciences, Engineering, and Medicine in Washington, DC, to ask if you are interested in possibly participating in a science meeting to discuss EPA's Integrated Risk Information System (IRIS) toxicological review of Ethyl tert-Butyl Ether (ETBE). The meeting will be held on October 26 in Arlington, VA under the auspices of the IRIS program. Vince Cogliano remembers working with you while he was at IARC and thought you would make a valuable contribution to the discussions.
>>
>> As part of the IRIS assessment process, EPA holds public science meetings to obtain input from individuals outside of the agency. At the October meeting, EPA will gather scientific input on three science topics (described below). You were suggested to us as a candidate to participate in the session on Topic 3 (use of 2-stage carcinogenesis bioassays). The specific questions that will be posed at the meeting are still in development.
>>
>> As you may know, IRIS assessments focus on the degree of hazard and dose-response relationships resulting from exposures to chemical substances in the environment. The assessments play an important role in supporting EPA's risk management decisions, including regulations. The assessments also serve as a resource for state and local governments and other countries.
>> Key Science Topics – Ethyl tertiary butyl ether (ETBE)
>> 1. Liver tumor modes of action
>> Lifetime inhalation exposure to ETBE increased liver adenomas and carcinomas in male F344 rats. Data are available suggesting that ETBE may activate PPAR, PXR, and/or CAR pathways all of which increase cell proliferation, hypertrophy, and clonal expansion of preneoplastic foci in the liver. Determining the relative contribution of each pathway on tumor development is problematic. In addition, there is uncertainty on the relevance of PPAR-induced tumors to human risk assessment (Guyton et al., 2009; Corton et al., 2014). Acetaldehyde, a metabolite of ETBE, is considered by other agencies to be

carcinogenic. Aldh2 deficiency enhanced ETBE-induced genotoxicity in hepatocytes and leukocytes from exposed mice; but while suggestive, the available data overall are inadequate to establish acetaldehyde-mediated mutagenicity as a MOA for ETBE-induced liver tumors. EPA found that the database was inadequate to draw any conclusions regarding a liver MOA.
>>
>> The IRIS program is seeking discussion on PPAR, PXR, CAR, and acetaldehyde as possible modes of action for ETBE-induced liver tumors.
>>
>> 2. The potential for increased susceptibility to toxic effects resulting from a decreased rate of acetaldehyde clearance in the liver
>> Acetaldehyde, a metabolite of ETBE, is considered carcinogenic by other agencies. Acetaldehyde is metabolized by the enzyme ALDH2 and studies in Aldh2 knockout mice have demonstrated increased genotoxicity, centrilobular hypertrophy, and alterations to reproductive tissue compared with wild-type controls following ETBE exposure. Furthermore, one-half of East Asian populations possess a virtually inactive form of ALDH2*2 which is associated with slow metabolism of acetaldehyde and extended exposure to the compound. Analyses have shown that acetaldehyde produced as a result of ethanol metabolism contribute to human carcinogenesis in the upper aerodigestive tract and esophagus following ethanol exposure. Altogether, these data provide plausibility that reduced ALDH2 activity produces more severe health effects than in organisms with functional ALDH2.
>>
>> The IRIS program is seeking discussion on the increased susceptibility of cancer and noncancer effects due to reduced ALDH2 activity in humans and animal models.
>>
>> 3. Use of 2-stage carcinogenicity bioassays
>>
>> Lifetime inhalation, but not oral, ETBE exposure has been associated with increased liver adenomas and carcinomas in male F344 rats. Toxicokinetic analysis comparing oral and inhalation exposures from these studies on the basis of metabolized dose of ETBE or tert-butanol (a metabolite of ETBE) indicated that these studies yielded comparable internal concentrations which suggests that the lack of carcinogenic effects via oral exposure is not likely due to a difference in administered dose. Notably, subchronic oral ETBE exposure increased 2-stage mutagen-initiated carcinogenesis in several tissues, including the liver. The 2-stage initiation-promotion bioassays were decisive in extending the weight of evidence descriptor to the oral route.
>>
>> The IRIS program is seeking public discussion on the use of 2-stage
>> bioassays for assessing carcinogenicity hazard
>>
>>
>> We will be reimbursing participants for travel expenses, as needed. However, we will not be able to provide financial compensation for the participants' professional time. Individuals unable to travel to the meeting could participate remotely over the Internet or by phone.
>>
>> As the meeting is designed to use a discussion format, EPA asks participants to make only brief prepared remarks--spending less than 5 minutes--to introduce his or her perspectives on a particular topic. There is no need to submit any written materials or prepare a set of PowerPoint slides. However, it would be OK to show one or two slides containing summary tables or figures.
>>
>> After the introductory remarks, each discussant is expected to participate actively throughout the session in a collegial give-and-take roundtable discussion of a designated topic. In doing so, EPA asks that each discussant take a step back from his or her own research and consider the broader body of scientific information that can be brought to bear in addressing the topic.
>>
>> To help us ensure that the group of individuals we identify provides a range of perspectives, please let me know whether you have any strong views with regard to the topic interest. Also, to promote transparency, EPA will ask each discussant to comment on potential conflicts of interests at the start of a meeting session. As part of our initial vetting process, it would be helpful to know how you would respond

to these questions:
>>
>> (1) What is the nature of any financial relationships (e.g.,
>> consulting agreements, expert witness support, or research funding)
>> you may have with any organization(s) or entities having an interest
>> in the ETBE assessment or issues under discussion?, and
>>
>> (2) What is the extent to which your planned comments were reviewed by an interested party prior to the meeting?
>>
>> Thanks very much for your consideration, and I look forward to hearing back from you.
>>
>> Regards,
>> Susan Martel
>>
>> **********
>> Susan Martel
>> Senior Program Officer
>> Board on Environmental Studies & Toxicology The National Academies of
>> Sciences, Engineering, and Medicine
>> 500 Fifth Street, N.W.
>> Washington, DC 20001
>> TEL: (202) 334-2021
>> FAX: (202) 334-2752
>> E-mail: smartel@nas.edu

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From: Cogliano, Vincent
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>> As part of the IRIS assessment process, EPA holds public science meetings to obtain input from individuals outside of the agency. At the October meeting, EPA will gather scientific input on three science topics (described below). You were suggested to us as a candidate to participate in the session on Topic 3 (use of 2-stage carcinogenesis bioassays). The specific questions that will be posed at the meeting are still in development.
>>
>> As you may know, IRIS assessments focus on the degree of hazard and dose-response relationships resulting from exposures to chemical substances in the environment. The assessments play an important role in supporting EPA's risk management decisions, including regulations. The assessments also serve as a resource for state and local governments and other countries.
>> Key Science Topics – Ethyl tertiary butyl ether (ETBE)
>> 1. Liver tumor modes of action
>> Lifetime inhalation exposure to ETBE increased liver adenomas and carcinomas in male F344 rats. Data are available suggesting that ETBE may activate PPAR, PXR, and/or CAR pathways all of which increase cell proliferation, hypertrophy, and clonal expansion of preneoplastic foci in the liver. Determining the relative contribution of each pathway on tumor development is problematic. In addition, there is uncertainty on the relevance of PPAR-induced tumors to human risk assessment (Guyton et al., 2009; Corton et al., 2014). Acetaldehyde, a metabolite of ETBE, is considered by other agencies to be carcinogenic. Aldh2 deficiency enhanced ETBE-induced genotoxicity in hepatocytes and leukocytes from exposed mice; but while suggestive, the available data overall are inadequate to establish acetaldehyde-mediated mutagenicity as a MOA for ETBE-induced liver tumors. EPA found that the database was inadequate to draw any conclusions regarding a liver MOA.
>>
>> The IRIS program is seeking discussion on PPAR, PXR, CAR, and acetaldehyde as possible modes of action for ETBE-induced liver tumors.
>>
>> 2. The potential for increased susceptibility to toxic effects resulting from a decreased rate of acetaldehyde clearance in the liver
>> Acetaldehyde, a metabolite of ETBE, is considered carcinogenic by other agencies. Acetaldehyde is metabolized by the enzyme ALDH2 and studies in Aldh2 knockout mice have demonstrated increased genotoxicity, centrilobular hypertrophy, and alterations to reproductive tissue compared with wild-type controls following ETBE exposure. Furthermore, one-half of East Asian populations possess a virtually inactive form of ALDH2*2 which is associated with slow metabolism of acetaldehyde and extended exposure to the compound. Analyses have shown that acetaldehyde produced as a result of ethanol metabolism contribute to human carcinogenesis in the upper aerodigestive tract and esophagus following ethanol exposure. Altogether, these data provide plausibility that reduced ALDH2 activity produces more severe health effects than in organisms with functional ALDH2.
>>
>> The IRIS program is seeking discussion on the increased susceptibility of cancer and noncancer effects due to reduced ALDH2 activity in humans and animal models.
>>
>> 3. Use of 2-stage carcinogenicity bioassays
>>
>> Lifetime inhalation, but not oral, ETBE exposure has been associated with increased liver adenomas and carcinomas in male F344 rats. Toxicokinetic analysis comparing oral and inhalation exposures from these studies on the basis of metabolized dose of ETBE or tert-butanol (a metabolite of ETBE) indicated that these studies yielded comparable internal concentrations which suggests that the lack of carcinogenic effects via oral exposure is not likely due to a difference in administered dose. Notably, subchronic oral ETBE exposure increased 2-stage mutagen-initiated carcinogenesis in several tissues, including the liver. The 2-stage initiation-promotion bioassays were decisive in extending the weight of evidence descriptor to the oral route.
>>
>> The IRIS program is seeking public discussion on the use of 2-stage
>> bioassays for assessing carcinogenicity hazard
>>
>>

>> We will be reimbursing participants for travel expenses, as needed. However, we will not be able to provide financial compensation for the participants' professional time. Individuals unable to travel to the meeting could participate remotely over the Internet or by phone.
>>
>> As the meeting is designed to use a discussion format, EPA asks participants to make only brief prepared remarks--spending less than 5 minutes--to introduce his or her perspectives on a particular topic. There is no need to submit any written materials or prepare a set of PowerPoint slides. However, it would be OK to show one or two slides containing summary tables or figures.
>>
>> After the introductory remarks, each discussant is expected to participate actively throughout the session in a collegial give-and-take roundtable discussion of a designated topic. In doing so, EPA asks that each discussant take a step back from his or her own research and consider the broader body of scientific information that can be brought to bear in addressing the topic.
>>
>> To help us ensure that the group of individuals we identify provides a range of perspectives, please let me know whether you have any strong views with regard to the topic interest. Also, to promote transparency, EPA will ask each discussant to comment on potential conflicts of interests at the start of a meeting session. As part of our initial vetting process, it would be helpful to know how you would respond to these questions:
>>
>> (1) What is the nature of any financial relationships (e.g.,
>> consulting agreements, expert witness support, or research funding)
>> you may have with any organization(s) or entities having an interest
>> in the ETBE assessment or issues under discussion?, and
>>
>> (2) What is the extent to which your planned comments were reviewed by an interested party prior to the meeting?
>>
>> Thanks very much for your consideration, and I look forward to hearing back from you.
>>
>> Regards,
>> Susan Martel
>>
>> **********
>> Susan Martel
>> Senior Program Officer
>> Board on Environmental Studies & Toxicology The National Academies of
>> Sciences, Engineering, and Medicine
>> 500 Fifth Street, N.W.
>> Washington, DC 20001
>> TEL: (202) 334-2021
>> FAX: (202) 334-2752
>> E-mail: smartel@nas.edu
>
>

To: Bucher, John (NIH/NIEHS) [E][bucher@niehs.nih.gov]; dkrewski@uottawa.ca[dkrewski@uottawa.ca]; Rusyn, Ivan[IRusyn@cvm.tamu.edu]; Robert Baan[BaanR@visitors.iarc.fr]; Kavlock, Robert[Kavlock.Robert@epa.gov]
Cc: straif@iarc.fr[straif@iarc.fr]; cportier@mac.com[cportier@mac.com]
Bcc: Cogliano, Vincent[cogliano.vincent@epa.gov]
From: Cogliano, Vincent
Sent: Thur 7/21/2016 1:21:04 PM
Subject: RE: Tumour-site Concordance and Mechanisms of Carcinogenesis

Hello everyone—Thank you for the comments. My suggestions are interspersed below in green. I like Bob K's suggestion for #10, too, but I had already started on a previous message from the thread ... Best regards to all—Vincent

From: Bucher, John (NIH/NIEHS) [E] [mailto:bucher@niehs.nih.gov]
Sent: Sunday, July 17, 2016 12:28 PM
To: dkrewski@uottawa.ca; Rusyn, Ivan <IRusyn@cvm.tamu.edu>; Robert Baan <BaanR@visitors.iarc.fr>; Cogliano, Vincent <cogliano.vincent@epa.gov>; Kavlock, Robert <Kavlock.Robert@epa.gov>
Cc: straif@iarc.fr; cportier@mac.com
Subject: Re: Tumour-site Concordance and Mechanisms of Carcinogenesis

Robert and all involved,

Thanks for all the efforts at pulling this together. I had a few additional comments to those of Ivan on the consensus statements for your consideration.

Best, John

Comments on concordance statement

1. There's an appearance of discordance between statement two concerning the lack of melanoma response in rats and mice, following statement one that all adequately studied human carcinogens are carcinogens in animals. This may be resolved in a footnote. Good catch. I'm leaning towards dropping the melanoma sentence. The only causes of melanoma (skin and eye) were solar radiation and UV tanning devices, and both caused SCC of the skin and eye in mice (v100D). Thus you have site concordance but not cell type, so the implication is somewhat ambiguous.

2. Statements 3 and 4 don't seem to rise to the level of one and two. Perhaps recommendations could follow concordance statements, separated by a header. I'd defer to the Secretariat.

3. Statement seven seems to be a simple statement of fact that might be better placed as

paragraph 2 in the introduction. Also the last sentence in 7 could use some work. #7 seems more detailed than paragraphs in the introduction, but I'd defer to the Secretariat.

4. Statement 8 contains the first mention of key characteristics. This could benefit by a mention in the introduction as an outcome of the meetings, and then statement 8 could stand as an endorsement of their usefulness. Good suggestion. The first sentence of #8 and a brief telling of the origin of the KCs would be good in the introduction, then begin #8 with its second sentence.

5. Statement 9 could be stronger if it indicated whether there was general concordance of mechanism between animals and humans, in addition to the existence of human data. Genotoxicity alone should support this. Good suggestion. What do the data show about the KCs other than genotoxicity? The preponderance of genotoxic carcinogens shouldn't lead us to overgeneralize.

6. It's not made clear in statement 11 whether human carcinogens individually or collectively act through multiple mechanisms. Also, this statement seems to include several distinct topics that may deserve individual treatment. Statement 13 covers some of the same ground, and might be combined with a disentangled 11 where appropriate. Adding "individually or collectively" to #11 might be good. I'd try to keep #13 parallel to #6, that carcinogens identified in the past might not be representative of carcinogens identified in the future.

From: Daniel Krewski <dkrewski@uottawa.ca>
Date: Saturday, July 16, 2016 at 5:37 PM
To: "Rusyn, Ivan" <IRusyn@cvm.tamu.edu>, Robert Baan <BaanR@visitors.iarc.fr>, "Cogliano.Vincent@epamail.epa.gov" <Cogliano.Vincent@epamail.epa.gov>, "kavlock.robert@epa.gov" <kavlock.robert@epa.gov>, "John R. Bucher" <bucher@niehs.nih.gov>
Cc: "straif@iarc.fr" <straif@iarc.fr>, Christopher Portier <cportier@mac.com>
Subject: RE: Tumour-site Concordance and Mechanisms of Carcinogenesis

Thanks for your positive comments, Ivan, and for your specific comments on the draft consensus statement.

Although Robert will be coordinating the response to all comments by the Workshop Participants, I've offered a few perspectives on some of your comments below (a pleasant way to pass the time sitting in Montreal airport on my way home from Lyon) . . .

Dan K.

From: Rusyn, Ivan [mailto:IRusyn@cvm.tamu.edu]
Sent: July-16-16 12:19 PM
To: Robert Baan <BaanR@visitors.iarc.fr>; Cogliano.Vincent@epamail.epa.gov; kavlock.robert@epa.gov; Daniel Krewski <dkrewski@uottawa.ca>; 'bucher@niehs.nih.gov' <bucher@niehs.nih.gov>
Cc: straif@iarc.fr; cportier@mac.com
Subject: RE: Tumour-site Concordance and Mechanisms of Carcinogenesis

Dear Robert,

Great job. Congratulations!

My comments on the consensus statement:

Item#5: I am concerned that replication of a tumor site is given so much weight. It is not required to reach "sufficient" evidence so we shall tone down this paragraph not to create an impression that IARC endorses a point of view that replication of the tumor site in animal studies is a requirement for the finding to be of concern. Add "in volume 100" to #5. In general, positive results at any combination of sites would lead to sufficient evidence in animals, but in v100, we introduced sufficient evidence at a site, and that required multiple positive results at that site in animals.

Item #6: I suggest we add the following (or paraphrased) sentence at the end: "Thus, evidence streams other than human epidemiology will need to be relied upon to determine human cancer hazards." OK, but instead of "will need to be relied on" I'd say "will increasingly be relied on".

Item #8: I am confused with "continue to develop" language about Key Characteristics. I believe we need not to have this part in the sentence and it should read: "The Workshop participants recommend that the IARC Monographs Programme use them in its evaluations of carcinogenicity." I believe what was intended here was for WGs to document the 10 KCs in future Monographs, rather than to modify the KCs per se – if the phrase "continue to develop" does not give this impression, some modification of the language along the lines you suggest would be appropriate. OK to drop "continue to develop." The KCs will evolve (as did the Hallmarks), but it's not necessary to stress this right now.

Item #9: I am not sure what the message here is… It appears to be an odd trivia fact and should be either expanded to explain why this is important, or deleted. Robert and I had some

discussion about this statement yesterday, based on the observation that Figure 4 in the mechanisms chapter suggests that similar KCs appear to be observed in humans and animals. However, as Figure 4 does not provide a direct comparison between humans and animals, I am preparing a modified version of this figure that will address this point directly. Depending on the outcome of this (easy to do) analysis, it may be possible to make a stronger statement about similar KCs being observed in humans and animals, which would further support the relevance of animal data in cancer risk assessment. OK. See response to Bucher's comment.

Item #10: I propose for consistency we amend the last sentence to read "…less-than-sufficient evidence in experimental animals." Good.

Item #11: I am also not sure what the message is here. Invoking the wording of "adverse outcome networks" may not be without controversy as it may be interpreted as a not of endorsement to AOP concept by IARC. I suggest this paragraph is toned down to acknowledge that most, if not all, carcinogens act by multiple mechanisms and that greater understanding of molecular events leading to carcinogenesis will further enhance our ability to identify cancer hazards. Thanks for recognizing the potential for controversy. "mechanistic pathways" may be a more neutral way of implying AONs (multiple pathways = network). Secretariat decision.

Item #13: Again, I would refrain from explicitly suggesting that the new "canon" of 10 Key Characteristics is a "living document". Of course it is, but we need not to state it so explicitly. I am concerned that providing such vagueness may open the door for the criticism of the current Key Characteristics as they have been used in several recent monographs… The less material we provide to our friends who publish newspaper articles about how IARC process is flawed, the better… In my humble opinion… Understanding your point being that we do not want to undermine the credibility of the 10 KCs by suggesting they should be revised in the future, I could suggest it may be 'bad luck' to have *thirteen* consensus statements! What's important is the last part of the last sentence. How about changing the last two sentences to read "Future evaluation of carcinogenic agents may involve a larger set of mechanistic events and pathways, yet there is value in using the 10 Key Characteristics in current evaluations of carcinogenic hazards."

Thank you!

Ivan

From: Robert Baan [mailto:BaanR@visitors.iarc.fr]
Sent: Friday, July 15, 2016 3:52 PM

To: banks@icgeb.org; frederick.beland@fda.hhs.gov; toxcon@earthlink.net; boslandm@uic.edu; bucher@niehs.nih.gov; caldwell.jane@epa.gov; Cogliano.Vincent@epamail.epa.gov; demarini.david@epa.gov; bice.fubini@unito.it; bdgold@pitt.edu; hecht002@umn.edu; k.hemminki@dkfz.de; mark.hill@rob.ox.ac.uk; Ex. 6 - Personal Privacy; Agnes_Kane@Brown.edu; kavlock.robert@epa.gov; dkrewski@uottawa.ca; lambert@oncology.wisc.edu; Ex. 6 - Personal Privacy; cportier@me.com; jr332@georgetown.edu; martynts@uclink4.berkeley.edu; lstayner@uic.edu; ullrich@rerf.or.jp; p.vineis@imperial.ac.uk; waalkes@niehs.nih.gov; lzeise@oehha.ca.gov; Bernard.Stewart@sesiahs.health.nsw.gov.au; Ex. 6 - Personal Privacy; Ex. 6 - Personal Privacy; zoughoolm@ksau-hs.edu.sa; melissabillard@me.com; jlittle@uottawa.ca; bmilton@risksciences.com; malzough@uottawa.ca; Nicholas.Birkett@uottawa.ca; Harri.Vainio@hsc.edu.kw; Rusyn, Ivan <IRusyn@cvm.tamu.edu>; Mwaalkes@nc.rr.com
Cc: straif@iarc.fr; Ex. 6 - Personal Privacy; cphra@uottawa.ca; bullrich@utmb.edu; cportier@mac.com; workshops100+@iarc.fr
Subject: Tumour-site Concordance and Mechanisms of Carcinogenesis

Dear colleagues,

It has been a long time since we had contact; I hope you are doing fine.

I am pleased to announce the near completion of the project 'Tumour-site Concordance and Mechanisms of Carcinogenesis'. Some of you may remember the teleconference in December last year, during which it was decided to delete the numerical results (kappa-statistics) from the concordance analysis proposed by Dan Krewski and his team, leaving us the task of finding a different way to present the concordance data. During a second teleconference in February of this year, a small group of participants discussed a new proposal to present the data, based on the concept of 'overlap' of tumour sites between humans and experimental animals. This subgroup and the Ottawa team worked out a completely new version of the concordance analysis, with new Figures and Tables. We have greatly appreciated the input and efforts of all involved to arrive at this result.

Today we submit to you the corresponding documents for your approval. Also attached is the analysis of the mechanistic data, based on the 10 Key Characteristics.

Attached you will find the complete analyses on 'Concordance' and 'Mechanisms' in documents 1 and 7. The other documents contain late-incoming corrections, and show details on the data set on which the concordance analysis is based.

Finally, document 8 is a draft Consensus Statement that presents what we suggest to be the main conclusions and recommendations of the Workshop participants.

We hope you can endorse the Consensus Statement and the final results presented in the attached documents.

With your support, we will bring this project to a close.

I hope to hear from you, wishing you pleasant holidays.

With my best regards,

Robert

To: Daniel Krewski[dkrewski@uottawa.ca]; Robert Baan[BaanR@visitors.iarc.fr]
Cc: Kurt Straif[StraifK@iarc.fr]; Bernard Stewart[Bernard.Stewart@SESIAHS.HEALTH.NSW.GOV.AU]
From: Cogliano, Vincent
Sent: Fri 7/15/2016 3:54:31 PM
Subject: RE: IARC Consensus Statement_ks-vjc_ks2-vjc2 rev BWS rev RB DONE DK July 15

Dear friends—I'm happy with the changes you've all made. (There are a few places where I thought, "Wow! That's eloquent. Did I write that?" but I see Bernard on the list of editors and know the real source of the eloquence.)

I'm also happy to let the Secretariat decide that we were workshop participants.

My only suggestion is to move statement 6 (the additional sentence for tumour sites with sufficient evidence in animals) to between statements 3 and 4. If follows logically from statement 3's recommendation to use the Scientific Publication's terminology of cancer sites. It's also better that the set of statements on tumour-site concordance end with the statement about descriptive statistics and future evaluations, as does the set of statement on mechanisms.

France has experienced more than its share of bad events. Stay safe.

Vincent

From: Daniel Krewski [mailto:dkrewski@uottawa.ca]
Sent: Friday, July 15, 2016 6:25 AM
To: Robert Baan <BaanR@visitors.iarc.fr>
Cc: Kurt Straif <StraifK@iarc.fr>; Bernard Stewart <Bernard.Stewart@SESIAHS.HEALTH.NSW.GOV.AU>; Cogliano, Vincent <cogliano.vincent@epa.gov>
Subject: IARC Consensus Statement_ks-vjc_ks2-vjc2 rev BWS rev RB DONE DK July 15

Robert, after sending around the concordance and mechanisms chapters, I wondered if the consensus statement might be authored 'in collaboration with the other participants . . .' in the same way that the concordance and mehcnaims chapters are authored.

This would give the impress of greater collaboration in formulating the consensus statement, and possibly promote serve to 'promote' consensus among the WPs.

Happy to hear your thoughts when we speak later today (Friday) . . .

Dan K.

To: Fritz, Jason[Fritz.Jason@epa.gov]
From: Cogliano, Vincent
Sent: Thur 6/2/2016 2:37:58 PM
Subject: Re: Official Invitation: IARC Monographs Vol. 118, IARC, Lyon, 21-28 March 2017

But we can't afford to lose you until I retire ... Seriously, though, they'll keep you busy, but you'll have late dinners and Sunday free. As she's comfortable getting around, she'll have no trouble finding interesting things to do while you work, and the train makes day trips, even to Paris, possible.

On Jun 2, 2016, at 10:30, Fritz, Jason <Fritz.Jason@epa.gov> wrote:

Thanks Vince!

And too late for my wife falling in love with Lyon, I think…she's fluent in French and German, and loves pretty much all of central and Northern Europe…☺

jf

From: Cogliano, Vincent
Sent: Thursday, June 02, 2016 10:28 AM
To: Hotchkiss, Andrew <Hotchkiss.Andrew@epa.gov>
Cc: Fritz, Jason <Fritz.Jason@epa.gov>; D'Amico, Louis <DAmico.Louis@epa.gov>; Perovich, Gina <Perovich.Gina@epa.gov>; Subramaniam, Ravi <Subramaniam.Ravi@epa.gov>
Subject: Re: Official Invitation: IARC Monographs Vol. 118, IARC, Lyon, 21-28 March 2017

Yes, congratulations! If you bring your wife, don't let her fall in love with Lyon.

On Jun 2, 2016, at 09:46, Hotchkiss, Andrew <Hotchkiss.Andrew@epa.gov> wrote:

Congrats Jason! Well deserved!

Best regards,

Andrew

From: Fritz, Jason
Sent: Thursday, June 02, 2016 9:15 AM

To: D'Amico, Louis <DAmico.Louis@epa.gov>; Cogliano, Vincent <cogliano.vincent@epa.gov>; Perovich, Gina <Perovich.Gina@epa.gov>
Cc: Hotchkiss, Andrew <Hotchkiss.Andrew@epa.gov>; Subramaniam, Ravi <Subramaniam.Ravi@epa.gov>
Subject: FW: Official Invitation: IARC Monographs Vol. 118, IARC, Lyon, 21-28 March 2017

My official invitation to participate on the IARC monograph vol118 next year, FYI.

Thanks,

Jason

From: IARC Monograph 118 [mailto:monograph118@iarc.fr]
Sent: Thursday, June 02, 2016 8:12 AM
To: Fritz, Jason <Fritz.Jason@epa.gov>
Subject: Official Invitation: IARC Monographs Vol. 118, IARC, Lyon, 21-28 March 2017

Official Invitation

***IARC Monographs* on the Evaluation of Carcinogenic Risks to Humans**

Volume 118 – 'Welding, Welding Fumes and Some Related Chemicals'

21-28 March 2017

Lyon, France

Dear Dr Fritz,

Following our prior correspondence by e-mail, we are pleased to officially invite you to participate in the *IARC Monographs* Working Group for volume 118. The Working Group will meet at the International Agency for Research on Cancer (IARC) in Lyon, France, from Tuesday 21 March 2017 9am through Tuesday 28 March 2017 6pm (Saturday included). **Your participation for the full duration of the meeting is required.**

You will receive a writing assignment shortly. Experience has shown that **on-time completion** of writing assignments and pre-meeting peer-reviews are key to the efficiency of the meeting and the ultimate quality of the *Monographs*. Accordingly, **we expect all participants to comply with the following schedule:**

01.11.2016 Preliminary drafts and references due to IARC

22.11.2016 Peer-reviews due to IARC

14.02.2017 Revised drafts and references due to IARC

During the 8-day *Monograph* meeting, you will be expected to take an active part in peer-reviewing and revising all drafts, and discussing and finalizing the evaluations. The entire volume is the joint product of the Working Group and there are no individually authored sections.

Please note that much of the work during the meeting is done electronically, so it is most helpful if you bring a computer. If this is not possible, please let us know.

We thank you for completing IARC's Declaration of Interests, which we will ask you to update at the *Monograph* meeting. As a condition of your participation, description of any pertinent interests will be disclosed at the meeting and in the published Volume 118.

IARC will publish a summary of the meeting in *The Lancet Oncology* on behalf of the Working Group. You will be requested to complete the conflict-of-interest form used by *The Lancet Oncology*, and their editor will disclose conflicting interests alongside IARC's summary of the meeting.

Attached please find a Code of Conduct for IARC Experts document as well as a Confidentiality Undertaking form. **Please sign and return the Confidentiality Undertaking document to monograph118@iarc.fr as soon as possible.**

In the spirit of transparency, IARC will post the names of participants on the *Monographs* programme website in advance of the meeting. It is important that there be **no interference from interested parties with the Working Group**, before or during the meeting. Accordingly, we ask you not to discuss the subject matter with anyone with a conflicting interest and to let us know if anyone attempts to lobby you, send you written materials, or make any offer that may be linked to your participation.

The Agency will provide you with a prepaid ticket for your travel by the most direct route (cheapest economy airfare available) through our travel agent. In addition, you will receive a daily allowance (per diem) and travel allowance as follows:

- Per diem: 170 € per night during the authorized travel period (reduced to 50% during overnight flights);

- Travel allowance: 45 € for each arrival and departure to and from Lyon St Exupéry airport and 25 € to and from other airports on the approved official itinerary.

These allowances are intended to cover your hotel expenses, meals, and other incidental expenses including transfers to and from airport. They will be paid to you on the first day of the meeting upon your

submission of an expense claim form and complete supporting documents including incoming boarding passes. We kindly ask you to ensure that all hotel bills are paid directly to the hotel prior to the departure. (U.S. Government employees should note that no U.S. Government funds will be used for their expenses and no honorarium will be paid.) Travel and hotel information is attached, including **a hotel and travel form which we kindly request you to return by 9 December 2016 at the latest.**

We look forward to working with you and welcoming you to Lyon.

Yours sincerely,

Neela Guha, PhD

Responsible Officer for the meeting

Kurt Straif, MD, PhD

Head, IARC Monographs Section

International Agency for Research on Cancer/Centre International de Recherche sur le Cancer

150, cours Albert Thomas

F-69372 Lyon Cedex 08

France

Tel: 33-4-72.73.83.67

Fax: 33-4-72.73.83.19

monograph118@iarc.fr

http://monographs.iarc.fr/

Except for insurance coverage provided for accidents and loss of, or damage to, baggage and personal effects during travel, WHO will not be responsible for any loss, accident, damage or injury suffered by an expert, or any person claiming under such expert, arising in or out of his/her participation in this activity. WHO will not be responsible for any claims which are not covered, or which exceed the coverage provided, under WHO's insurance coverage. Experts serve in their individual capacities as scientists and not as representatives of their government or any organization with which they are affiliated. It is understood that the execution of this work does not create any employer-employee relationship between yourself and the World Health Organization, of which IARC is a part. Furthermore, experts are required to disclose all circumstances that could give rise to a potential conflict of interest as a result of their membership in the expert committee, advisory group or other activity, in accordance with the procedures established by the Director-General for that purpose.

To: Kurt Straif[StraifK@iarc.fr]
From: Cogliano, Vincent
Sent: Thur 5/12/2016 6:10:38 PM
Subject: RE: questions regarding IARC

Hi Kurt—I'd be happy to receive information about the legal context of IARC/WHO materials. I'm going on vacation May 18-25 to see my daughter graduate from vet school, and then I'm coming to Paris and the IARC-50 conference June 2-12, so it would be good if this call can be scheduled May 16-17, 26, 31, or June 1.

I'm really looking forward to seeing everyone while I'm in Lyon, and would appreciate a call to learn what social plans are anticipated during the IARC conference.

With warm regards,

Vincent

Director, Integrated Risk Information System (IRIS)

National Center for Environmental Assessment (8601P)

Office of Research and Development

U.S. Environmental Protection Agency

Washington DC 20460

tel 703-347-0220, fax 703-347-8689, http://www.epa.gov/iris/

courier delivery: 2777 S Crystal Dr (S-11631), Arlington VA 22202

From: Kurt Straif [mailto:StraifK@iarc.fr]
Sent: Wednesday, May 11, 2016 6:07 PM
To: Cogliano, Vincent <cogliano.vincent@epa.gov>; Lauren.Zeise@oehha.ca.gov
Subject: RE: questions regarding IARC

Hi Lauren and Vincent,

Of course, I would not have any objections to Vincent talking with the attorneys from Cal/EPA.

At the same time, I would like to offer any support and information IARC or WHO could provide regarding the operation of the Monographs program and the legal context of all IARC/WHO materials. With regard to the latter, I would like to suggest to link Vincent up with the WHO Legal Counsel before he will be talking with the Cal/EPA attorneys.

Best regards,

Kurt

From: Cogliano, Vincent [mailto:cogliano.vincent@epa.gov]
Sent: 10 May 2016 19:43
To: straif@iarc.fr
Subject: Fw: questions regarding IARC

Hello Kurt--Would you have any objection to my talking with attorneys from Cal/EPA? ... I hope all is well. Say hi to all my friends there, and I'm looking forward to seeing everyone again at the June conference. Warm regards, Vincent

---

From: Zeise, Lauren@OEHHA <Lauren.Zeise@oehha.ca.gov>
Sent: Friday, May 6, 2016 12:31 PM
To: Cogliano, Vincent
Cc: Monahan-Cummings, Carol@OEHHA
Subject: questions regarding IARC

Vince,

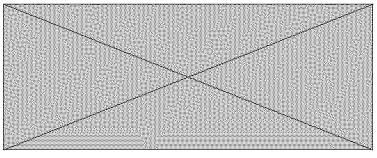
We are in litigation on a matter involving IARC. Would you be available to answer questions that our attorneys have related to the operation of the Monographs program? If so, Carol Monahan-Cummings our chief counsel or Susan Fiering of the Attorney General's office may be following up with you. Is this the best number to reach you at: 703-347-0220

I hope you are doing well. Wonderful seeing so much activity in your EPA program.

Best,

Lauren

Lauren Zeise, PhD, Acting Director



Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

1515 Clay Street, 16th floor, Oakland, CA 94612

Lauren.Zeise@oehha.ca.gov (916) 322-6325 (Mon, Weds); (510) 622-3190 (Tu, Th, Fr)

To: straif@iarc.fr[straif@iarc.fr]
From: Cogliano, Vincent
Sent: Tue 5/10/2016 5:43:11 PM
Subject: Fw: questions regarding IARC

Hello Kurt--Would you have any objection to my talking with attorneys from Cal/EPA? ... I hope all is well. Say hi to all my friends there, and I'm looking forward to seeing everyone again at the June conference. Warm regards, Vincent

---

From: Zeise, Lauren@OEHHA <Lauren.Zeise@oehha.ca.gov>
Sent: Friday, May 6, 2016 12:31 PM
To: Cogliano, Vincent
Cc: Monahan-Cummings, Carol@OEHHA
Subject: questions regarding IARC

Vince,

We are in litigation on a matter involving IARC. Would you be available to answer questions that our attorneys have related to the operation of the Monographs program? If so, Carol Monahan-Cummings our chief counsel or Susan Fiering of the Attorney General's office may be following up with you. Is this the best number to reach you at: 703-347-0220

I hope you are doing well. Wonderful seeing so much activity in your EPA program.

Best,

Lauren

Lauren Zeise, PhD, Acting Director

OEHHA
SCIENCE FOR A HEALTHY CALIFORNIA

Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

1515 Clay Street, 16th floor, Oakland, CA 94612

Lauren.Zeise@oehha.ca.gov (916) 322-6325 (Mon, Weds); (510) 622-3190 (Tu, Th, Fr)

To: Zeise, Lauren@OEHHA[Lauren.Zeise@oehha.ca.gov]
From: Cogliano, Vincent
Sent: Mon 5/9/2016 10:01:04 PM
Subject: RE: questions regarding IARC

Hello Lauren—EPA has no objection, but I'd like to check with Kurt at IARC, too. I'll let you know ... Best regards, Vince

From: Zeise, Lauren@OEHHA [mailto:Lauren.Zeise@oehha.ca.gov]
Sent: Friday, May 06, 2016 12:32 PM
To: Cogliano, Vincent <cogliano.vincent@epa.gov>
Cc: Monahan-Cummings, Carol@OEHHA <Carol.Monahan-Cummings@oehha.ca.gov>
Subject: questions regarding IARC

Vince,

We are in litigation on a matter involving IARC. Would you be available to answer questions that our attorneys have related to the operation of the Monographs program? If so, Carol Monahan-Cummings our chief counsel or Susan Fiering of the Attorney General's office may be following up with you. Is this the best number to reach you at: 703-347-0220

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Best,

Lauren

Lauren Zeise, PhD, Acting Director

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Office of Environmental Health Hazard Assessment
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1515 Clay Street, 16th floor, Oakland, CA 94612

Lauren.Zeise@oehha.ca.gov (916) 322-6325 (Mon, Weds); (510) 622-3190 (Tu, Th, Fr)

To: Ross, Mary[Ross.Mary@epa.gov]
From: Cogliano, Vincent
Sent: Mon 5/9/2016 3:05:30 PM
Subject: FW: questions regarding IARC

Ex. 5 - Deliberative Process

From: Zeise, Lauren@OEHHA [mailto:Lauren.Zeise@oehha.ca.gov]
Sent: Friday, May 06, 2016 12:32 PM
To: Cogliano, Vincent <cogliano.vincent@epa.gov>
Cc: Monahan-Cummings, Carol@OEHHA <Carol.Monahan-Cummings@oehha.ca.gov>
Subject: questions regarding IARC

Vince,

We are in litigation on a matter involving IARC. Would you be available to answer questions that our attorneys have related to the operation of the Monographs program? If so, Carol Monahan-Cummings our chief counsel or Susan Fiering of the Attorney General's office may be following up with you. Is this the best number to reach you at: 703-347-0220

I hope you are doing well. Wonderful seeing so much activity in your EPA program.

Best,

Lauren

Lauren Zeise, PhD, Acting Director

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Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

1515 Clay Street, 16th floor, Oakland, CA 94612

Lauren.Zeise@oehha.ca.gov (916) 322-6325 (Mon, Weds); (510) 622-3190 (Tu, Th, Fr)

To: Gibbons, Catherine[Gibbons.Catherine@epa.gov]
From: Cogliano, Vincent
Sent: Thur 2/4/2016 9:01:58 PM
Subject: Re: Official Invitation: IARC Monographs Vol. 117, Pentachlorophenol and Some Related Compounds, 4-11 October 2016, Lyon, France

La Résidence. Most everyone stays there, it has wifi, and is close to the center.

On Feb 4, 2016, at 15:57, Gibbons, Catherine <Gibbons.Catherine@epa.gov> wrote:

I also need some advice—which hotel should I stay at? ☺

From: IARC Monograph 117 [mailto:Monograph117@iarc.fr]
Sent: Thursday, January 28, 2016 8:35 AM
To: Gibbons, Catherine <Gibbons.Catherine@epa.gov>
Subject: Official Invitation: IARC Monographs Vol. 117, Pentachlorophenol and Some Related Compounds, 4-11 October 2016, Lyon, France

Official Invitation

***IARC Monographs* on the Evaluation of Carcinogenic Risks to Humans**

Volume 117 – 'Pentachlorophenol and Some Related Compounds'

4-11 October 2016

Lyon, France

Dear Dr Gibbons,

Following our prior correspondence by e-mail, we are pleased to officially invite you to participate in the *IARC Monographs* Working Group for volume 117. The Working Group will meet at the International Agency for Research on Cancer (IARC) in Lyon, France, from Tuesday 4 October 2016 9am through Tuesday 11 October 2016 6pm (Saturday included). **Your participation for the full duration of the meeting is required.**

You will receive a writing assignment shortly. Experience has shown that **on-time completion** of writing assignments and pre-meeting peer-reviews are key to the efficiency of the meeting and the ultimate quality of the *Monographs*. Accordingly, **we expect all participants to comply with the following schedule:**

01.07.2016 **Preliminary drafts and references due to IARC**

05.08.2016 **Peer-reviews due to IARC**

05.09.2016 **Revised drafts and references due to IARC**

During the 8-day *Monograph* meeting, you will be expected to take an active part in peer-reviewing and revising all drafts, and discussing and finalizing the evaluations. The entire volume is the joint product of the Working Group and there are no individually authored sections.

Please note that much of the work during the meeting is done electronically, so it is most helpful if you bring a computer. If this is not possible, please let us know.

We thank you for completing IARC's Declaration of Interests, which we will ask you to update at the *Monograph* meeting. As a condition of your participation, description of any pertinent interests will be disclosed at the meeting and in the published Volume 117.

IARC will publish a summary of the meeting in *The Lancet Oncology* on behalf of the Working Group. You will be requested to complete the conflict-of-interest form used by *The Lancet Oncology*, and their editor will disclose conflicting interests alongside IARC's summary of the meeting.

In the spirit of transparency, IARC will post the names of participants on the *Monographs* programme website in advance of the meeting. It is important that there be **no interference from interested parties with the Working Group**, before or during the meeting. Accordingly, we ask you not to discuss the subject matter with anyone with a conflicting interest and to let us know if anyone attempts to lobby you, send you written materials, or make any offer that may be linked to your participation.

The Agency will provide you with a prepaid ticket for your travel by the most direct route (cheapest economy airfare available) through our travel agent. In addition, you will receive a daily allowance (per diem) and travel allowance as follows:

- Per diem: 170 € per night during the authorized travel period (reduced to 50% during overnight flights);

- Travel allowance: 45 € for each arrival and departure to and from Lyon St Exupéry airport and 25 € to and from other airports on the approved official itinerary.

These allowances are intended to cover your hotel expenses, meals, and other incidental expenses including transfers to and from airport. They will be paid to you on the first day of the meeting upon your submission of an expense claim form and complete supporting documents including incoming boarding passes. We kindly ask you to ensure that all hotel bills are paid directly to the hotel prior to the departure. (U.S. Government employees should note that no U.S. Government funds will be used for their expenses and no honorarium will be paid.) Travel and hotel information is attached, including **a hotel and travel form which we kindly request you to return by 17 June 2016 at the latest.**

We look forward to working with you and welcoming you to Lyon.

Yours sincerely,

Kathryn Z. Guyton, PhD

Responsible Officer for the meeting

Kurt Straif, MD, PhD

Head, IARC Monographs Section

International Agency for Research on Cancer/Centre International de Recherche sur le Cancer

150, cours Albert Thomas

F-69372 Lyon Cedex 08

France

Tel: 33-4-72.73.86.54

Fax: 33-4-72.73.83.19

monograph117@iarc.fr

http://monographs.iarc.fr/

Except for insurance coverage provided for accidents and loss of, or damage to, baggage and personal effects during travel, WHO will not be responsible for any loss, accident, damage or injury suffered by an expert, or any person claiming under such expert, arising in or out of his/her participation in this activity. WHO will not be responsible for any claims which are not covered, or which exceed the coverage provided, under WHO's insurance coverage. Experts serve in their individual capacities as scientists and not as representatives of their government or any organization with which they are affiliated. It is understood that the execution of this work does not create any employer-employee relationship between yourself and the World Health Organization, of which IARC is a part. Furthermore, experts are required to disclose all circumstances that could give rise to a potential conflict of interest as a result of their membership in the expert committee, advisory group or other activity, in accordance with the procedures established by the Director-General for that purpose.

<Hotel and travel form 117.doc>
<Hotel description and directions.doc>
<Travel_info.doc>
<Lyon_map_with_hotels_IARC_metro.pdf>

To: Guyton Kate[GuytonK@iarc.fr]
From: Cogliano, Vincent
Sent: Thur 11/12/2015 11:38:18 AM
Subject: Fwd: Glyphosate: EFSA updates toxicological profile

Begin forwarded message:

From: "Cogliano, Vincent" <cogliano.vincent@epa.gov>
To: "Kurt Straif" <StraifK@iarc.fr>, "Guha Neela" <GuhaN@iarc.fr>, "Gaudin Nicolas" <NicholasGaudin@hotmail.com>
Subject: Fwd: Glyphosate: EFSA updates toxicological profile

Begin forwarded message:

From: "Bahadori, Tina" <Bahadori.Tina@epa.gov>
To: "Fegley, Robert" <Fegley.Robert@epa.gov>, "McQueen, Jacqueline" <McQueen.Jacqueline@epa.gov>, "Cogliano, Vincent" <cogliano.vincent@epa.gov>, "Wood, Charles" <Wood.Charles@epa.gov>, "Lobdell, Danelle" <Lobdell.Danelle@epa.gov>, "Egeghy, Peter" <Egeghy.Peter@epa.gov>
Cc: "Birchfield, Norman" <Birchfield.Norman@epa.gov>
Subject: Glyphosate: EFSA updates toxicological profile

In case you had not seen this announcement yet – full assessment and additional information can be found: http://www.efsa.europa.eu/en/efsajournal/pub/4302.

Tina

From: LIEM Djien [mailto:Djien.LIEM@efsa.europa.eu]
Sent: Thursday, November 12, 2015 2:57 AM
To: Taveau, Daniella <Taveau.Daniella@epa.gov>; Dix, David <Dix.David@epa.gov>; Miller, David <Miller.DavidJ@epa.gov>; Cowles, James <Cowles.James@epa.gov>; Robbins, Jane <Robbins.Jane@epa.gov>; Rowland, Jess <Rowland.Jess@epa.gov>; Mary Ko Manibusan (manibusan.mary@epa.gov) <manibusan.mary@epa.gov>; Thomas, Russell <Thomas.Russell@epa.gov>; Bahadori, Tina <Bahadori.Tina@epa.gov>; Villeneuve, Dan <Villeneuve.Dan@epa.gov>
Subject: UNDER EMBARGO - Glyphosate: EFSA updates toxicological profile

Dear Colleagues,

Today 12 November at 12:00 CET, EFSA will publish a Conclusion on the Peer review on glyphosate and a complementary technical document.

It will be accompanied by a News Story and a non technical summary.

The documents are under embargo until **12:00 CET** when they will be published on our website.

For any further information on the Conclusion, please contact Jose Tarazona (Jose.Tarazona@efsa.europa.eu).

For any further information on the News Story, please contact Simon Terry (simon.terry@efsa.europa.eu).

Best regards,

Djien

Djien Liem, PhD

Lead Expert in International Scientific Cooperation

Advisory Forum and Scientific Cooperation Unit

European Food Safety Authority

Via Carlo Magno 1A

43126 Parma (Italy)

Tel. +39 0521 036225

www.efsa.europa.eu

The documents are scheduled for publication on **12 November 2015 at 12:00 CET. They are**

shared under embargo in advance for your information and not for wider distribution. The documents are shared on a confidential basis in advance of final publication and are therefore not intended to be shared beyond recipients identified in the distribution list above until the final documents are actually published. There is always a possibility that there will be additional changes before the final version is published and that the actual date and/or time of publication, indicated by the embargo, may change. Please note that only the final, published version remains the reference document. The EFSA website should be checked for confirmation of final content and publication. Only documents which are published on EFSA's website can be cited/used.

To: Housenger, Jack[Housenger.Jack@epa.gov]; Jones, Jim[Jones.Jim@epa.gov]; Lewis, Susan[Lewis.Susan@epa.gov]; Jordan, William[Jordan.William@epa.gov]; Keigwin, Richard[Keigwin.Richard@epa.gov]; Guilaran, Yu-Ting[Guilaran.Yu-Ting@epa.gov]
From: Brady, Donald
Sent: Mon 8/24/2015 1:20:06 PM
Subject: FW: Article on public health, glyphosate, gmo crops
2015 GMOs, Herbicides, and Public Health.pdf

.....
;;;;;
FYI-NE Journal of Medicine published last week. The authors recommend EPA delay it's Enlist decision. I am going to talk to my team about the statements concerning RA for GMOs.

Director, Environmental Fate and Effects Divison

OPP, EPA

From: McCormack, Karen
Sent: Friday, August 21, 2015 2:53 PM
To: OPP EFED
Subject: FW: Article on public health, glyphosate, gmo crops

From: Melendez, Jose
Sent: Friday, August 21, 2015 1:17 PM
To: McCormack, Karen
Subject: Article on Public Health

Scientists call for new review of herbicide, cite 'flawed' U.S. regulations

08/18/2015

NY Daily News

U.S. regulators have relied on flawed and outdated research to allow expanded use of an herbicide linked to cancer, and new assessments should be urgently conducted, according to a column published in the New England Journal of Medicine on Wednesday.

There are two key factors that necessitate regulatory action to protect human health, according to the column: a sharp increase in herbicide applied to widely planted genetically modified (GMO) crops used in food, and a recent World Health Organization (WHO) determination that the most commonly used herbicide, known as glyphosate, is probably a human carcinogen.

The opinion piece was written by Dr. Philip Landrigan, a Harvard-educated pediatrician and epidemiologist who is Dean for Global Health at the Mount Sinai Medical Center in New York, and Chuck Benbrook, an adjunct professor at Washington State University's crops and soil science department.

"There is growing evidence that glyphosate is geno-toxic and has adverse effects on cells in a number of different ways," Benbrook said. "It's time to pull back ... on uses of glyphosate that we know are leading to significant human exposures while the science gets sorted out."

The column argues that GMO foods and herbicides applied to them "may pose hazards to human health" not previously assessed.

"We believe that the time has therefore come to thoroughly reconsider all aspects of the safety of plant biotechnology," the column states.

The authors also argue that the U.S. Environmental Protection Agency has erred in recently approving a new herbicide that uses glyphosate because it relied on outdated studies commissioned by the manufacturers and gave little consideration to potential health effects in children.

Glyphosate is best known as the key ingredient in Roundup developed by Monsanto, one of the world's most widely used herbicides, but it is used in more than 700 products.

It is sprayed directly over crops like corn genetically engineered to tolerate it and is sometimes used on non-GMO crops, like wheat before harvest. Residues of glyphosate have been detected in food and water.

The WHO's cancer research unit after reviewing years of scientific research from different countries on March 20 classified glyphosate as "probably carcinogenic to humans."

But regulators and agrichemical companies in the United States and other countries still consider glyphosate among the safest herbicides in use.

In July, Monsanto said it had arranged for an outside scientific review of the WHO finding.

Thanks,

José Meléndez

Mon – Thurs. 1-787-946-9988

Friday 1-787-503-5556

have not been verified as such. One bioinformaticist's "drivermu - tation" is another's "passenger mutation." Basket studies are a good way of deriving preliminary information on mutations that are potentially responsive in humans to a specific drug — but to design such studies for every potential target mutation, for all possible drugs, in all possible anatomical sites, will be beyond the capacity of our current investigator- and company-initiated system of trials. Plans are under way for larger phase 2 studies such as the National Cancer Institute's Molecular Analysis for Therapy (NCI MATCH) II study, which will enroll about 1000 patients in about 20 mutation-specific groups, but even a larger effort like that one will capture only a small fraction of the targeted therapies being used off-label on the basis of tumor-sequencing data.

Thus, the basket trials are a useful first step in what should be a multistep process. The next step, where feasible, could be larger anatomical-site–specific phase 3 trials comparing the drug–mutation combination with the standard of care. In addition, given the sample-size, logistic, and financial constraints that make phase 3 studies difficult for less-common cancers and less-common mutations, establishment of registries of off-label use would be extremely helpful. Aggregated observational data will always be superior to "nof 1"anecdotes or small series. Precedents exist, including the "phase4"postmarket - ing surveillance studies that the FDA has mandated in order to gather evidence regarding both possible differences in efficacy for various subgroups and long-term toxicity. Some cancer centers and professional societies are collaborating to develop regional databases. It is critical that results from these databases become as transparent as those from clinical trials — proprietary databases will lead to competing but unverifiable claims. Developing such observational databases is far from trivial, but the costs per patient would be small in relation to the monthly costs of many of the targeted therapies. Perhaps the plural of anecdote could be data after all.

Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

From the Harvard T.H. Chan School of Public Health (D.J.H.) and Boston University (R.B.D.) — both in Boston.

1. Collins FS, Hamburg MA. First FDA authorization for next-generation sequencer. N Engl J Med 2013;369:2369-71.
2. O'Brien SG, Guilhot F, Larson RA, et al. Imatinib compared with interferon and low-dose cytarabine for newly diagnosed chronic-phase chronic myeloid leukemia. N Engl J Med 2003;348:994-1004.
3. Chapman PB, Hauschild A, Robert C, et al. Improved survival with vemurafenib in melanoma with BRAF V600E mutation. N Engl J Med 2011;364:2507-16.
4. Gerlinger M, Rowan AJ, Horswell S, et al. Intratumor heterogeneity and branched evolution revealed by multiregion sequencing. N Engl J Med 2012;366:883-92.
5. Menis J, Hasan B, Besse B. New clinical research strategies in thoracic oncology: clinical trial design, adaptive, basket and umbrella trials, new end-points and new evaluations of response. Eur Respir Rev 2014;23:367-78.

DOI: 10.1056/NEJMp1508144

GMOs, Herbicides, and Public Health

Philip J. Landrigan, M.D., and Charles Benbrook, Ph.D.

Genetically modified organisms (GMOs) are not high on most physicians' worry lists. If we think at all about biotechnology, most of us probably focus on direct threats to human health, such as prospects for converting pathogens to biologic weapons or the implications of new technologies for editing the human germline. But while those debates simmer, the application of biotechnology to agriculture has been rapid and aggressive. The vast majority of the corn and soybeans grown in the United States are now genetically engineered. Foods produced from GM crops have become ubiquitous. And unlike regulatory bodies in 64 other countries, the Food and Drug Administration (FDA) does not require labeling of GM foods.

Two recent developments are dramatically changing the GMO landscape. First, there have been sharp increases in the amounts and numbers of chemical herbicides applied to GM crops, and still further increases — the largest in a generation — are scheduled to occur in the next few years. Second, the International Agency for Research on Cancer (IARC) has classified glyphosate, the herbicide most widely used on GM crops, as a "probable human carcinogen" [1] and classified a second herbicide, 2,4-dichlorophenoxyacetic acid (2,4-D), as a "possible human carcinogen."[2]

The application of genetic engineering to agriculture builds

on the ancient practice of selective breeding. But unlike traditional selective breeding, genetic engineering vastly expands the range of traits that can be moved into plants and enables breeders to import DNA from virtually anywhere in the biosphere. Depending on the traits selected, genetically engineered crops can increase yields, thrive when irrigated with salty water, or produce fruits and vegetables resistant to mold and rot.

The National Academy of Sciences has twice reviewed the safety of GM crops — in 2000 and 2004.[3] Those reviews, which focused almost entirely on the genetic aspects of biotechnology, concluded that GM crops pose no unique hazards to human health. They noted that genetic transformation has the potential to produce unanticipated allergens or toxins and might alter the nutritional quality of food. Both reports recommended development of new risk-assessment tools and postmarketing surveillance. Those recommendations have largely gone unheeded.

Herbicide resistance is the main characteristic that the biotechnology industry has chosen to introduce into plants. Corn and soybeans with genetically engineered tolerance to glyphosate (Roundup) were first introduced in the mid-1990s. These "Roundup-Ready" crops now account for more than 90% of the corn and soybeans planted in the United States.[4] Their advantage, especially in the first years after introduction, is that they greatly simplify weed management. Farmers can spray herbicide both before and during the growing season, leaving their crops unharmed.

But widespread adoption of herbicide-resistant crops has led to overreliance on herbicides and, in particular, on glyphosate.[5] In the United States, glyphosate use has increased by a factor of more than 250 — from 0.4 million kg in 1974 to 113 million kg in 2014. Global use has increased by a factor of more than 10. Not surprisingly, glyphosate-resistant weeds have emerged and are found today on nearly 100 million acres in 36 states. Fields must be now be treated with multiple herbicides, including 2,4-D, a component of the Agent Orange defoliant used in the Vietnam War.

The first of the two developments that raise fresh concerns about the safety of GM crops is a 2014 decision by the Environmental Protection Agency (EPA) to approve Enlist Duo, a new combination herbicide comprising glyphosate plus 2,4-D. Enlist Duo was formulated to combat herbicide resistance. It will be marketed in tandem with newly approved seeds genetically engineered to resist glyphosate, 2,4-D, and multiple other herbicides. The EPA anticipates that a 3-to-7-fold increase in 2,4-D use will result.

In our view, the science and the risk assessment supporting the Enlist Duo decision are flawed. The science consisted solely of toxicologic studies commissioned by the herbicide manufacturers in the 1980s and 1990s and never published, not an uncommon practice in U.S. pesticide regulation. These studies predated current knowledge of low-dose, endocrine-mediated, and epigenetic effects and were not designed to detect them. The risk assessment gave little consideration to potential health effects in infants and children, thus contravening federal pesticide law. It failed to consider ecologic impact, such as effects on the monarch butterfly and other pollinators. It considered only pure glyphosate, despite studies showing that formulated glyphosate that contains surfactants and adjuvants is more toxic than the pure compound.

The second new development is the determination by the IARC in 2015 that glyphosate is a "probable human carcinogen" [1] and 2,4-D a "possiblehuman car - cinogen." [2] These classifications were based on comprehensive assessments of the toxicologic and epidemiologic literature that linked both herbicides to dose-related increases in malignant tumors at multiple anatomical sites in animals and linked glyphosate to an increased incidence of non-Hodgkin's lymphoma in humans.

These developments suggest that GM foods and the herbicides applied to them may pose hazards to human health that were not examined in previous assessments. We believe that the time has therefore come to thoroughly reconsider all aspects of the safety of plant biotechnology. The National Academy of Sciences has convened a new committee to reassess the social, economic, environmental, and human health effects of GM crops. This development is welcome, but the committee's report is not expected until at least 2016.

In the meantime, we offer two recommendations. First, we believe the EPA should delay implementation of its decision to permit use of Enlist Duo. This decision was made in haste. It was based on poorly designed and outdated studies and on an incomplete assessment of human exposure and environmental effects. It would have benefited from deeper consideration of independently funded studies published in the peer-reviewed literature.

And it preceded the recent IARC determinations on glyphosate and 2,4-D. Second, the National Toxicology Program should urgently assess the toxicology of pure glyphosate, formulated glyphosate, and mixtures of glyphosate and other herbicides.

Finally, we believe the time has come to revisit the United States' reluctance to label GM foods. Labeling will deliver multiple benefits. It is essential for tracking emergence of novel food allergies and assessing effects of chemical herbicides applied to GM crops. It would respect the wishes of a growing number of consumers who insist they have a right to know what foods they are buying and how they were produced. And the argument that there is nothing new about genetic rearrangement misses the point that GM crops are now the agricultural products most heavily treated with herbicides and that two of these herbicides may pose risks of cancer. We hope, in light of this new information, that the FDA will reconsider labeling of GM foods and couple it with adequately funded, long-term postmarketing surveillance.

An audio interview with Dr. Landrigan is available at NEJM.org

Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

From the Department of Preventive Medicine, Icahn School of Medicine at Mount Sinai, New York (P.J.L.); and the Department of Crops and Soil Sciences, Washington State University, Pullman, WA (C.B.).

1. Guyton KZ, Loomis D, Grosse Y, et al. Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate. Lancet Oncol 2015;16:490-1.
2. Loomis D, Guyton K, Grosse Y, et al. Carcinogenicity of lindane, DDT, and 2,4-dichlorophenoxyacetic acid. Lancet Oncol 2015 June 22 (Epub ahead of print).
3. National Research Council, Committee on Identifying and Assessing Unintended Effects of Genetically Engineered Foods on Human Health. Safety of genetically engineered foods: approaches to assessing unintended health effects. Washington, DC: National Academies Press, 2004.
4. Adoption of genetically engineered crops in the U.S. Washington, DC: Department of Agriculture, Economic Research Service (http://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-us.aspx).
5. Duke SO. Perspectives on transgenic, herbicide-resistant crops in the United States almost 20 years after introduction. Pest Manag Sci 2015;71:652-7.

DOI: 10.1056/NEJMp1505660

To: Jones, Jim[Jones.Jim@epa.gov]; Housenger, Jack[Housenger.Jack@epa.gov]; Keigwin, Richard[Keigwin.Richard@epa.gov]
From: Dix, David
Sent: Tue 12/8/2015 6:00:37 PM
Subject: FW: New DG of Health and Food Safety Directorate General

;;;;;;The new DG of SANTE is Mr Xavier Prars Monne. Here are some links to his profile:

On the EC website: https://ec.europa.eu/digital-agenda/events/cf/eip-aha-4th-conference/speaker.cfm?id=449

On LinkedIn: https://www.linkedin.com/profile/view?id=ACgAAALA1DkB_S_4qQeo3x7BV-KtWdiFuQzq4cE&authType=name&authToken=Fy8V

About the glyphosate discussions:

1. This is the announcement of the meeting taking place in the European Parliament last week:

EoV with the Commission, WHO and EFSA on glyphosates

02-12-2015 - 12:33
Glyphosate chemical formula On 1 December the ENVI Committee held an EoV with the Commission, WHO International Agency for Research on Cancer and EFSA on Glyphosate, an active substance that is used in pesticides in the EU and for which EFSA and IARC reached different conclusions as to genotoxicity and carcinogenicity.

The discussion will focus on the methods used to reach IARC and EFSA's assessments and on the future Commission's decision on whether or not to keep glyphosate on the EU list of approved active substances.

2. I talked about the lunch debate organised by the Greens in the Euroepan Parliament; very interesting debate with Jose Tarazona and Chris Portier: http://www.greens-efa-service.org/medialib/mcinfo/pub/en/scc/4289

3. Link to the BfR website dedicated to glyphosate:
http://www.bfr.bund.de/en/a-z_index/glyphosate-193962.html

To: Housenger, Jack[Housenger.Jack@epa.gov]; Jones, Jim[Jones.Jim@epa.gov]
From: R MASON
Sent: Mon 12/7/2015 4:14:13 PM
Subject: Open Letter to the Standing Committee on Plants, Animals, Food & Feed
Open Letter to the Standing Committee on Plants, Animals, Food and Feed.pdf

;;;

From: R MASON
To: "cab-andriukaitis-webpage@ec.europa.eu"
Cc: "phil.hogan@ec.europa.eu" ; "ladislav.miko@ec.europa.eu" ; URL Bernhard ; "giovanni.lavia@europarl.europa.eu" ; "christian.schmidt@bmel.de" ; "helmut.tschiersky@bvl.bund.de" ; "andreas.hensel@bfr.bund.de" ; Christopher Wild ; "jones.jim@usepa.gov" ; "anderson.neil@epa.gov" ; Thomas Moriarty ; "cportier@mac.com"
Sent: Monday, 7 December 2015, 16:00
Subject: Open Letter to the Standing Committee on Plants, Animals, Food & Feed

Mr. Vytenis Andriukaitis
Commissioner Health & Food
Safety
European Commission
Rue de la Loi / Wetstraat 200
1049 Brussels
Belgium

Dear Commissioner Andriukaitis
The Monsanto Corporation will be put on trial in the International Criminal Court in The Hague on October 16 2016 for crimes against nature and humanity, and ecocide.
Please could you forward this letter to the Standing Committee on Plants, Animal, Food and Feed (PAFF) for their meeting on 10/11 December 2015.
When Item 3 EFSA Conclusions: on Glyphosate is discussed, if members of the Standing Committee are mindful to endorse EFSA's recommendations, they might be required to justify their decision to judges in the International Criminal Court in The Hague in 2016.

Yours sincerely

Rosemary Mason

Attachment: Open Letter to the Standing Committee on Plants, Animals, Food & Feed

December 7, 2015

Mr. Vytenis Andriukaitis
Commissioner Health & Food
Safety European Commission
Rue de la Loi / Wetstraat 200
1049 Brussels
Belgium

Cc:
Mr. Phil Hogan, European Commissioner for Agriculture and Human Development
Dr. Ladislav Miko, Deputy Director-General, DG Health & Food Safety
Dr. Bernhard Url, Executive Director, EFSA
Dr. Giovanni La Via, Chair, ENVI Committee EFSA Panel on Plant Protection Products and their Residues
Mr. Christian Schmidt, Minister of Food and Agriculture
Dr. Helmut Tschiersky, President of the Federal Office of Consumer Protection and Food Safety (BVL)
Professor Dr. Dr. Andreas Hensel, President, BFR
Dr. Christopher Wild, Director, International Agency for Research into Cancer (IARC)
Professor Christopher J. Portier (Corresponding Author) on behalf of IARC Working Group
Mr. Jim Jones, Assistant Administrator, USEPA
Neil Anderson US EPA OPP Risk Management Branch for renewal of glyphosate: Branch Chief
Tom Moriarty US EPA OPP Risk Management Branch for renewal of glyphosate: Team Leader

Dear Commissioner Andriukaitis,

On December 3rd 2015 it was announced that Monsanto, the US-based transnational corporation, will be put on trial in the International Criminal Court in The Hague for ecocide[1]

PARIS – The Organic Consumers Association (OCA), IFOAM International Organics, Navdanya, Regeneration International (RI), and Millions Against Monsanto, joined by dozens of global food, farming and environmental justice groups announced today that they will put Monsanto, a US-based transnational corporation, on trial for crimes against nature and humanity, and ecocide, in The Hague, Netherlands, next year on World Food Day, October 16, 2016. This International Criminal Court, established in 2002 in The Hague, has determined that prosecuting ecocide as a criminal offense is the only way to guarantee the rights of humans to a healthy environment and the right of nature to be protected.

The tribunal's website says, *"According to its critics, Monsanto is able to ignore the human and environmental damage caused by its products and maintain its devastating activities through a strategy of systemic concealment: by lobbying regulatory agencies and governments, by resorting to lying and corruption, by financing fraudulent scientific studies, by pressuring independent scientists, by manipulating the press and media, etc. The history of Monsanto would thereby constitute a text-book case of impunity, benefiting transnational corporations and their executives, whose activities contribute to climate and biosphere crises and threaten the safety of the planet."*

In addition to Monsanto, the tribunal intends to mount a "best case" to denounce "*all multinational companies which are driven by the profit motive and thereby threaten human health and the safety of the planet*". The initiative is "*unique and unprecedented*", says Marie-Monique Robin.[2]

[1] http://www.monsanto-tribunal.org/
[2] http://gmwatch.org/news/latest-news/16576-international-lawyers-and-ngos-launch-tribunal-to-try-monsanto-for-ecocide

Standing Committee on Plants, Animals, Food and Feed (December 10/11)
We ask that this information be forwarded to the representatives of all EU member states before the next meeting of the Standing Committee on Plants, Animals, Food and Feed (December 10/11). To be discussed under Item 3 EFSA Conclusions: Glyphosate.[3]
This will join the Open letter signed by Prof Christopher J. Portier (the Corresponding Author).

Open letter: 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.[4]
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.

This was what Anthony Samsel found in the secret sealed documents from the US EPA that showed that Monsanto knew glyphosate was carcinogenic but concealed the evidence by using historical documents and employing unpublished confidential industry data (often redacted).[5]
Samsel and Seneff concluded that: *"significant evidence of tumours was found during these investigations".*
Extract: *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.*

In 1991 the US EPA Health Effects Division colluded with Monsanto: glyphosate to be changed from a Group C carcinogen to Group E (evidence of non-carcinogenicity for humans)[6]
Members of US EPA's Toxicology Branch of the Hazard Evaluation Division Committee, in a consensus review on March 4 1985, had classified glyphosate as a Group C carcinogen, 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, but on June 26 1991 the Health Effects Division Carcinogenicity Peer Review Committee met to discuss and evaluate the weight of evidence on glyphosate with particular emphasis to its carcinogenic potential. In a review of the data

[3] http://ec.europa.eu/food/plant/standing_committees/sc_phytopharmaceuticals/docs/ag_2015121011_pppl_en.pdf
[4] http://images.derstandard.at/2015/11/30/glyphosate.pdf
[5] https://www.academia.edu/17751562/Glyphosate_pathways_to_modern_diseases_IV_cancer_and_related_pathologies
[6] http://www.epa.gov/opp00001/chem_search/cleared_reviews/csr_PC-103601_30-Oct-91_265.pdf

the Committee concluded that glyphosate should be classified as Group E (evidence of non-carcinogenicity for humans). However, three of the Committee refused to sign and wrote: DO NOT CONCUR. In 2012 Séralini and his colleagues performed a 2-year rat feeding study on GMO Maize and Roundup® and found liver and kidney damage and similar tumours, but the UK Science Media Centre accused Séralini's team of fraud and said the paper should be withdrawn.

The Wellcome Trust also colludes with industry: it hosts the UK Science Media Centre ---sponsored by corporations whose 'experts' denied that Roundup® and GMOS caused tumours

The SMC sponsors include AstraZeneca, BP, Coca-Cola, L'Oreal, Monsanto, Syngenta and *Nature* Publishing Group. The Centre provides a rapid 'expert' opinion for journalists. But the Director admits that it was set up in the wake of Dr Árpád Pusztai publishing his paper which showed that rats fed on GM potatoes had stunted growth and a repressed immune system. The 'experts' are proponents of GMOs often having major conflicts of interest. The SMC allows corporations to influence what journalists write and hence control the information given to the British public.

Séralini's team wins defamation and forgery cases on the team's GMO and pesticide research[7]

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.

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 CRIIGEN. 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.

RMS GERMAN FEDERAL INSTITUTE OF RISK ASSESSMENT (BFR) CONCLUDED THAT GLYPHOSATE IS NOT HARMFUL TO THE ENVIRONMENT

Here is a brief summary of the BfR Renewal Assessment Report evaluation of peer-reviewed literature regarding the ecotoxicity of Glyphosate.[8] It broadly concluded that glyphosate is not harmful to the environment.

Aquatic organisms: Summary page 64. "*It was not possible to distinguish between the effects of the technical glyphosate and the surface active substance added to the commercial formulation.*"

Aquatic vertebrates: Summary page 68. "*No report of statistical power of test glyphosate: most on commercial formulations.*"

Effects on amphibians: Summary page 95. "*Does not resemble the lead formulation for EU assessment of renewal approval of glyphosate as an active substance.*"

Terrestrial arthropods including bees: Summary page 113 "*Summary of relevant literature in 31 publications: none of the publications acceptable for risk assessment.*"

Effects on earthworms: Page 123. Twenty one publications submitted. Summary of relevant literature in earthworms: "*Herbicide application did not directly affect movement or reproduction. The outcome of risk assessment did not change.*"

[7] http://www.gmoseralini.org/seralinis-team-wins-defamation-and-forgery-court-cases-on-gmo-and-pesticide-research/

[8] Glyphosate Renewal Assessment Report Vol 3 Annex B9. Evaluation of peer-reviewed literature regarding ecotoxicity

Effects on soil non-target micro-organisms; Page 143. *"No negative effects at the moment, but should be included in future risk assessments."*
Other non-target: flora and fauna: 87 papers. See elsewhere. 2.6.7.2.

Science requires that measurements are made; even with glyphosate and the neonicotinoids
The CRD, EFSA, US EPA and the AVPMA claim they are doing *'sound science'*. However, they are measuring many pesticides in groundwater **BUT NOT** glyphosate or the systemic neonicotinoids. These are the most widely used herbicides/pesticides in the world. Both glyphosate and neonicotinoid insecticides residues have been measured in humans and animals and in non-organic food, water, air and rain by independent scientists all over the world. Farmers are applying them blindly each year. The levels are increasing in the environment each year and can be correlated with losses of biodiversity.

Many independent sources have measured glyphosate in the environment
In 2011, the US Geological Survey (USGS) published the first report on the ambient levels of glyphosate, the most widely used herbicide in the United States, and its major degradation product, aminomethylphosphonic acid (AMPA), in air and rain in Mississippi and Iowa in two growing seasons.[9] In 2013, scientists in Argentina did the same. *"Agricultural production is fundamentally based on a technological package that combines no-till and glyphosate in the cultivation of transgenic crops. Transgenic crops (soybean, maize and cotton) occupy 23 million hectares. This means that glyphosate is the most employed herbicide in the country, where 180–200 million liters are applied every year."*[10] Another report from the USGS in 2014: *"The most comprehensive research to date on environmental glyphosate levels exposes the widespread contamination of soil and water in the US, as well as its water treatment system. Looking at a wide range of geographical locations, researchers from the US Geological Survey (USGS) analysed 3,732 water and sediment samples and 1,081 quality assurance samples collected between 2001 and 2010 from 38 states in the US and the district of Colombia. They found glyphosate in 39.4 % of samples (1,470 out of 3,732) and its metabolite aminomethylphosphonic acid (AMPA) in 55 % of samples. They concluded that Glyphosate and its degradation product AMPA occur frequently and widely in U.S. soils, surface water, groundwater, and precipitation.*[11]

A biological desert: correlation of loss of biodiversity with glyphosate levels on an Iowa farm.
The state of Iowa was just one area in which the USGS reported widespread contamination with glyphosate. Grundy County, Iowa was where Craig Childs spent a long weekend in a monoculture of GM "Roundup Ready" corn looking for wildlife.[12] *"In this cornfield, I had come to a different kind of planetary evolution. I listened and heard nothing, no bird no click of an insect …Mr Owen was the farmer who had given us permission to backpack across his cornfields. He grew a combination of DuPont and Monsanto stock. We were in DuPont now. It didn't look any different to me."* In contrast, *"Yet, 100 years ago, these same fields, these prairies, were home to 300 species of plants, 60 mammals, 300 birds, hundreds and hundreds of insects. This soil was the richest, the loamiest in the state. And now, in these patches, there is almost literally nothing but one kind of living thing. We've erased everything else. There's something strange about a farm that intentionally creates a biological desert to produce food for one species: us. It's efficient, yes. But it's so efficient that the ants are missing, the bees are missing, and even the birds stay away. Something's not right here. Our cornfields are too quiet".*[13]

[9] http://www.ncbi.nlm.nih.gov/pubmed/21128261
[10] http://www.ncbi.nlm.nih.gov/pubmed/23849835
[11] http://onlinelibrary.wiley.com/doi/10.1111/jawr.2014.50.issue-2/issuetoc
[12] Childs, C. *Apocalyptic Planet. Field Guide to the Future of the Earth,* ch. 6, Species Vanish, p. 187. New York: Vintage Books (2013)
[13] http://www.npr.org/blogs/krulwich/2012/11/29/166156242/cornstalks-everywhere-but-nothing-else-not-even-a-bee

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*".[14]

RAPPORTEUR MEMBER STATE BFR CONCLUDED THAT GLYPHOSATE IS NOT HARMFUL TO HUMANS

GM Watch Reports: Argentina: Public health crisis from pesticide spraying on GM crops worsens[15]

The GM crops that are causing the public health crisis in Argentina (see below) are going into animal feed for Europe's livestock

Faculty of Medicine, University of Buenos Aires, Buenos Aires. October 17, 2015 Report of the 3rd NATIONAL CONGRESS OF PHYSICIANS IN THE CROP-SPRAYED TOWNS[16]

"Five years since the first meeting at the Faculty of Medical Sciences of Córdoba, scientists, doctors, and members of health teams for sprayed villages of Argentina, gathered in the Aula Magna of the Faculty of Medicine of the University of Buenos Aires (UBA), we verify that what we said then is dramatically true and getting worse by the day: the current system of agricultural production in the country pollutes the environment and Argentine food, sickening and killing human populations in agricultural areas.

In the last 25 years the consumption of pesticides increased by 983% (from 38 to 370 million kilos), while the cultivated area increased by 50% (from 20 million ha to 30 million ha). A production system based on the systematic application of agricultural poisons means, inevitably, that nature responds by adapting, forcing farmers to apply greater quantities of pesticides in the field to achieve the same objectives. Over the years a system has been created by and for sellers of pesticides, who every year increase their net sales (in 2015 the increase was 9%) while our patients, too, year after year are being exposed to this pesticide pollution more and more.

There is no doubt that the massive and growing exposure to pesticides changed the disease profile of Argentine rural populations and that cancer is the leading cause of death among them (and the worst way to die).

During 2015 the International Agency for Research on Cancer (IARC WHO) recognized the human carcinogenicity of several pesticides, including glyphosate. This is the most widely used pesticide in the world and Argentina consumed 240 million kilos in the last year generating a potential average exposure of 6 kilos per year, the highest in the world. Glyphosate is bought and stored anywhere and is applied without any restriction on schools, neighbourhoods, streets and villages, subjecting people to an unjust and unnecessary exposure."

To defend the human right to life, a healthy life and a healthy environment we call for:

- comprehensive ban on aerial spraying in the country with any kind of agrochemicals. The levels of pollution generated is unacceptable for the environment and human health

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

[15] http://gmwatch.org/news/latest-news/16564-argentina-public-health-crisis-from-pesticide-spraying-on-gm-crops-worsens

[16] http://www.reduas.com.ar/declaration-of-the-3rd-national-congress-of-physicians-in-the-crop-sprayed-towns/

- prohibit all pesticides IARC-WHO recognized as human carcinogens grades 1, 2A and 2B, especially glyphosate. There is no need to justify the risk of generating cancer in people exposed environmentally or through contaminated food
- while the near total ban on glyphosate term is reached, it is urgent to get a reclassification to red tag (currently green label) and immediately prevent its free commercialization and application in and near populated areas and schools
- prohibit all "highly hazardous pesticides", according to WHO and FAO, many are already banned in their countries of origin but are marketed in ours
- prohibit any spraying around 1000 meters from villages and schools, the presence and movement of machines to spray (mosquitoes) in urban areas and the existence of deposits of pesticides within towns and neighbourhoods of cities
- generate public policies that discourage the use of poisons in farming and food production, recognizing the toxic nature thereof. It is necessary to put into question the current model of agroindustrial and transgenic production instead looking for systems that allow for social and cultural integration and defence and reproduction of ecological conditions of our environment. It is possible through state action to decrease the levels of use of pesticides in our country as demonstrated by experiences of other countries, promoting agro-ecology, local food consumption and defence of food security

Responsibility of the European Commission (EC) and the EFSA Standing Committee on Plants, Animals, Food and Feed (PAFF)

BfR and EFSA claim that glyphosate does not affect human health or the environment. Cited above is just a fraction of the massive contrary evidence from independent scientists/physicians.
If the EC and the Standing Committee (PAFF) are mindful to re-approve glyphosate, they could be required to justify it in the International Criminal Court in The Hague on October 16 2016.

The European Commission should ban glyphosate immediately, with no exceptions, no derogations and no extensions to finish up stocks. In addition they should ban a neurotoxic compound, Monsanto's aspartame, present in diet drinks. The UK was Rapporteur Member State (2013/14).

Re-approval of aspartame by the UK Committee of the Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) and the Foods Standards Agency (FSA); COT provides scientific advice to the UK Food Standards Agency

CoT is described as an independent scientific committee, appointed by Ministers. Members are asked to state conflicts of interest. In 2011 there were two members from AstraZeneca and one from Syngenta (AstraZeneca is Syngenta's parent company), yet none of them declared any conflict of interest. Professor Robert Smith appears as the Public Interest Representative. *"Rob Smith sees his role as a non-specialist member of COT as being here to represent consumers and to ask the sort of questions that are of interest to the general public."* Far from being non-specialist, Professor Smith has been Defra's Research programme adviser from 2004 to 2010 and has alternated between the ACP/COT as a specialist adviser in the environmental effects of pesticides since 1999, apart from a 3-year gap. The UK is the RMS for aspartame. In December 2013 CoT re-approved Monsanto's chemical sweetener aspartame.[17] As a result of unpublished British research (Hull University), CoT had decided there is no need to ban or control the sale or consumption of the sweetener, aspartame, to protect the health of the public. On December 10th 2013 EFSA completed *"full risk assessment on aspartame and concludes it is safe at current levels of exposure."*[18]

[17] http://www.food.gov.uk/news-updates/news/2013/5894/aspartame
[18] http://www.efsa.europa.eu/en/press/news/131210.htm

Prof Erik Millstone of Sussex University had written on multiple occasions to EFSA about the toxicity of aspartame, beginning in June 2011. He wrote a 67-page document on 20th February 2013[19] in response to the EFSA draft report: *"The draft report on the safety of aspartame, issued by the European Food Safety Authority's ANS panel on 8 January 2013, is deeply flawed"* He detailed the history of aspartame in the US and the fact that for 16 years it was considered too toxic to be licenced because it was neurotoxic and carcinogenic. On page 15 is an indictment[20] against GD Searle, the original owners, before Monsanto bought the company.

Ralph D Walton MD, Professor at the Center for Behavioural Medicine, North Eastern Ohio University College of Medicine has published a review of studies.[21] He did research for 60 minutes on scientific peer-reviewed studies and funding; 92 per cent of the studies showed problems with aspartame, but Walton said if you remove 6 studies because the FDA had something to do with it and their controversy, and 1 pro-industry summary, one hundred per cent of independent scientific peer-reviewed studies showed the toxicity of aspartame. Aspartame is an addictive, excite-neurotoxic, carcinogenic, genetically engineered drug and adjuvant that damages the mitochondria and interacts with drugs and vaccines.

THE AMERICAN BIRD CONSERVANCY PRODUCED A REPORT ON NEONICOTINOIDS AND BIRDS
In the Report they correlated measurements of neonicotinoids with the effects on birds
ABC had commissioned world-renowned environmental toxicologist Dr Pierre Mineau to conduct the research. Cynthia Palmer, co-author of the report is an environmental lawyer and Pesticides Program Manager for ABC. The authors called for a ban on the use of the neonicotinoid insecticides as seed treatments and for the suspension of all applications pending an independent review of the products' effects on birds, terrestrial and aquatic invertebrates, and other wildlife.
Page 5*: It looks as if the USEPA and other regulatory agencies consistently approved registrations despite their own scientists' repeated and ever-growing concerns. It is relevant to ask why we conduct scientific evaluations of products if those evaluations have little or no bearing on the registration decisions that are made, and when staff scientists warning of 'major risk concerns' appear to be ignored.*

Poison Spring: The Secret History of Pollution and the EPA (Environmental Protection Agency)
"Poison Spring[22] 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.*[23] *Here is a beneficial insect pollinating a third of America's crops, especially fruits and vegetables, and we thank it with stupefying killing.*

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[19] https://www.sussex.ac.uk/webteam/gateway/file.php?name=em-letter-to-efsa-on-aspartame-20feb2013.pdf&site=25
[20] In his role as FDA Chief Counsel, Richard Merrill was therefore satisfied that the FDA had gathered sufficient evidence for G D Searle to be indicted for: "…violations of the federal Food, Drugs and Cosmetics Act…and the False Reports to the Government Act…and for concealing material facts and making false statements in reports of animal studies conducted to establish the safety of…the food additive Aspartame."
[21] http://ww.dorway.com/peerrev.html
[22] http://www.independentsciencenews.org/health/poison-spring-the-secret-history-of-pollution-and-the-epa/
[23] http://www.huffingtonpost.com/evaggelos-vallianatos/honeybees-on-the-verge-of_b_4326226.html

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:[24] Within the first decade of the EPA's existence, it became obvious that nearly all the "safety" tests supporting pesticide registrations were faked, with either fraudulent or nonexistent data. The massive lab fraud uncovered at Industrial Bio-Test Laboratories (IBT) revealed that 99 percent of long-term studies (for cancer, birth defects, mutagenicity, reproductive damage *etc.*) supporting some 483 pesticide registrations were invalid. For 25 years, in what US Food and Drug Administration (FDA) officials called "*the most massive scientific fraud ever committed in the United States, and perhaps the world*," all major chemical and pharmaceutical companies had paid IBT to produce the test data they needed to register their products. 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 other 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,

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

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.

US EPA Office of Pesticides Programs (OPP) Workshop: 'Streamline the Risk Assessment Process of Pesticides Registration' No mention of human health or the environment[25]

On December 13th 2010 the EPA OPP ran a Workgroup to 'Streamline the Risk Assessment Process of Pesticides Registration.' 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." This record has just been broken. Sustainable Pulse reported on 25/11/2015:[26] *"The Environmental Protection Agency (EPA), responding to litigation,[27] has announced it is revoking the registration of "Enlist Duo." Approved by the agency just over a year ago, Enlist Duo is a toxic combination of glyphosate and 2,4-D that Dow AgroSciences created for use on the next generation of genetically engineered crops, designed to withstand being drenched with this potent herbicide cocktail."*

US EPA gives 'conditional' registration to pesticide products; industry is allowed to market them with data gaps. Conditional registration [28]of clothianidin in the US

On May 30, 2003, Daniel C Kenny of the US EPA Registration Division granted conditional registration for *clothianidin* to be used for seed treatment on corn and canola (oil seed rape) to Bayer Corporation.[29] In the 19-page document, the EPA scientists (as opposed to the Registration Division) had assessed the risks as: *"Clothianidin is highly toxic to honey bees on an acute contact basis. 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. The fate and disposition of clothianidin in the environment suggest a compound that is a systemic insecticide that is persistent and mobile, stable to hydrolysis, and has potential to leach into ground water, as well as run-off to surface waters. There is evidence of effects on the rat immune system and juvenile rats appear to be more susceptible to these effects."*
Summary of Data Gaps. Page 18. There were gaps in Toxicology; Residue Chemistry; Environmental Fate Data and Ecological Effects Data. These included: Additional studies on *Developmental Immunotoxicity and Mutagenicity. Data on aerobic aquatic metabolism and a Seed leaching study. Whole sediment acute toxicity to freshwater invertebrates. Field test for pollinators.* There is no evidence that the data gaps were filled in. This is confirmed by the following Memo.

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

[26] http://sustainablepulse.com/2015/11/25/us-epa-revokes-herbicide-registration-for-new-generation-of-gm-crops/#.VmVngLfhDcs

[27] http://www.panna.org/sites/default/files/2015-11-24%20EPA%20Voluntary%20Vacatur.pdf

[28] 'Conditional' means that they are allowed to sell it on condition that they fulfil all the data gaps within a year

[29] http://www.epa.gov/opprd001/factsheets/clothianidin.pdf

A Memo in 2010 from a US EPA Ecologist to the Environmental Risk Branch of Registration Division warning of the devastating effects of clothianidin on biodiversity, including honey bees[30]

Here are extracts from the 101-page document: "The potential for *clothianidin* to move to move from the treated area to the nearby surface water body has been increased significantly since 2003 because the registrant has recently added new uses to the labels. The compound is toxic to honey bees... The persistence of residues and potential residual toxicity of *clothianidin* in nectar and pollen suggests the possibility of chronic toxic risk to honey bee larvae and the eventual instability of the hive… *clothianidin* has the properties of a chemical which could lead to widespread groundwater contamination, but no groundwater studies have been conducted to date…extreme mobility and persistence of *clothianidin* in the environment." The ecologist disappeared from his desk.

Corporate Lobbyists in Europe

Corporate Europe Observatory (CEO) is a research and campaign group working to expose and challenge the privileged access and influence enjoyed by corporations and their lobby groups in EU policy making.[31] CEO in May 2015: *Brussels nowadays is the second capital of corporate lobbying in the world—after Washington DC. An estimated 20-30.000 lobbyists populate the EU quarter, the large majority of whom represents corporations. All big corporations have their own lobby offices and in-house lobbyists*.[32]

As the recent scandal on Volkswagen car emissions has shown, the European Commission is very influenced by numbers of lobbyists. CEO wrote in September 2015. *In terms of personnel, Volkswagen is also miles ahead of its competitors—Daimler has 14 staff lobbying in the Belgian capital while BMW has 8. VW has 43, almost double both combined. The highest non-German manufacturer is Honda, with 10 lobbyists.*[33]

CEO wrote in October 2015: *It is certainly not true that there have been no concerned voices over the testing regime, even well before the VW scandal.*[34] *The concerns over European testing procedures have been voiced by many for years now, for instance in a Dutch report from 2013. And as for the debate over fuel efficiency and emissions—that goes back decades. Perhaps the Commission has not listened carefully to other voices than industry?*

We are drowning our world in unsafe and untested chemicals[35]

By Gabrielle Canon 01/10/2015

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

In an article in the UK about why we should eat organic food,[37] the journalist said that in 31,000 tonnes of chemical are used in farming in the UK each year.

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[30] http://www.panna.org/sites/default/files/Memo_Nov2010_Clothianidin.pdf
[31] http://corporateeurope.org/about-ceo
[32] http://corporateeurope.org/food-and-agriculture/2015/05/toxic-affair-how-chemical-lobby-blocked-action-hormone-disrupting
[33] http://corporateeurope.org/power-lobbies/2015/09/power-car-industry-lobby-makes-scandal-inevitable
[34] http://corporateeurope.org/international-trade/2015/10/vw-tested-once-approved-everywhere
[35] http://www.motherjones.com/environment/2015/10/human-reproduction-threatened-pollution
[36] http://www.figo.org/sites/default/files/uploads/News/Final%20PDF_8462.pdf
[37] http://www.theguardian.com/commentisfree/2015/oct/07/why-should-i-eat-organic-google

Will the global élite survive the contamination of the environment with pesticides?
The global élite may be able to survive by eating organic food, but not the pollution of water, soil and air by genotoxic and teratogenic herbicides and insecticides. The agrochemical industry has created a toxic environment from which none can escape. The devastating effects of these silent killers in our water do not distinguish between farmers or city dwellers, the wealthy or the poor, between media Moghuls or their reporters, Monsanto Executives, Presidents, or Prime Ministers. The recent episodes of extreme weather and severe flooding caused by climate change merely spreads the chemicals further. But the public has no idea.

THE OPEN LETTER FROM AMERICA WARNING THE UK AND THE EU AGAINST AUTHORIZING GENETICALLY MODIFIED CROPS[38]
The Open Letter from America was from 60 million American citizens to David Cameron (and the EU) warning the UK not to authorize GM crops because of the devastating effects on human health and the environment.
US Citizens tell us the truth about GM crops: it is about corporate control of the food system.
"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 dereliction of duty."
Another Report from the US tells us an identical story of corporate control.

Excerpt from 2012 US Report on Children's Health: A Generation in Jeopardy[39]
A Generation in Jeopardy: How pesticides are undermining our children's health & intelligence
"This report draws from academic and government research, focusing on studies published within the past five years, to chronicle the emerging threat of – with over 1 billion pounds applied on farms and homes annually – to children's health... Our current system of industrial agriculture and pest control relies on chemical inputs sold by a handful of corporations. These multinational corporations wield tremendous control over the system, from setting research agendas to financing, crop selection and inputs throughout the production and distribution chain. Not surprisingly, these same corporations also hold significant sway in the policy arena, investing millions of dollars every year to influence voters, lawmakers and regulators at both the state and federal level to protect the market for pesticides. The result is agriculture, food and pest control systems that serve the interests of these corporations well. It does not, however, serve farmers, who have lost day-to-day control of their operations and are putting themselves and their families in harm's way."

Rosemary Mason

07/12/2015

[38] www.theletterfromamerica.org
[39] http://www.panna.org/publication/generation-in-jeopardy

To: Jones, Jim[Jones.Jim@epa.gov]
From: Strauss, Linda
Sent: Thur 12/3/2015 12:44:04 PM
Subject: RE: chicago tribune article

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Watchdog: EPA tosses aside safety data, says Dow pesticide for GMOs won't harm people

Weedkiller's revival is cause for concern

A Chicago Tribune investigation finds that the Environmental Protection Agency discounted safety data for a World War II-era chemical called 2,4-D that has been linked to cancer and other health problems. It soon could be available for use as a weedkiller on genetically modified crops.

A Chicago Tribune investigation finds that the Environmental Protection Agency discounted safety data for a World War II-era chemical called 2,4-D that has been linked to cancer and other health problems. It soon could be available for use as a weedkiller on genetically modified crops.

Patricia CallahanContact Reporter Chicago Tribune

How the EPA cleared the way for Dow to revive a worrisome old pesticide for new GMO crops.

When Monsanto genetically engineered corn and soybeans to make them immune to its best-selling weedkiller, the company pitched the technology as a way to reduce overall use of herbicides and usher in an environmentally friendly era of farming.

Instead of relying on older, more harmful chemicals, farmers could douse their fields with Roundup, a product that Monsanto once advertised as less toxic than table salt.

Two decades later, overuse of Roundup on genetically modified crops has spawned weeds that can survive spraying to grow 8 feet tall with stems as thick as baseball bats. To kill those so-called superweeds, chemical giants are giving the next wave of genetically modified corn and soybeans immunity to the weedkillers of generations past.

The technology that was supposed to make those older herbicides obsolete soon could make it possible for farmers to use a lot more.

For use on its new genetically engineered corn and soybeans, Dow Chemical Co. is reviving 2,4-D, a World War II-era chemical linked to cancer and other health problems.

If these crops are widely adopted, the government's maximum-exposure projections show that U.S. children ages 1 to 12 could consume levels of 2,4-D that the World Health Organization, Russia, Australia, Korea, Canada, Brazil and China consider unsafe.

The U.S. Environmental Protection Agency had considered that exposure dangerous for decades as well. But the Obama administration's EPA now says it is safe to allow 41 times more 2,4-D into the American diet than before he took office.

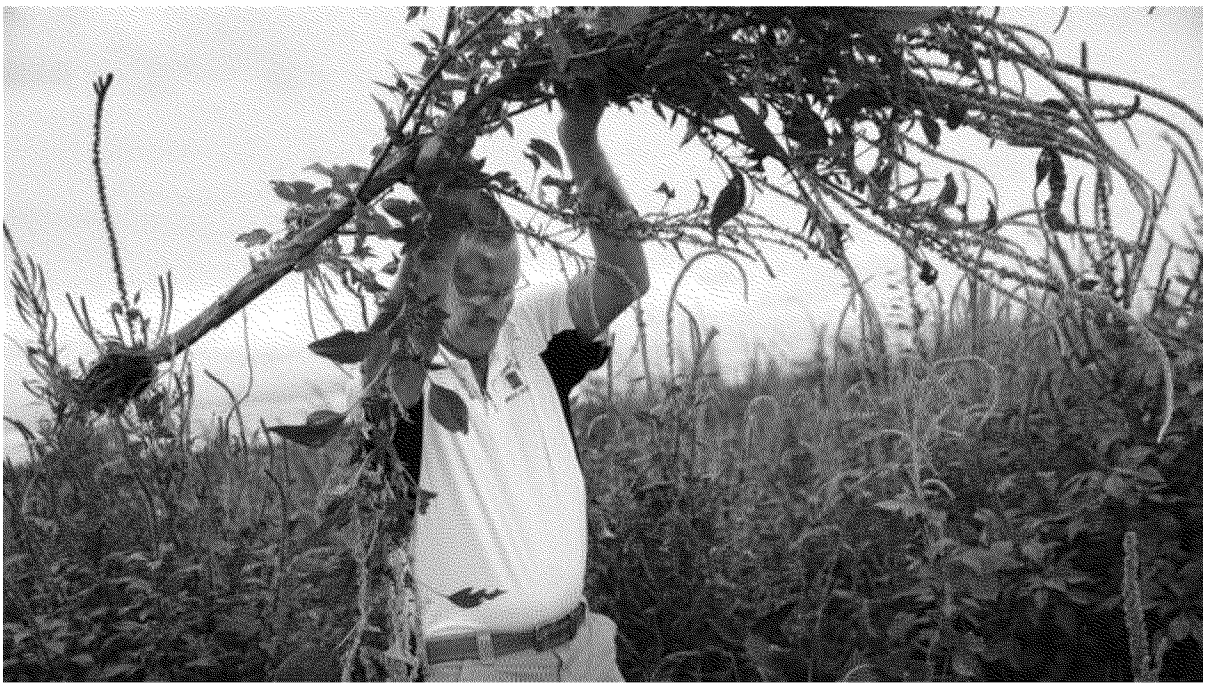
To reach that conclusion, the Tribune found, the agency's scientists changed their analysis of a pivotal rat study by Dow, tossing aside signs of kidney trouble that Dow researchers said were caused by 2,4-D.

The EPA scientists who revised that crucial document were persuaded by a Canadian government toxicologist who decided that Dow — a company that has a $1 billion product at stake — had been overly cautious in flagging kidney abnormalities that she deemed insignificant.

When Dow later published this study, the company's scientists likewise dismissed their earlier concerns and changed the most important measure of the chemical's toxicity so it agreed with the EPA's less stringent view.

These decisions paved the way for the EPA to approve Dow's weedkiller, Enlist Duo, last year and reassure the public that a surge in 2,4-D use wouldn't hurt anyone.

Girding that reassurance are two calculations: How much of the herbicide is safe for human health, and how much will Americans wind up consuming? There are ways to tweak each of those risk calculations. With 2,4-D, the Tribune found, the EPA's math favored a dramatic increase in the weedkiller.



Superweeds

Abel Uribe / Chicago Tribune

Aaron Hager, a University of Illinois weed scientist, pulls up a Palmer amaranth plant, part of the pigweed family, to show how thick and large the plants can get in just a few weeks, at a soybean field Aug. 12, 2014, west of Kankakee. He has been studying the weed's growth and ways to kill it without killing soybean plants.

Aaron Hager, a University of Illinois weed scientist, pulls up a Palmer amaranth plant, part of the pigweed family, to show how thick and large the plants can get in just a few weeks, at a soybean field Aug. 12, 2014, west of Kankakee. He has been studying the weed's growth and ways to kill it without killing soybean plants.

(Abel Uribe / Chicago Tribune)

Federal law has required the EPA to protect children from pesticides — chemicals that kill weeds, insects or other harmful organisms — since a National Research Council panel warned lawmakers in the 1990s that exposing fetuses and young kids to these compounds can cause lifelong damage at doses that wouldn't hurt their parents.

Dr. Philip Landrigan, the pediatrician who chaired that panel, is so alarmed by the potential spike in children's exposure to 2,4-D that for the last year he has urged EPA Administrator Gina McCarthy to reject the "notoriously toxic herbicide." He is calling for the federal National Toxicology Program to assess the safety of the mix of weedkillers that would be used on new genetically modified crops.

When Landrigan learned from the Tribune that EPA and Dow scientists had changed their minds about kidney anomalies found in exposed rats, he was shocked.

"If the tables were turned, and a group of scientists published a paper showing some adverse effect from 2,4-D, I have no doubt that Dow would say a second and third study were needed," said Landrigan, whose research on childhood lead exposure helped prompt the removal of lead from gasoline and paint. "And yet, Dow is saying we need to trust this one study where results were reinterpreted midstream. There's reason to raise doubt here."

Dow said 2,4-D is safe and is one of the most extensively studied pesticides in history. James Bus, a former Dow toxicologist who worked on the company's recent rat study, said the EPA's evaluation of 2,4-D relies on state-of-the-art science and "stands as an example of how it should be done."

"We know from 70 years of exposure that 2,4-D has not presented health problems," Bus said. Studies that suggest such a link are flawed, and increased use will not put anyone at risk, he added.

For its part, the EPA said its scientific vetting ensures that any pesticide residues left in food and water won't cause harm. The Dow rat study reveals that 2,4-D is less toxic to people than once thought, agency officials say.

"It is EPA's understanding that other governments do agree with our interpretation of the new study, but have not yet incorporated the results into their 2,4-D reviews," EPA spokeswoman Cathy Milbourn said in a written statement.

In a surprise move last week, the EPA asked the U.S. 9th Circuit Court of Appeals to vacate the agency's approval so its scientists could review new data. But EPA officials made it clear they don't intend to bar the product permanently.

The holdup has nothing to do with human health. Enlist Duo combines 2,4-D and glyphosate, the main ingredient in Roundup, and the agency said it wanted to iron out concerns that the two chemicals combined are more toxic to endangered plants than either of the chemicals separately.

As far as people's health is concerned, though, the agency maintains that Enlist Duo is perfectly safe. Even if American farmers spray 2,4-D on every acre of corn and soybeans — crops that serve as the building blocks of processed foods and fatten farm animals — it still won't harm consumers, the EPA said.

So confident is Dow that the agency's concerns about endangered plants can be resolved quickly that the title of its news release last week read: "Dow Expects Enlist Duo to be Available for the 2016 U.S. Crop Season."

Today 94 percent of soybeans and 89 percent of corn planted in the U.S. are genetically engineered to survive herbicides, primarily the glyphosate in Roundup. But no one is comparing glyphosate to table salt anymore, with the WHO's cancer research agency now labeling it a probable carcinogen. And no one is hailing it as an agricultural savior.

More than 60 million acres of U.S. cropland are being choked by weeds that glyphosate can't kill. In response, chemical companies and federal regulators are advising farmers not to substitute one weedkiller for another but to add more.

Even some scientists who have spent their professional lives eradicating weeds oppose the new genetically modified crops and the chemical future they foreshadow.

"Those herbicide increases are not OK," said David Mortensen, a professor of weed and applied plant ecology at Pennsylvania State University. "To me, that is unconscionable that we can be OK with that, and I'm not an anti-chemical radical."

How much is too much?

Many people complain that eating genetically modified food could endanger their health. But it's the weedkillers used on genetically modified crops, not the corn and soy, that scientists have repeatedly found to cause harm.

Herbicides linger in the water Americans drink, in the air they breathe and on the foods they eat. Children are especially vulnerable because they take in more food, water and air, relative to their weight, than adults.

That's why scientists study weedkillers so closely and why regulators scrutinize them more heavily than other industrial chemicals.

Weedkiller-resistant corn

Abel Uribe / Chicago Tribune

Corn plants genetically engineered to withstand Dow's new weedkiller combining 2,4-D and glyphosate are on display Aug. 27, 2014, inside the Dow AgroSciences tent at the Farm Progress Show in Iowa.

Corn plants genetically engineered to withstand Dow's new weedkiller combining 2,4-D and glyphosate are on display Aug. 27, 2014, inside the Dow AgroSciences tent at the Farm Progress Show in Iowa.

(Abel Uribe / Chicago Tribune)

The fact that 2,4-D was a main component of the Vietnam War-era defoliant Agent Orange made the chemical infamous, even though it was dioxin contamination of a different ingredient that brought harm to troops and villagers.

Over the years, federal and university researchers showed 2,4-D was worrisome on its own. Studies found increased odds of developing non-Hodgkin lymphoma, hypothyroidism and Parkinson's disease among people who used the chemical as part of their jobs. In June, the WHO's cancer research agency ruled that 2,4-D is a possible carcinogen.

But EPA scientists aren't convinced that 2,4-D causes any of those diseases because other studies reached different conclusions.

Though it wasn't widely used on corn and soybeans, 2,4-D has been a go-to chemical for wheat growers, ranchers and golf course groundskeepers. When the EPA in the early 2000s revisited the safety of 2,4-D as part of a wider review of pesticides long on the market, the goal was to determine from animal testing how much 2,4-D people could safely consume.

Such tests are carried out or commissioned by chemical-makers, even though they have a vested interest in the results.

The EPA relied on a 1995 Dow study that found rats dosed daily with 75 milligrams of pure 2,4-D per kilogram of body weight (or mg/kg) over a two-year period gained less weight and experienced changes in kidney, thyroid, liver, lung, reproductive organ and blood chemistry measures compared with untreated rats.

Rats that consumed the next lowest dose — 5 mg/kg — showed no ill effects. This is called the "no observed adverse effect level," and it's the most important measure in a pesticide toxicity study.

Next came a series of math exercises. As they always do, EPA officials divided that dose by a factor of 100 to account for the fact that rats and humans are different and some people have heightened sensitivity to chemicals.

Since the mid-1990s, the EPA has been required to divide again — this time by a factor of 10 — because Landrigan's panel found children are more vulnerable than adults. This protection may be removed only if "such margin will be safe for infants and children."

In the case of 2,4-D, the EPA kept it in place because its scientists couldn't tell whether 2,4-D disrupts hormones, immunity and neurological development.

When the dividing was done, the EPA under President George W. Bush set the acceptable daily intake of 2,4-D at 0.005 mg/kg. Separate calculations showed that nobody was consuming too much, the EPA said at the time.

That same year, 2005, the EPA ordered the manufacturers to conduct two new studies that could answer the remaining questions about safety — research that ultimately would lead to the weakening of consumer protections.

One study was to expose adult rats and two generations of offspring to 2,4-D while looking for immune system problems, thyroid effects and toxicity in other organs. Another would scrutinize neurological development in offspring.

But with the EPA's permission, Dow rolled the studies into one and halted what would become the most important evaluation of 2,4-D after breeding just one generation of rats.

A new GMO vision

Abel Uribe / Chicago Tribune

Farmers visit the Dow AgroSciences tent Aug. 27, 2014, at the Farm Progress Show in central Iowa.

Farmers visit the Dow AgroSciences tent Aug. 27, 2014, at the Farm Progress Show in central Iowa. (Abel Uribe / Chicago Tribune)

Dow's study design, which called for breeding a second generation only if certain problems were evident in the first, was crafted by a committee of the ILSI Health and Environmental Sciences Institute, a nonprofit that receives much of its funding from chemical, food and pharmaceutical companies.

The committee included scientists from pesticide giants Dow, Syngenta, Bayer and DuPont, as well as one from Exponent, a scientific consulting firm. In addition to providing regulatory help to pesticide-makers and other companies, Exponent is "the go-to firm at the top of the pyramid" for companies that face a lawsuit, a product recall or a government crackdown, Exponent's financial chief told Wall Street analysts this year.

One of the few EPA members on the committee later went to work for Exponent. Bus, who helped lead the Dow study, joined Exponent after he retired; he still consults for Dow on 2,4-D.

Officials from the EPA and Dow say the committee's study design rigorously assesses many potential toxic effects from conception to adulthood while sacrificing fewer animals. The Organization for Economic Cooperation and Development, consisting of 34 countries, agrees and uses it as an international testing guideline.

But Paul Foster, a top toxicologist at the National Toxicology Program, said the study design has such "serious scientific weaknesses" that his arm of the federal government won't use it in its research. For example, the Dow study exposed rats to 2,4-D for four weeks before they mated. Foster said dosing should last 10 weeks to cover the entire time it takes rats to make sperm.

Moreover, though a 2011 analysis of 498 studies concluded the second generation "will very rarely provide critical information," Foster said it's important to find those rare instances of harm.

"Everyone wants to use the minimum number of animals to generate quality data, but there comes a time when you don't want to cut the corners too much," Foster said.

Bus said EPA and Canadian regulators, who reviewed data while the study was in progress, decided breeding a second generation wasn't warranted.

In 2010, Bus and his colleagues reported the results in a poster presentation at the Society of Toxicology's annual meeting. By then, Dow's field trials had demonstrated the genetically modified crops were viable, and the march of superweeds foretold potentially big sales.

A fearsome weed

Abel Uribe / Chicago Tribune

Palmer amaranth, the most feared of all agricultural weeds, is shown growing in an experimental corn and soybean field Aug. 12, 2014, west of Kankakee. The weed can dramatically reduce crop yields and make fields difficult to harvest if it's left untreated, said Aaron Hager, a University of Illinois weed scientist.

Palmer amaranth, the most feared of all agricultural weeds, is shown growing in an experimental corn and soybean field Aug. 12, 2014, west of Kankakee. The weed can dramatically reduce crop yields and make fields difficult to harvest if it's left untreated, said Aaron Hager, a University of Illinois weed scientist.

(Abel Uribe / Chicago Tribune)

The poster stated that 2,4-D did not cause immune, reproductive or neurological harm. Some rats experienced thyroid hormone changes, and some males had lighter-weight reproductive organs, but Dow scientists took the position that these effects were not adverse.

But they did find a problem with the kidneys. The poster said exposure-related kidney lesions occurred at a lower dose in male rat offspring than in their parents.

When two EPA scientists examined the Dow data that year, they came to the same conclusion. Both Dow and the EPA decided the no-adverse-effect level was the smallest dose tested in the offspring, an amount equivalent to about 7 mg/kg, records show.

Then something curious happened. The EPA and Dow scientists changed their minds.

More becomes OK

Six months later, the same EPA scientists revised the executive summary of their report, changing the crucial measure of toxicity.

The lesions that Dow scientists found in offspring at 7 mg/kg weren't harmful after all, EPA scientists Linda Taylor and Elizabeth Mendez wrote. They changed the no-adverse-effect level so that it was the same for both the rat offspring and parents: an amount equivalent to 21 mg/kg.

Dana Vogel, who oversees the EPA division that assesses herbicide health effects, told the Tribune the original report by Taylor and Mendez was based on "preliminary data — not the entire study but the first part of the study that came in."

In fact, there was nothing preliminary about the data, and no details were missing. The facts that Taylor and Mendez later cited to justify the change were all part of their original 108-page report, which scrutinized blood test results, organ weights and microscopic analysis at every stage of life.

Their observations were minutely detailed, describing the kidney problem as "a degenerative lesion involving the proximal convoluted tubules in the outer stripe of the outer zone of the medulla, which was multifocal in distribution."

What really led to the change of heart, interviews and an EPA document show, was a phone call from a Canadian pesticide regulator.

Lauri Stachiw was the Canadian government toxicologist who reviewed Dow's data as the study was unfolding. Stachiw told the Tribune she called Taylor and Mendez because she disagreed with their report.

Stachiw noted that Dow researchers found the kidney lesions only in male offspring at that lower dose and classified them as "very slight to slight degeneration" rather than severe. Those rats didn't have heavier kidneys, a different sign of trouble. For true toxicity, Stachiw said, she would expect moderate or severe lesions as well as heavier kidneys in those rats.

Though Dow scientists thought the lesions were harmful, Stachiw said: "I think they were just trying to be as conservative as possible, but being as conservative as possible isn't always correct science."

Stachiw, now retired, added, "If you cut your finger, it's an effect. Is it adverse compared to cutting your finger off? No."

In an interview, Mendez said she and Taylor looked at the data again after Stachiw called. Mendez said they decided the lesions Dow had labeled as toxic effects were actually a healthy response.

"It's a good thing that the kidney is gearing itself up for battle to get rid of the compound from the body," she said. Taylor declined to comment.

Bus, the Dow consultant, said the company did not influence Stachiw or the EPA. He said Dow was surprised when the EPA revised the no-adverse-effect level.

"We were totally out of the loop," Bus said.

Talking up Dow

Abel Uribe / Chicago Tribune

Farmers and their children listen to Dow representatives talk about the company's new GMO crops and the weedkiller Enlist Duo in a baseball-themed presentation Sept. 2, 2015, at the Farm Progress Show in Decatur, Ill.

Farmers and their children listen to Dow representatives talk about the company's new GMO crops and the weedkiller Enlist Duo in a baseball-themed presentation Sept. 2, 2015, at the Farm Progress Show in Decatur, Ill.

(Abel Uribe / Chicago Tribune)

When the Society of Toxicology's journal published the Dow study results in 2013, the article said the kidney lesions in the rat offspring dosed with 7 mg/kg "were judged to be not treatment related."

Bus said he and his colleagues adopted the position of the Canadian and EPA scientists. "It's not uncommon for reviewers to say, 'Wait a minute, we have an alternative interpretation of your data,'" he said. "... I would not have serious disagreement with how they interpreted that data."

Industry-funded researchers have found kidney trouble before in animals consuming low doses of 2,4-D, the Tribune found. An industry group representing Dow and other 2,4-D manufacturers submitted five studies to the EPA in the 1980s that documented kidney abnormalities in rats and mice at doses far lower than the one the agency now is using to set safety levels for people.

EPA scientists and the trade group agreed three decades ago that the kidney was the "target organ for toxicity" with anomalies seen at doses as low as 5 mg/kg, records show.

Bus said of those studies: "Earlier conclusions that might have been interpreted as adverse may not be considered adverse in more modern science."

Asked whether studies should be discounted when they're that old, the National Toxicology Program's Foster said, "You can look at the differences in study quality, but the way we remove kidneys and look at them under a microscope has not changed in the last 60 or 70 years."

The EPA's Mendez said her agency considered the "whole gamut of studies."

When she and Taylor raised the no-adverse-effect level to 21 mg/kg, they paved the way for the agency to reduce consumer protections.

EPA scientists had no remaining questions about the chemical's harmful effects, and there was no longer evidence of the special susceptibility of

children because the revised view of the Dow study held that the toxic effects in the offspring occurred at the same dose as in the parents. So, the agency dropped the tenfold child-safety factor.

Rather than dividing the rat dose by 1,000, as it had done a decade ago, the agency divided only by 100, resulting in a far less protective limit. Regulators set the allowable daily intake of 2,4-D for people at 0.21 mg/kg, 41 times more than the government had previously considered safe.

This was a victory for Dow because the calculations made it easier for the EPA to approve the new uses of 2,4-D the company needed in order to market its genetically modified crops. The agency could tell consumers these new uses wouldn't be harmful.

The Environmental Working Group, a nonprofit that is among those suing the EPA for approving Enlist Duo, scrutinized the Dow study results outlined in the EPA's official human health risk assessment. That document didn't mention that Taylor and Mendez had revised their interpretation.

Even so, a scientist for the nonprofit independently settled on the same measure of toxicity that the EPA and Dow initially had used: 7 mg/kg.

The group concluded that agency officials had "contradicted standard scientific practice" in choosing as their no-adverse-effect level a dose at which rats actually suffered multiple toxic effects — not just the kidney lesions but also the thyroid and reproductive organ changes.

That group also argued that the agency by law must apply the child-safety factor to its risk calculations because the offspring were more susceptible than the parents. Under that reasoning, the allowable daily intake would be 0.007 mg/kg.

The EPA's own worst-case exposure estimates, included in the official human health assessment, found toddlers could wind up consuming three times more than that.

Yet the agency, responding to critics, reassured the public that its scientists had determined that nobody would consume too much, even using the hypothetical limit of 0.007 mg/kg.

When the Tribune asked how that could be possible, the agency said its scientists made additional calculations based on more realistic assumptions of exposure, describing that step as a standard practice.

Those calculations, records show, estimated that toddlers could consume 0.0066 mg/kg of 2,4-D — just four ten-thousandths shy of the hypothetical limit.

The math, once again, worked in 2,4-D's favor.

The future of farming

Abel Uribe / Chicago Tribune

At the 2014 Farm Progress Show in central Iowa, Dow unveiled its vision of the future of American agriculture: rows of soybeans and corn plants genetically engineered to withstand 2,4-D and glyphosate.

At the 2014 Farm Progress Show in central Iowa, Dow unveiled its vision of the future of American agriculture: rows of soybeans and corn plants genetically engineered to withstand 2,4-D and glyphosate.

(Abel Uribe / Chicago Tribune)

A chemical future

At last year's Farm Progress Show in the heart of Iowa, Dow unveiled its vision of the future of American agriculture: rows of lush soybeans and towering corn plants genetically engineered to withstand 2,4-D and glyphosate.

This year, Dow didn't bother to plant those crops for the farm show held in Decatur, Ill. On display instead was an air of inevitability.

Ben Kaehler, Dow AgroSciences' U.S. sales leader, was there to extol the benefits of the crops. But rather than convincing farmers that the technology works, Kaehler tried to persuade them to plant Dow's offerings rather than Monsanto's proposed crops, which are immune to glyphosate and dicamba, a 1960s weedkiller.

The question wasn't whether to plant the next generation of genetically modified crops — it was which of those crops to plant.

On a faux brick wall in the Dow tent, a Wrigley Field-style scoreboard pitted Dow against Monsanto. Each inning featured a question about the crops or the different weedkillers, with salespeople revealing the answers one by one. Overhead, a banner beckoned: "Grow your field of dreams."

At that point, the only holdup for Dow was China, a major buyer of U.S. crops. Grain elevators here still are waiting for China's approval before agreeing to handle the new crops.

EPA moves to withdraw approval of controversial weed killer

ANDREW TAYLOR

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Now Dow also must address the concerns EPA raised last week about Enlist Duo's effects on endangered plants. An agency scientist noticed that a patent application for the product said it had "synergistic weed control" properties that made glyphosate and 2,4-D "more effective in combination than when applied individually."

Previously, the agency had maintained that the two chemicals were no more toxic together than they were on their own. That's why the health assessment of Dow's weedkiller hinged solely on the new risks posed by 2,4-D. Glyphosate already is widely used on corn and soybeans.

The EPA has asked the appellate court to rescind its approval of Enlist Duo while agency scientists decide whether a bigger no-spray zone is needed near the edge of farm fields. Dow said it's confident the issue can be resolved before spring planting.

The EPA told the Tribune it isn't reopening its human health risk assessment. William Jordan, deputy director of the agency's Office of Pesticide Programs, said the combination of 2,4-D and glyphosate doesn't create added risk for people. Jordan cited tests in which researchers gave large one-time doses of Enlist Duo to rats, rabbits, birds and fish, then monitored the animals for two weeks. There was no increased toxicity from the mixture, he said.

Landrigan, the pediatrician whose work led to the lead-paint ban, is more concerned about the long-term health effects of the chemical mixture. One-time doses and short-term monitoring don't address that.

The EPA said it has no plans to ask Dow for studies that chronically dose rats with the combination of 2,4-D and glyphosate.

For anyone concerned about exposure to toxic weedkillers, a different disclosure in Dow's patent applications may be more telling.

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From: Jones, Jim
Sent: Thursday, December 03, 2015 7:39 AM
To: Strauss, Linda
Subject: Re: chicago tribune article

Can't access can you send in a note. Jim

Sent from my iPhone

On Dec 3, 2015, at 7:31 AM, Strauss, Linda <Strauss.Linda@epa.gov> wrote:

> http://www.chicagotribune.com/news/watchdog/ct-gmo-crops-pesticide-resistance-met-20151203-story.html

To: Jones, Jim[Jones.Jim@epa.gov]; Wise, Louise[Wise.Louise@epa.gov]; Sterling, Sherry[Sterling.Sherry@epa.gov]; Mojica, Andrea[Mojica.andrea@epa.gov]; Dunton, Cheryl[Dunton.Cheryl@epa.gov]; Housenger, Jack[Housenger.Jack@epa.gov]; Jordan, William[Jordan.William@epa.gov]; Keigwin, Richard[Keigwin.Richard@epa.gov]; Sisco, Debby[Sisco.Debby@epa.gov]; Overstreet, Anne[overstreet.anne@epa.gov]; Han, Kaythi[Han.Kaythi@epa.gov]; Lee, Monica[Lee.Monica@epa.gov]; Milbourn, Cathy[Milbourn.Cathy@epa.gov]
From: Strauss, Linda
Sent: Thur 12/3/2015 12:53:40 PM
Subject: chicago tribune- cut and paste

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http://www.chicagotribune.com/news/watchdog/ct-gmo-crops-pesticide-resistance-met-20151203-story.html

Watchdog: EPA tosses aside safety data, says Dow pesticide for GMOs won't harm people

Weedkiller's revival is cause for concern

A Chicago Tribune investigation finds that the Environmental Protection Agency discounted safety data for a World War II-era chemical called 2,4-D that has been linked to cancer and other

health problems. It soon could be available for use as a weedkiller on genetically modified crops.

Patricia CallahanContact Reporter Chicago Tribune

How the EPA cleared the way for Dow to revive a worrisome old pesticide for new GMO crops.

When Monsanto genetically engineered corn and soybeans to make them immune to its best-selling weedkiller, the company pitched the technology as a way to reduce overall use of herbicides and usher in an environmentally friendly era of farming.

Instead of relying on older, more harmful chemicals, farmers could douse their fields with Roundup, a product that Monsanto once advertised as less toxic than table salt.

Two decades later, overuse of Roundup on genetically modified crops has spawned weeds that can survive spraying to grow 8 feet tall with stems as thick as baseball bats. To kill those so-called superweeds, chemical giants are giving the next wave of genetically modified corn and soybeans immunity to the weedkillers of generations past.

The technology that was supposed to make those older herbicides obsolete soon could make it possible for farmers to use a lot more.

For use on its new genetically engineered corn and soybeans, Dow Chemical Co. is reviving 2,4-D, a World War II-era chemical linked to cancer and other health problems.

If these crops are widely adopted, the government's maximum-exposure projections show that U.S. children ages 1 to 12 could consume levels of 2,4-D that the World Health Organization, Russia, Australia, Korea, Canada, Brazil and China consider unsafe.

The U.S. Environmental Protection Agency had considered that exposure dangerous for decades as well. But the Obama administration's EPA now says it is safe to allow 41 times more 2,4-D into the American diet than before he took office.

To reach that conclusion, the Tribune found, the agency's scientists changed their analysis of a pivotal rat study by Dow, tossing aside signs of kidney trouble that Dow researchers said were caused by 2,4-D.

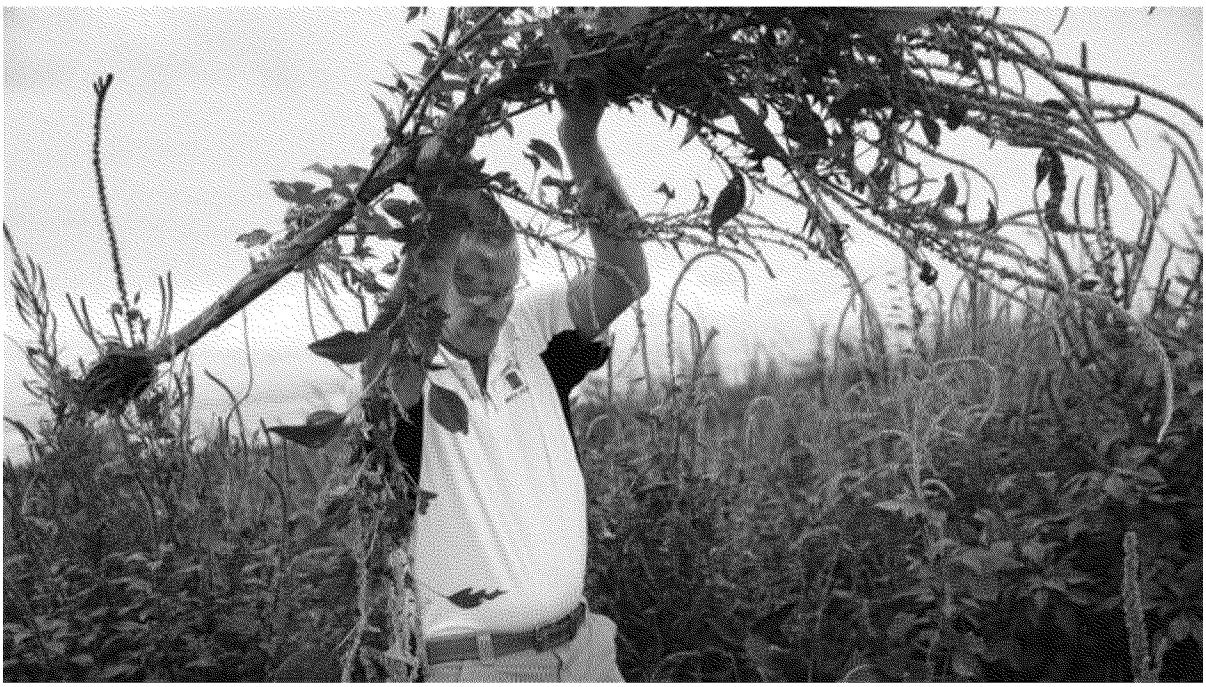
The EPA scientists who revised that crucial document were persuaded by a Canadian government toxicologist who decided that Dow — a company that has a $1 billion product at stake — had been overly cautious in flagging kidney abnormalities that she deemed insignificant.

When Dow later published this study, the company's scientists likewise dismissed their earlier concerns and changed the most important measure of the chemical's toxicity so it agreed with the EPA's less stringent view.

These decisions paved the way for the EPA to approve Dow's weedkiller, Enlist Duo, last year

and reassure the public that a surge in 2,4-D use wouldn't hurt anyone.

Girding that reassurance are two calculations: How much of the herbicide is safe for human health, and how much will Americans wind up consuming? There are ways to tweak each of those risk calculations. With 2,4-D, the Tribune found, the EPA's math favored a dramatic increase in the weedkiller.



Superweeds

Abel Uribe / Chicago Tribune

Aaron Hager, a University of Illinois weed scientist, pulls up a Palmer amaranth plant, part of the pigweed family, to show how thick and large the plants can get in just a few weeks, at a soybean field Aug. 12, 2014, west of Kankakee. He has been studying the weed's growth and ways to kill it without killing soybean plants.

Federal law has required the EPA to protect children from pesticides — chemicals that kill weeds, insects or other harmful organisms — since a National Research Council panel warned lawmakers in the 1990s that exposing fetuses and young kids to these compounds can cause lifelong damage at doses that wouldn't hurt their parents.

Dr. Philip Landrigan, the pediatrician who chaired that panel, is so alarmed by the potential spike in children's exposure to 2,4-D that for the last year he has urged EPA Administrator Gina McCarthy to reject the "notoriously toxic herbicide." He is calling for the federal National Toxicology Program to assess the safety of the mix of weedkillers that would be used on new genetically modified crops.

When Landrigan learned from the Tribune that EPA and Dow scientists had changed their minds about kidney anomalies found in exposed rats, he was shocked.

"If the tables were turned, and a group of scientists published a paper showing some adverse effect from 2,4-D, I have no doubt that Dow would say a second and third study were needed," said Landrigan, whose research on childhood lead exposure helped prompt the removal of lead from gasoline and paint. "And yet, Dow is saying we need to trust this one study where results were reinterpreted midstream. There's reason to raise doubt here."

Dow said 2,4-D is safe and is one of the most extensively studied pesticides in history. James Bus, a former Dow toxicologist who worked on the company's recent rat study, said the EPA's evaluation of 2,4-D relies on state-of-the-art science and "stands as an example of how it should be done."

"We know from 70 years of exposure that 2,4-D has not presented health problems," Bus said. Studies that suggest such a link are flawed, and increased use will not put anyone at risk, he added.

For its part, the EPA said its scientific vetting ensures that any pesticide residues left in food and water won't cause harm. The Dow rat study reveals that 2,4-D is less toxic to people than once thought, agency officials say.

"It is EPA's understanding that other governments do agree with our interpretation of the new study, but have not yet incorporated the results into their 2,4-D reviews," EPA spokeswoman Cathy Milbourn said in a written statement.

In a surprise move last week, the EPA asked the U.S. 9th Circuit Court of Appeals to vacate the agency's approval so its scientists could review new data. But EPA officials made it clear they don't intend to bar the product permanently.

The holdup has nothing to do with human health. Enlist Duo combines 2,4-D and glyphosate, the main ingredient in Roundup, and the agency said it wanted to iron out concerns that the two chemicals combined are more toxic to endangered plants than either of the chemicals separately.

As far as people's health is concerned, though, the agency maintains that Enlist Duo is perfectly safe. Even if American farmers spray 2,4-D on every acre of corn and soybeans — crops that serve as the building blocks of processed foods and fatten farm animals — it still won't harm consumers, the EPA said.

So confident is Dow that the agency's concerns about endangered plants can be resolved quickly that the title of its news release last week read: "Dow Expects Enlist Duo to be Available for the 2016 U.S. Crop Season."

Today 94 percent of soybeans and 89 percent of corn planted in the U.S. are genetically engineered to survive herbicides, primarily the glyphosate in Roundup. But no one is comparing glyphosate to table salt anymore, with the WHO's cancer research agency now labeling it a

probable carcinogen. And no one is hailing it as an agricultural savior.

More than 60 million acres of U.S. cropland are being choked by weeds that glyphosate can't kill. In response, chemical companies and federal regulators are advising farmers not to substitute one weedkiller for another but to add more.

Even some scientists who have spent their professional lives eradicating weeds oppose the new genetically modified crops and the chemical future they foreshadow.

"Those herbicide increases are not OK," said David Mortensen, a professor of weed and applied plant ecology at Pennsylvania State University. "To me, that is unconscionable that we can be OK with that, and I'm not an anti-chemical radical."

How much is too much?

Many people complain that eating genetically modified food could endanger their health. But it's the weedkillers used on genetically modified crops, not the corn and soy, that scientists have repeatedly found to cause harm.

Herbicides linger in the water Americans drink, in the air they breathe and on the foods they eat. Children are especially vulnerable because they take in more food, water and air, relative to their weight, than adults.

That's why scientists study weedkillers so closely and why regulators scrutinize them more heavily than other industrial chemicals.

Weedkiller-resistant corn

Abel Uribe / Chicago Tribune

Corn plants genetically engineered to withstand Dow's new weedkiller combining 2,4-D and glyphosate are on display Aug. 27, 2014, inside the Dow AgroSciences tent at the Farm Progress Show in Iowa.

(Abel Uribe / Chicago Tribune)

The fact that 2,4-D was a main component of the Vietnam War-era defoliant Agent Orange made the chemical infamous, even though it was dioxin contamination of a different ingredient that brought harm to troops and villagers.

Over the years, federal and university researchers showed 2,4-D was worrisome on its own. Studies found increased odds of developing non-Hodgkin lymphoma, hypothyroidism and Parkinson's disease among people who used the chemical as part of their jobs. In June, the WHO's cancer research agency ruled that 2,4-D is a possible carcinogen.

But EPA scientists aren't convinced that 2,4-D causes any of those diseases because other studies reached different conclusions.

Though it wasn't widely used on corn and soybeans, 2,4-D has been a go-to chemical for wheat growers, ranchers and golf course groundskeepers. When the EPA in the early 2000s revisited the safety of 2,4-D as part of a wider review of pesticides long on the market, the goal was to determine from animal testing how much 2,4-D people could safely consume.

Such tests are carried out or commissioned by chemical-makers, even though they have a vested interest in the results.

The EPA relied on a 1995 Dow study that found rats dosed daily with 75 milligrams of pure 2,4-D per kilogram of body weight (or mg/kg) over a two-year period gained less weight and experienced changes in kidney, thyroid, liver, lung, reproductive organ and blood chemistry measures compared with untreated rats.

Rats that consumed the next lowest dose — 5 mg/kg — showed no ill effects. This is called the "no observed adverse effect level," and it's the most important measure in a pesticide toxicity study.

Next came a series of math exercises. As they always do, EPA officials divided that dose by a factor of 100 to account for the fact that rats and humans are different and some people have heightened sensitivity to chemicals.

Since the mid-1990s, the EPA has been required to divide again — this time by a factor of 10 — because Landrigan's panel found children are more vulnerable than adults. This protection may be removed only if "such margin will be safe for infants and children."

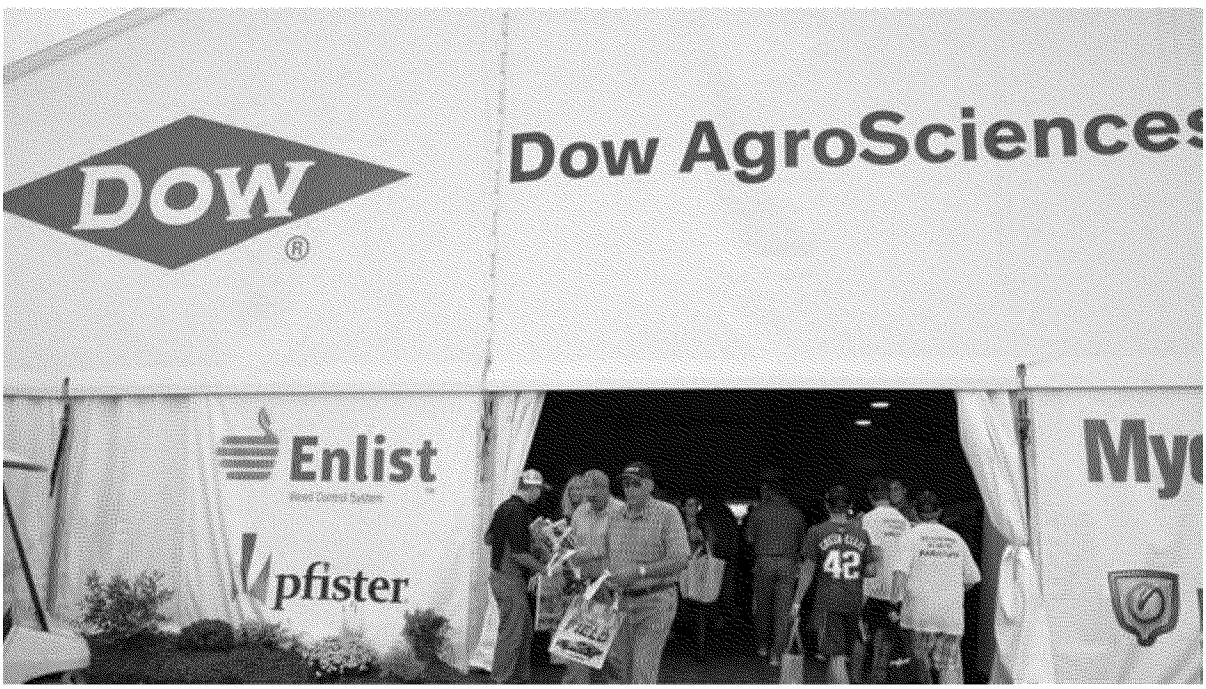
In the case of 2,4-D, the EPA kept it in place because its scientists couldn't tell whether 2,4-D disrupts hormones, immunity and neurological development.

When the dividing was done, the EPA under President George W. Bush set the acceptable daily intake of 2,4-D at 0.005 mg/kg. Separate calculations showed that nobody was consuming too much, the EPA said at the time.

That same year, 2005, the EPA ordered the manufacturers to conduct two new studies that could answer the remaining questions about safety — research that ultimately would lead to the weakening of consumer protections.

One study was to expose adult rats and two generations of offspring to 2,4-D while looking for immune system problems, thyroid effects and toxicity in other organs. Another would scrutinize neurological development in offspring.

But with the EPA's permission, Dow rolled the studies into one and halted what would become the most important evaluation of 2,4-D after breeding just one generation of rats.



A new GMO vision

Abel Uribe / Chicago Tribune

Farmers visit the Dow AgroSciences tent Aug. 27, 2014, at the Farm Progress Show in central Iowa. (Abel Uribe / Chicago Tribune)

Dow's study design, which called for breeding a second generation only if certain problems were evident in the first, was crafted by a committee of the ILSI Health and Environmental Sciences

Institute, a nonprofit that receives much of its funding from chemical, food and pharmaceutical companies.

The committee included scientists from pesticide giants Dow, Syngenta, Bayer and DuPont, as well as one from Exponent, a scientific consulting firm. In addition to providing regulatory help to pesticide-makers and other companies, Exponent is "the go-to firm at the top of the pyramid" for companies that face a lawsuit, a product recall or a government crackdown, Exponent's financial chief told Wall Street analysts this year.

One of the few EPA members on the committee later went to work for Exponent. Bus, who helped lead the Dow study, joined Exponent after he retired; he still consults for Dow on 2,4-D.

Officials from the EPA and Dow say the committee's study design rigorously assesses many potential toxic effects from conception to adulthood while sacrificing fewer animals. The Organization for Economic Cooperation and Development, consisting of 34 countries, agrees and uses it as an international testing guideline.

But Paul Foster, a top toxicologist at the National Toxicology Program, said the study design has such "serious scientific weaknesses" that his arm of the federal government won't use it in its research. For example, the Dow study exposed rats to 2,4-D for four weeks before they mated. Foster said dosing should last 10 weeks to cover the entire time it takes rats to make sperm.

Moreover, though a 2011 analysis of 498 studies concluded the second generation "will very rarely provide critical information," Foster said it's important to find those rare instances of harm.

"Everyone wants to use the minimum number of animals to generate quality data, but there comes a time when you don't want to cut the corners too much," Foster said.

Bus said EPA and Canadian regulators, who reviewed data while the study was in progress, decided breeding a second generation wasn't warranted.

In 2010, Bus and his colleagues reported the results in a poster presentation at the Society of Toxicology's annual meeting. By then, Dow's field trials had demonstrated the genetically modified crops were viable, and the march of superweeds foretold potentially big sales.

A fearsome weed

Abel Uribe / Chicago Tribune

Palmer amaranth, the most feared of all agricultural weeds, is shown growing in an experimental corn and soybean field Aug. 12, 2014, west of Kankakee. The weed can dramatically reduce crop yields and make fields difficult to harvest if it's left untreated, said Aaron Hager, a University of Illinois weed scientist.

(Abel Uribe / Chicago Tribune)

The poster stated that 2,4-D did not cause immune, reproductive or neurological harm. Some rats experienced thyroid hormone changes, and some males had lighter-weight reproductive organs, but Dow scientists took the position that these effects were not adverse.

But they did find a problem with the kidneys. The poster said exposure-related kidney lesions occurred at a lower dose in male rat offspring than in their parents.

When two EPA scientists examined the Dow data that year, they came to the same conclusion. Both Dow and the EPA decided the no-adverse-effect level was the smallest dose tested in the offspring, an amount equivalent to about 7 mg/kg, records show.

Then something curious happened. The EPA and Dow scientists changed their minds.

More becomes OK

Six months later, the same EPA scientists revised the executive summary of their report,

changing the crucial measure of toxicity.

The lesions that Dow scientists found in offspring at 7 mg/kg weren't harmful after all, EPA scientists Linda Taylor and Elizabeth Mendez wrote. They changed the no-adverse-effect level so that it was the same for both the rat offspring and parents: an amount equivalent to 21 mg/kg.

Dana Vogel, who oversees the EPA division that assesses herbicide health effects, told the Tribune the original report by Taylor and Mendez was based on "preliminary data — not the entire study but the first part of the study that came in."

In fact, there was nothing preliminary about the data, and no details were missing. The facts that Taylor and Mendez later cited to justify the change were all part of their original 108-page report, which scrutinized blood test results, organ weights and microscopic analysis at every stage of life.

Their observations were minutely detailed, describing the kidney problem as "a degenerative lesion involving the proximal convoluted tubules in the outer stripe of the outer zone of the medulla, which was multifocal in distribution."

What really led to the change of heart, interviews and an EPA document show, was a phone call from a Canadian pesticide regulator.

Lauri Stachiw was the Canadian government toxicologist who reviewed Dow's data as the study was unfolding. Stachiw told the Tribune she called Taylor and Mendez because she disagreed with their report.

Stachiw noted that Dow researchers found the kidney lesions only in male offspring at that lower dose and classified them as "very slight to slight degeneration" rather than severe. Those rats didn't have heavier kidneys, a different sign of trouble. For true toxicity, Stachiw said, she would expect moderate or severe lesions as well as heavier kidneys in those rats.

Though Dow scientists thought the lesions were harmful, Stachiw said: "I think they were just trying to be as conservative as possible, but being as conservative as possible isn't always correct science."

Stachiw, now retired, added, "If you cut your finger, it's an effect. Is it adverse compared to cutting your finger off? No."

In an interview, Mendez said she and Taylor looked at the data again after Stachiw called. Mendez said they decided the lesions Dow had labeled as toxic effects were actually a healthy response.

"It's a good thing that the kidney is gearing itself up for battle to get rid of the compound from the body," she said. Taylor declined to comment.

Bus, the Dow consultant, said the company did not influence Stachiw or the EPA. He said Dow

was surprised when the EPA revised the no-adverse-effect level.

"We were totally out of the loop," Bus said.

Talking up Dow

Abel Uribe / Chicago Tribune

Farmers and their children listen to Dow representatives talk about the company's new GMO crops and the weedkiller Enlist Duo in a baseball-themed presentation Sept. 2, 2015, at the Farm Progress Show in Decatur, Ill.

(Abel Uribe / Chicago Tribune)

When the Society of Toxicology's journal published the Dow study results in 2013, the article said the kidney lesions in the rat offspring dosed with 7 mg/kg "were judged to be not treatment related."

Bus said he and his colleagues adopted the position of the Canadian and EPA scientists. "It's not uncommon for reviewers to say, 'Wait a minute, we have an alternative interpretation of your data,'" he said. "... I would not have serious disagreement with how they interpreted that data."

Industry-funded researchers have found kidney trouble before in animals consuming low doses of 2,4-D, the Tribune found. An industry group representing Dow and other 2,4-D manufacturers submitted five studies to the EPA in the 1980s that documented kidney abnormalities in rats and mice at doses far lower than the one the agency now is using to set safety levels for people.

EPA scientists and the trade group agreed three decades ago that the kidney was the "target organ for toxicity" with anomalies seen at doses as low as 5 mg/kg, records show.

Bus said of those studies: "Earlier conclusions that might have been interpreted as adverse may not be considered adverse in more modern science."

Asked whether studies should be discounted when they're that old, the National Toxicology Program's Foster said, "You can look at the differences in study quality, but the way we remove kidneys and look at them under a microscope has not changed in the last 60 or 70 years."

The EPA's Mendez said her agency considered the "whole gamut of studies."

When she and Taylor raised the no-adverse-effect level to 21 mg/kg, they paved the way for the agency to reduce consumer protections.

EPA scientists had no remaining questions about the chemical's harmful effects, and there was no longer evidence of the special susceptibility of children because the revised view of the Dow study held that the toxic effects in the offspring occurred at the same dose as in the parents. So, the agency dropped the tenfold child-safety factor.

Rather than dividing the rat dose by 1,000, as it had done a decade ago, the agency divided only by 100, resulting in a far less protective limit. Regulators set the allowable daily intake of 2,4-D for people at 0.21 mg/kg, 41 times more than the government had previously considered safe.

This was a victory for Dow because the calculations made it easier for the EPA to approve the new uses of 2,4-D the company needed in order to market its genetically modified crops. The agency could tell consumers these new uses wouldn't be harmful.

The Environmental Working Group, a nonprofit that is among those suing the EPA for approving Enlist Duo, scrutinized the Dow study results outlined in the EPA's official human health risk assessment. That document didn't mention that Taylor and Mendez had revised their interpretation.

Even so, a scientist for the nonprofit independently settled on the same measure of toxicity that the EPA and Dow initially had used: 7 mg/kg.

The group concluded that agency officials had "contradicted standard scientific practice" in choosing as their no-adverse-effect level a dose at which rats actually suffered multiple toxic effects — not just the kidney lesions but also the thyroid and reproductive organ changes.

That group also argued that the agency by law must apply the child-safety factor to its risk calculations because the offspring were more susceptible than the parents. Under that reasoning, the allowable daily intake would be 0.007 mg/kg.

The EPA's own worst-case exposure estimates, included in the official human health assessment, found toddlers could wind up consuming three times more than that.

Yet the agency, responding to critics, reassured the public that its scientists had determined that nobody would consume too much, even using the hypothetical limit of 0.007 mg/kg.

When the Tribune asked how that could be possible, the agency said its scientists made additional calculations based on more realistic assumptions of exposure, describing that step as a standard practice.

Those calculations, records show, estimated that toddlers could consume 0.0066 mg/kg of 2,4-D — just four ten-thousandths shy of the hypothetical limit.

The math, once again, worked in 2,4-D's favor.

The future of farming

Abel Uribe / Chicago Tribune

At the 2014 Farm Progress Show in central Iowa, Dow unveiled its vision of the future of American agriculture: rows of soybeans and corn plants genetically engineered to withstand 2,4-D and glyphosate.

(Abel Uribe / Chicago Tribune)

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At that point, the only holdup for Dow was China, a major buyer of U.S. crops. Grain elevators here still are waiting for China's approval before agreeing to handle the new crops.

EPA moves to withdraw approval of controversial weed killer

ANDREW TAYLOR

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The EPA has asked the appellate court to rescind its approval of Enlist Duo while agency scientists decide whether a bigger no-spray zone is needed near the edge of farm fields. Dow said it's confident the issue can be resolved before spring planting.

The EPA told the Tribune it isn't reopening its human health risk assessment. William Jordan, deputy director of the agency's Office of Pesticide Programs, said the combination of 2,4-D and glyphosate doesn't create added risk for people. Jordan cited tests in which researchers gave large one-time doses of Enlist Duo to rats, rabbits, birds and fish, then monitored the animals for two weeks. There was no increased toxicity from the mixture, he said.

Landrigan, the pediatrician whose work led to the lead-paint ban, is more concerned about the long-term health effects of the chemical mixture. One-time doses and short-term monitoring don't address that.

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For anyone concerned about exposure to toxic weedkillers, a different disclosure in Dow's patent applications may be more telling.

The company's application for its genetically modified corn and soybeans foreshadows the day when weeds develop resistance to glyphosate and 2,4-D. Dow, these records show, envisions adding traits to corn and soybeans so they can survive being sprayed with weedkillers from up to 17 different chemical families.

pcallahan@tribpub.com

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To: Jones, Jim[Jones.Jim@epa.gov]
Cc: Strauss, Linda[Strauss.Linda@epa.gov]
From: Lee, Monica
Sent: Thur 12/3/2015 2:43:58 PM
Subject: FW: chicago tribune- cut and paste

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,,,,,,,
Jim – Liz and I just discussed next steps– if you and Bill have a few minutes this morning, we should talk through the LTE and whatever else we need to do to respond to this. I'd like to come over so we can hash this out as soon as possible. I think multiple letters are needed, as well as a call to her editor. I talked to him on Thursday, and given his unwillingness to listen to our side, I probably need you or Bill on the phone to reiterate where she interprets the science completely incorrectly.

On Dec 3, 2015, at 7:53 AM, Strauss, Linda <Strauss.Linda@epa.gov> wrote:

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Patricia CallahanContact Reporter Chicago Tribune

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those so-called superweeds, chemical giants are giving the next wave of genetically modified corn and soybeans immunity to the weedkillers of generations past.

The technology that was supposed to make those older herbicides obsolete soon could make it possible for farmers to use a lot more.

For use on its new genetically engineered corn and soybeans, Dow Chemical Co. is reviving 2,4-D, a World War II-era chemical linked to cancer and other health problems.

If these crops are widely adopted, the government's maximum-exposure projections show that U.S. children ages 1 to 12 could consume levels of 2,4-D that the World Health Organization, Russia, Australia, Korea, Canada, Brazil and China consider unsafe.

The U.S. Environmental Protection Agency had considered that exposure dangerous for decades as well. But the Obama administration's EPA now says it is safe to allow 41 times more 2,4-D into the American diet than before he took office.

To reach that conclusion, the Tribune found, the agency's scientists changed their analysis of a pivotal rat study by Dow, tossing aside signs of kidney trouble that Dow researchers said were caused by 2,4-D.

The EPA scientists who revised that crucial document were persuaded by a Canadian government toxicologist who decided that Dow — a company that has a $1 billion product at stake — had been overly cautious in flagging kidney abnormalities that she deemed insignificant.

When Dow later published this study, the company's scientists likewise dismissed their earlier concerns and changed the most important measure of the chemical's toxicity so it agreed with the EPA's less stringent view.

These decisions paved the way for the EPA to approve Dow's weedkiller, Enlist Duo, last year and reassure the public that a surge in 2,4-D use wouldn't hurt anyone.

Girding that reassurance are two calculations: How much of the herbicide is safe for human health, and how much will Americans wind up consuming? There are ways to tweak each of those risk calculations. With 2,4-D, the Tribune found, the EPA's math favored a dramatic increase in the weedkiller.

Superweeds

Abel Uribe / Chicago Tribune

Aaron Hager, a University of Illinois weed scientist, pulls up a Palmer amaranth plant, part of the pigweed family, to show how thick and large the plants can get in just a few weeks, at a soybean field Aug. 12, 2014, west of Kankakee. He has been studying the weed's growth and ways to kill it without killing soybean plants.

Federal law has required the EPA to protect children from pesticides — chemicals that kill weeds, insects or other harmful organisms — since a National Research Council panel warned lawmakers in the 1990s that exposing fetuses and young kids to these compounds can cause lifelong damage at doses that wouldn't hurt their parents.

Dr. Philip Landrigan, the pediatrician who chaired that panel, is so alarmed by the potential spike in children's exposure to 2,4-D that for the last year he has urged EPA Administrator Gina McCarthy to reject the "notoriously toxic herbicide." He is calling for the federal National Toxicology Program to assess the safety of the mix of weedkillers that would be used on new genetically modified crops.

When Landrigan learned from the Tribune that EPA and Dow scientists had changed their minds about kidney anomalies found in exposed rats, he was shocked.

"If the tables were turned, and a group of scientists published a paper showing some adverse effect from 2,4-D, I have no doubt that Dow would say a second and third study were needed," said Landrigan, whose research on childhood lead exposure helped prompt the removal of lead from gasoline and paint. "And yet, Dow is saying we need to trust this one study where results were reinterpreted midstream. There's reason to raise doubt here."

Dow said 2,4-D is safe and is one of the most extensively studied pesticides in history. James Bus, a former Dow toxicologist who worked on the company's recent rat study, said the EPA's evaluation of 2,4-D relies on state-of-the-art science and "stands as an example of how it should be done."

"We know from 70 years of exposure that 2,4-D has not presented health problems," Bus said. Studies that suggest such a link are flawed, and increased use will not put anyone at risk, he added.

For its part, the EPA said its scientific vetting ensures that any pesticide residues left in food and water won't cause harm. The Dow rat study reveals that 2,4-D is less toxic to people than once thought, agency officials say.

"It is EPA's understanding that other governments do agree with our interpretation of the new study, but have not yet incorporated the results into their 2,4-D reviews," EPA spokeswoman Cathy Milbourn said in a written statement.

In a surprise move last week, the EPA asked the U.S. 9th Circuit Court of Appeals to vacate the agency's approval so its scientists could review new data. But EPA officials made it clear they don't intend to bar the product permanently.

The holdup has nothing to do with human health. Enlist Duo combines 2,4-D and glyphosate, the main ingredient in Roundup, and the agency said it wanted to iron out concerns that the two chemicals combined are more toxic to endangered plants than either of the chemicals separately.

As far as people's health is concerned, though, the agency maintains that Enlist Duo is perfectly safe. Even if American farmers spray 2,4-D on every acre of corn and soybeans — crops that serve as the building blocks of processed foods and fatten farm animals — it still won't harm consumers, the EPA said.

So confident is Dow that the agency's concerns about endangered plants can be resolved quickly that the title of its news release last week read: "Dow Expects Enlist Duo to be Available for the 2016 U.S. Crop Season."

Today 94 percent of soybeans and 89 percent of corn planted in the U.S. are genetically engineered to survive herbicides, primarily the glyphosate in Roundup. But no one is comparing glyphosate to table salt anymore, with the WHO's cancer research agency now labeling it a probable carcinogen. And no one is hailing it as an agricultural savior.

More than 60 million acres of U.S. cropland are being choked by weeds that glyphosate can't kill. In response, chemical companies and federal regulators are advising farmers not to substitute one weedkiller for another but to add more.

Even some scientists who have spent their professional lives eradicating weeds oppose the new genetically modified crops and the chemical future they foreshadow.

"Those herbicide increases are not OK," said David Mortensen, a professor of weed and applied plant ecology at Pennsylvania State University. "To me, that is unconscionable that we can be OK with that, and I'm not an anti-chemical radical."

How much is too much?

Many people complain that eating genetically modified food could endanger their health. But it's the weedkillers used on genetically modified crops, not the corn and soy, that scientists have repeatedly found to cause harm.

Herbicides linger in the water Americans drink, in the air they breathe and on the foods they eat. Children are especially vulnerable because they take in more food, water and air, relative to their weight, than adults.

That's why scientists study weedkillers so closely and why regulators scrutinize them more heavily than other industrial chemicals.

Weedkiller-resistant corn

Abel Uribe / Chicago Tribune

Corn plants genetically engineered to withstand Dow's new weedkiller combining 2,4-D and glyphosate are on display Aug. 27, 2014, inside the Dow AgroSciences tent at the Farm Progress Show in Iowa.

(Abel Uribe / Chicago Tribune)

The fact that 2,4-D was a main component of the Vietnam War-era defoliant Agent Orange made the chemical infamous, even though it was dioxin contamination of a different ingredient that brought harm to troops and villagers.

Over the years, federal and university researchers showed 2,4-D was worrisome on its own. Studies found increased odds of developing non-Hodgkin lymphoma, hypothyroidism and Parkinson's disease among people who used the chemical as part of their jobs. In June, the WHO's cancer research agency ruled that 2,4-D is a possible carcinogen.

But EPA scientists aren't convinced that 2,4-D causes any of those diseases because other studies reached different conclusions.

Though it wasn't widely used on corn and soybeans, 2,4-D has been a go-to chemical for wheat growers, ranchers and golf course groundskeepers. When the EPA in the early 2000s revisited the safety of 2,4-D as part of a wider review of pesticides long on the market, the goal was to determine from animal testing how much 2,4-D people could safely consume.

Such tests are carried out or commissioned by chemical-makers, even though they have a vested interest in the results.

The EPA relied on a 1995 Dow study that found rats dosed daily with 75 milligrams of pure 2,4-D per kilogram of body weight (or mg/kg) over a two-year period gained less weight and experienced changes in kidney, thyroid, liver, lung, reproductive organ and blood chemistry measures compared with untreated rats.

Rats that consumed the next lowest dose — 5 mg/kg — showed no ill effects. This is called the "no observed adverse effect level," and it's the most important measure in a pesticide toxicity study.

Next came a series of math exercises. As they always do, EPA officials divided that dose by a factor of 100 to account for the fact that rats and humans are different and some people have heightened sensitivity to chemicals.

Since the mid-1990s, the EPA has been required to divide again — this time by a factor of 10 — because Landrigan's panel found children are more vulnerable than adults. This protection may be removed only if "such margin will be safe for infants and children."

In the case of 2,4-D, the EPA kept it in place because its scientists couldn't tell whether 2,4-D disrupts hormones, immunity and neurological development.

When the dividing was done, the EPA under President George W. Bush set the acceptable daily intake of 2,4-D at 0.005 mg/kg. Separate calculations showed that nobody was consuming too much, the EPA said at the time.

That same year, 2005, the EPA ordered the manufacturers to conduct two new studies that could answer the remaining questions about safety — research that ultimately would lead to the weakening of consumer protections.

One study was to expose adult rats and two generations of offspring to 2,4-D while looking for immune system problems, thyroid effects and toxicity in other organs. Another would scrutinize neurological development in offspring.

But with the EPA's permission, Dow rolled the studies into one and halted what would become the most important evaluation of 2,4-D after breeding just one generation of rats.

A new GMO vision

Abel Uribe / Chicago Tribune

Farmers visit the Dow AgroSciences tent Aug. 27, 2014, at the Farm Progress Show in central Iowa. (Abel Uribe / Chicago Tribune)

Dow's study design, which called for breeding a second generation only if certain problems were evident in the first, was crafted by a committee of the ILSI Health and Environmental Sciences Institute, a nonprofit that receives much of its funding from chemical, food and pharmaceutical companies.

The committee included scientists from pesticide giants Dow, Syngenta, Bayer and DuPont, as well as one from Exponent, a scientific consulting firm. In addition to providing regulatory help to pesticide-makers and other companies, Exponent is "the go-to firm at the top of the pyramid" for companies that face a lawsuit, a product recall or a government crackdown, Exponent's financial chief told Wall Street analysts this year.

One of the few EPA members on the committee later went to work for Exponent. Bus, who helped lead the Dow study, joined Exponent after he retired; he still consults for Dow on 2,4-D.

Officials from the EPA and Dow say the committee's study design rigorously assesses many potential toxic effects from conception to adulthood while sacrificing fewer animals. The Organization for Economic Cooperation and Development, consisting of 34 countries, agrees and uses it as an international testing guideline.

But Paul Foster, a top toxicologist at the National Toxicology Program, said the study design has such "serious scientific weaknesses" that his arm of the federal government won't use it in its research. For example, the Dow study exposed rats to 2,4-D for four weeks before they mated. Foster said dosing should last 10 weeks to cover the entire time it takes rats to make sperm.

Moreover, though a 2011 analysis of 498 studies concluded the second generation "will

very rarely provide critical information," Foster said it's important to find those rare instances of harm.

"Everyone wants to use the minimum number of animals to generate quality data, but there comes a time when you don't want to cut the corners too much," Foster said.

Bus said EPA and Canadian regulators, who reviewed data while the study was in progress, decided breeding a second generation wasn't warranted.

In 2010, Bus and his colleagues reported the results in a poster presentation at the Society of Toxicology's annual meeting. By then, Dow's field trials had demonstrated the genetically modified crops were viable, and the march of superweeds foretold potentially big sales.

A fearsome weed

Abel Uribe / Chicago Tribune

Palmer amaranth, the most feared of all agricultural weeds, is shown growing in an experimental corn and soybean field Aug. 12, 2014, west of Kankakee. The weed can dramatically reduce crop yields and make fields difficult to harvest if it's left untreated, said Aaron Hager, a University of Illinois weed scientist.

(Abel Uribe / Chicago Tribune)

The poster stated that 2,4-D did not cause immune, reproductive or neurological harm. Some rats experienced thyroid hormone changes, and some males had lighter-weight reproductive organs, but Dow scientists took the position that these effects were not adverse.

But they did find a problem with the kidneys. The poster said exposure-related kidney lesions occurred at a lower dose in male rat offspring than in their parents.

When two EPA scientists examined the Dow data that year, they came to the same conclusion. Both Dow and the EPA decided the no-adverse-effect level was the smallest dose tested in the offspring, an amount equivalent to about 7 mg/kg, records show.

Then something curious happened. The EPA and Dow scientists changed their minds.

More becomes OK

Six months later, the same EPA scientists revised the executive summary of their report, changing the crucial measure of toxicity.

The lesions that Dow scientists found in offspring at 7 mg/kg weren't harmful after all, EPA scientists Linda Taylor and Elizabeth Mendez wrote. They changed the no-adverse-effect

level so that it was the same for both the rat offspring and parents: an amount equivalent to 21 mg/kg.

Dana Vogel, who oversees the EPA division that assesses herbicide health effects, told the Tribune the original report by Taylor and Mendez was based on "preliminary data — not the entire study but the first part of the study that came in."

In fact, there was nothing preliminary about the data, and no details were missing. The facts that Taylor and Mendez later cited to justify the change were all part of their original 108-page report, which scrutinized blood test results, organ weights and microscopic analysis at every stage of life.

Their observations were minutely detailed, describing the kidney problem as "a degenerative lesion involving the proximal convoluted tubules in the outer stripe of the outer zone of the medulla, which was multifocal in distribution."

What really led to the change of heart, interviews and an EPA document show, was a phone call from a Canadian pesticide regulator.

Lauri Stachiw was the Canadian government toxicologist who reviewed Dow's data as the study was unfolding. Stachiw told the Tribune she called Taylor and Mendez because she disagreed with their report.

Stachiw noted that Dow researchers found the kidney lesions only in male offspring at that lower dose and classified them as "very slight to slight degeneration" rather than severe. Those rats didn't have heavier kidneys, a different sign of trouble. For true toxicity, Stachiw said, she would expect moderate or severe lesions as well as heavier kidneys in those rats.

Though Dow scientists thought the lesions were harmful, Stachiw said: "I think they were just trying to be as conservative as possible, but being as conservative as possible isn't always correct science."

Stachiw, now retired, added, "If you cut your finger, it's an effect. Is it adverse compared to cutting your finger off? No."

In an interview, Mendez said she and Taylor looked at the data again after Stachiw called. Mendez said they decided the lesions Dow had labeled as toxic effects were actually a healthy response.

"It's a good thing that the kidney is gearing itself up for battle to get rid of the compound from the body," she said. Taylor declined to comment.

Bus, the Dow consultant, said the company did not influence Stachiw or the EPA. He said Dow was surprised when the EPA revised the no-adverse-effect level.

"We were totally out of the loop," Bus said.

Talking up Dow

Abel Uribe / Chicago Tribune

Farmers and their children listen to Dow representatives talk about the company's new GMO crops and the weedkiller Enlist Duo in a baseball-themed presentation Sept. 2, 2015, at the Farm Progress Show in Decatur, Ill.

(Abel Uribe / Chicago Tribune)

When the Society of Toxicology's journal published the Dow study results in 2013, the article said the kidney lesions in the rat offspring dosed with 7 mg/kg "were judged to be not treatment related."

Bus said he and his colleagues adopted the position of the Canadian and EPA scientists. "It's not uncommon for reviewers to say, 'Wait a minute, we have an alternative interpretation of your data,'" he said. "... I would not have serious disagreement with how they interpreted that data."

Industry-funded researchers have found kidney trouble before in animals consuming low doses of 2,4-D, the Tribune found. An industry group representing Dow and other 2,4-D manufacturers submitted five studies to the EPA in the 1980s that documented kidney abnormalities in rats and mice at doses far lower than the one the agency now is using to set safety levels for people.

EPA scientists and the trade group agreed three decades ago that the kidney was the "target organ for toxicity" with anomalies seen at doses as low as 5 mg/kg, records show.

Bus said of those studies: "Earlier conclusions that might have been interpreted as adverse may not be considered adverse in more modern science."

Asked whether studies should be discounted when they're that old, the National Toxicology Program's Foster said, "You can look at the differences in study quality, but the way we remove kidneys and look at them under a microscope has not changed in the last 60 or 70 years."

The EPA's Mendez said her agency considered the "whole gamut of studies."

When she and Taylor raised the no-adverse-effect level to 21 mg/kg, they paved the way for the agency to reduce consumer protections.

EPA scientists had no remaining questions about the chemical's harmful effects, and there was no longer evidence of the special susceptibility of children because the revised view of the Dow study held that the toxic effects in the offspring occurred at the same dose as in the parents. So, the agency dropped the tenfold child-safety factor.

Rather than dividing the rat dose by 1,000, as it had done a decade ago, the agency divided only by 100, resulting in a far less protective limit. Regulators set the allowable daily intake of 2,4-D for people at 0.21 mg/kg, 41 times more than the government had previously considered safe.

This was a victory for Dow because the calculations made it easier for the EPA to approve the new uses of 2,4-D the company needed in order to market its genetically modified crops. The agency could tell consumers these new uses wouldn't be harmful.

The Environmental Working Group, a nonprofit that is among those suing the EPA for approving Enlist Duo, scrutinized the Dow study results outlined in the EPA's official human health risk assessment. That document didn't mention that Taylor and Mendez had revised their interpretation.

Even so, a scientist for the nonprofit independently settled on the same measure of toxicity that the EPA and Dow initially had used: 7 mg/kg.

The group concluded that agency officials had "contradicted standard scientific practice" in choosing as their no-adverse-effect level a dose at which rats actually suffered multiple toxic effects — not just the kidney lesions but also the thyroid and reproductive organ changes.

That group also argued that the agency by law must apply the child-safety factor to its risk calculations because the offspring were more susceptible than the parents. Under that reasoning, the allowable daily intake would be 0.007 mg/kg.

The EPA's own worst-case exposure estimates, included in the official human health assessment, found toddlers could wind up consuming three times more than that.

Yet the agency, responding to critics, reassured the public that its scientists had determined that nobody would consume too much, even using the hypothetical limit of 0.007 mg/kg.

When the Tribune asked how that could be possible, the agency said its scientists made additional calculations based on more realistic assumptions of exposure, describing that step as a standard practice.

Those calculations, records show, estimated that toddlers could consume 0.0066 mg/kg of 2,4-D — just four ten-thousandths shy of the hypothetical limit.

The math, once again, worked in 2,4-D's favor.

The future of farming

Abel Uribe / Chicago Tribune

At the 2014 Farm Progress Show in central Iowa, Dow unveiled its vision of the future of American agriculture: rows of soybeans and corn plants genetically engineered to withstand 2,4-D and glyphosate.

(Abel Uribe / Chicago Tribune)

A chemical future

At last year's Farm Progress Show in the heart of Iowa, Dow unveiled its vision of the future of American agriculture: rows of lush soybeans and towering corn plants genetically engineered to withstand 2,4-D and glyphosate.

This year, Dow didn't bother to plant those crops for the farm show held in Decatur, Ill. On display instead was an air of inevitability.

Ben Kaehler, Dow AgroSciences' U.S. sales leader, was there to extol the benefits of the crops. But rather than convincing farmers that the technology works, Kaehler tried to persuade them to plant Dow's offerings rather than Monsanto's proposed crops, which are immune to glyphosate and dicamba, a 1960s weedkiller.

The question wasn't whether to plant the next generation of genetically modified crops — it was which of those crops to plant.

On a faux brick wall in the Dow tent, a Wrigley Field-style scoreboard pitted Dow against Monsanto. Each inning featured a question about the crops or the different weedkillers, with salespeople revealing the answers one by one. Overhead, a banner beckoned: "Grow your field of dreams."

At that point, the only holdup for Dow was China, a major buyer of U.S. crops. Grain elevators here still are waiting for China's approval before agreeing to handle the new crops.

EPA moves to withdraw approval of controversial weed killer

ANDREW TAYLOR

The Environmental Protection Agency is taking steps to withdraw approval of a controversial new weed killer to be used on genetically modified corn and soybeans. The EPA announced in a court filing that it had received new information from manufacturer Dow AgroSciences that a weed killer called...

(ANDREW TAYLOR)

Now Dow also must address the concerns EPA raised last week about Enlist Duo's effects on endangered plants. An agency scientist noticed that a patent application for the product said it had "synergistic weed control" properties that made glyphosate and 2,4-D "more effective in combination than when applied individually."

Previously, the agency had maintained that the two chemicals were no more toxic together than they were on their own. That's why the health assessment of Dow's weedkiller hinged solely on the new risks posed by 2,4-D. Glyphosate already is widely used on corn and soybeans.

The EPA has asked the appellate court to rescind its approval of Enlist Duo while agency scientists decide whether a bigger no-spray zone is needed near the edge of farm fields. Dow said it's confident the issue can be resolved before spring planting.

The EPA told the Tribune it isn't reopening its human health risk assessment. William Jordan, deputy director of the agency's Office of Pesticide Programs, said the combination of 2,4-D and glyphosate doesn't create added risk for people. Jordan cited tests in which researchers gave large one-time doses of Enlist Duo to rats, rabbits, birds and fish, then monitored the animals for two weeks. There was no increased toxicity from the mixture, he said.

Landrigan, the pediatrician whose work led to the lead-paint ban, is more concerned about the long-term health effects of the chemical mixture. One-time doses and short-term monitoring don't address that.

The EPA said it has no plans to ask Dow for studies that chronically dose rats with the combination of 2,4-D and glyphosate.

For anyone concerned about exposure to toxic weedkillers, a different disclosure in Dow's patent applications may be more telling.

The company's application for its genetically modified corn and soybeans foreshadows the day when weeds develop resistance to glyphosate and 2,4-D. Dow, these records show, envisions adding traits to corn and soybeans so they can survive being sprayed with weedkillers from up to 17 different chemical families.

pcallahan@tribpub.com

Twitter @TribuneTrish

To: Lee, Monica[Lee.Monica@epa.gov]; Jones, Jim[Jones.Jim@epa.gov]
From: Strauss, Linda
Sent: Thur 12/3/2015 2:49:43 PM
Subject: RE: chicago tribune- cut and paste

;;;;;;;;
;;;;;;;;
Monica, let me touch base with Bill. I sent a draft LTE to him/Debby to edit. Jim out till around 1 pm today.

Linda

Telework: 301-229-2553

From: Lee, Monica
Sent: Thursday, December 03, 2015 9:44 AM
To: Jones, Jim
Cc: Strauss, Linda
Subject: FW: chicago tribune- cut and paste

Jim – Liz and I just discussed next steps– if you and Bill have a few minutes this morning, we should talk through the LTE and whatever else we need to do to respond to this. I'd like to come over so we can hash this out as soon as possible. I think multiple letters are needed, as well as a call to her editor. I talked to him on Thursday, and given his unwillingness to listen to our side, I probably need you or Bill on the phone to reiterate where she interprets the science completely incorrectly.

On Dec 3, 2015, at 7:53 AM, Strauss, Linda <Strauss.Linda@epa.gov> wrote:

http://www.chicagotribune.com/news/watchdog/ct-gmo-crops-pesticide-resistance-met-20151203-story.html

Watchdog: EPA tosses aside safety data, says Dow pesticide for GMOs won't harm people

Weedkiller's revival is cause for concern

A Chicago Tribune investigation finds that the Environmental Protection Agency discounted safety data for a World War II-era chemical called 2,4-D that has been linked to cancer and other health problems. It soon could be available for use as a weedkiller on genetically modified crops.

Patricia CallahanContact Reporter Chicago Tribune

How the EPA cleared the way for Dow to revive a worrisome old pesticide for new GMO crops.

When Monsanto genetically engineered corn and soybeans to make them immune to its best-selling weedkiller, the company pitched the technology as a way to reduce overall use of herbicides and usher in an environmentally friendly era of farming.

Instead of relying on older, more harmful chemicals, farmers could douse their fields with Roundup, a product that Monsanto once advertised as less toxic than table salt.

Two decades later, overuse of Roundup on genetically modified crops has spawned weeds that can survive spraying to grow 8 feet tall with stems as thick as baseball bats. To kill those so-called superweeds, chemical giants are giving the next wave of genetically modified corn and soybeans immunity to the weedkillers of generations past.

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The EPA scientists who revised that crucial document were persuaded by a Canadian government toxicologist who decided that Dow — a company that has a $1 billion product at stake — had been overly cautious in flagging kidney abnormalities that she deemed insignificant.

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Superweeds

Abel Uribe / Chicago Tribune

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relative to their weight, than adults.

That's why scientists study weedkillers so closely and why regulators scrutinize them more heavily than other industrial chemicals.

Weedkiller-resistant corn

Abel Uribe / Chicago Tribune

Corn plants genetically engineered to withstand Dow's new weedkiller combining 2,4-D and glyphosate are on display Aug. 27, 2014, inside the Dow AgroSciences tent at the Farm Progress Show in Iowa.

(Abel Uribe / Chicago Tribune)

The fact that 2,4-D was a main component of the Vietnam War-era defoliant Agent Orange made the chemical infamous, even though it was dioxin contamination of a different ingredient that brought harm to troops and villagers.

Over the years, federal and university researchers showed 2,4-D was worrisome on its own. Studies found increased odds of developing non-Hodgkin lymphoma, hypothyroidism and Parkinson's disease among people who used the chemical as part of their jobs. In June, the WHO's cancer research agency ruled that 2,4-D is a possible carcinogen.

But EPA scientists aren't convinced that 2,4-D causes any of those diseases because other studies reached different conclusions.

Though it wasn't widely used on corn and soybeans, 2,4-D has been a go-to chemical for wheat growers, ranchers and golf course groundskeepers. When the EPA in the early 2000s revisited the safety of 2,4-D as part of a wider review of pesticides long on the market, the goal was to determine from animal testing how much 2,4-D people could safely consume.

Such tests are carried out or commissioned by chemical-makers, even though they have a vested interest in the results.

The EPA relied on a 1995 Dow study that found rats dosed daily with 75 milligrams of pure 2,4-D per kilogram of body weight (or mg/kg) over a two-year period gained less weight and experienced changes in kidney, thyroid, liver, lung, reproductive organ and blood chemistry measures compared with untreated rats.

Rats that consumed the next lowest dose — 5 mg/kg — showed no ill effects. This is called the "no observed adverse effect level," and it's the most important measure in a pesticide toxicity study.

Next came a series of math exercises. As they always do, EPA officials divided that dose by a factor of 100 to account for the fact that rats and humans are different and some people

have heightened sensitivity to chemicals.

Since the mid-1990s, the EPA has been required to divide again — this time by a factor of 10 — because Landrigan's panel found children are more vulnerable than adults. This protection may be removed only if "such margin will be safe for infants and children."

In the case of 2,4-D, the EPA kept it in place because its scientists couldn't tell whether 2,4-D disrupts hormones, immunity and neurological development.

When the dividing was done, the EPA under President George W. Bush set the acceptable daily intake of 2,4-D at 0.005 mg/kg. Separate calculations showed that nobody was consuming too much, the EPA said at the time.

That same year, 2005, the EPA ordered the manufacturers to conduct two new studies that could answer the remaining questions about safety — research that ultimately would lead to the weakening of consumer protections.

One study was to expose adult rats and two generations of offspring to 2,4-D while looking for immune system problems, thyroid effects and toxicity in other organs. Another would scrutinize neurological development in offspring.

But with the EPA's permission, Dow rolled the studies into one and halted what would become the most important evaluation of 2,4-D after breeding just one generation of rats.

A new GMO vision

Abel Uribe / Chicago Tribune

Farmers visit the Dow AgroSciences tent Aug. 27, 2014, at the Farm Progress Show in central Iowa. (Abel Uribe / Chicago Tribune)

Dow's study design, which called for breeding a second generation only if certain problems were evident in the first, was crafted by a committee of the ILSI Health and Environmental Sciences Institute, a nonprofit that receives much of its funding from chemical, food and pharmaceutical companies.

The committee included scientists from pesticide giants Dow, Syngenta, Bayer and DuPont, as well as one from Exponent, a scientific consulting firm. In addition to providing regulatory help to pesticide-makers and other companies, Exponent is "the go-to firm at the top of the pyramid" for companies that face a lawsuit, a product recall or a government crackdown, Exponent's financial chief told Wall Street analysts this year.

One of the few EPA members on the committee later went to work for Exponent. Bus, who helped lead the Dow study, joined Exponent after he retired; he still consults for Dow on 2,4-D.

Officials from the EPA and Dow say the committee's study design rigorously assesses many potential toxic effects from conception to adulthood while sacrificing fewer animals. The Organization for Economic Cooperation and Development, consisting of 34 countries, agrees and uses it as an international testing guideline.

But Paul Foster, a top toxicologist at the National Toxicology Program, said the study design has such "serious scientific weaknesses" that his arm of the federal government won't use it in its research. For example, the Dow study exposed rats to 2,4-D for four weeks before they mated. Foster said dosing should last 10 weeks to cover the entire time it takes rats to make sperm.

Moreover, though a 2011 analysis of 498 studies concluded the second generation "will very rarely provide critical information," Foster said it's important to find those rare instances of harm.

"Everyone wants to use the minimum number of animals to generate quality data, but there comes a time when you don't want to cut the corners too much," Foster said.

Bus said EPA and Canadian regulators, who reviewed data while the study was in progress, decided breeding a second generation wasn't warranted.

In 2010, Bus and his colleagues reported the results in a poster presentation at the Society of Toxicology's annual meeting. By then, Dow's field trials had demonstrated the genetically modified crops were viable, and the march of superweeds foretold potentially big sales.

A fearsome weed

Abel Uribe / Chicago Tribune

Palmer amaranth, the most feared of all agricultural weeds, is shown growing in an experimental corn and soybean field Aug. 12, 2014, west of Kankakee. The weed can dramatically reduce crop yields and make fields difficult to harvest if it's left untreated, said Aaron Hager, a University of Illinois weed scientist.

(Abel Uribe / Chicago Tribune)

The poster stated that 2,4-D did not cause immune, reproductive or neurological harm. Some rats experienced thyroid hormone changes, and some males had lighter-weight reproductive organs, but Dow scientists took the position that these effects were not adverse.

But they did find a problem with the kidneys. The poster said exposure-related kidney lesions occurred at a lower dose in male rat offspring than in their parents.

When two EPA scientists examined the Dow data that year, they came to the same

conclusion. Both Dow and the EPA decided the no-adverse-effect level was the smallest dose tested in the offspring, an amount equivalent to about 7 mg/kg, records show.

Then something curious happened. The EPA and Dow scientists changed their minds.

More becomes OK

Six months later, the same EPA scientists revised the executive summary of their report, changing the crucial measure of toxicity.

The lesions that Dow scientists found in offspring at 7 mg/kg weren't harmful after all, EPA scientists Linda Taylor and Elizabeth Mendez wrote. They changed the no-adverse-effect level so that it was the same for both the rat offspring and parents: an amount equivalent to 21 mg/kg.

Dana Vogel, who oversees the EPA division that assesses herbicide health effects, told the Tribune the original report by Taylor and Mendez was based on "preliminary data — not the entire study but the first part of the study that came in."

In fact, there was nothing preliminary about the data, and no details were missing. The facts that Taylor and Mendez later cited to justify the change were all part of their original 108-page report, which scrutinized blood test results, organ weights and microscopic analysis at every stage of life.

Their observations were minutely detailed, describing the kidney problem as "a degenerative lesion involving the proximal convoluted tubules in the outer stripe of the outer zone of the medulla, which was multifocal in distribution."

What really led to the change of heart, interviews and an EPA document show, was a phone call from a Canadian pesticide regulator.

Lauri Stachiw was the Canadian government toxicologist who reviewed Dow's data as the study was unfolding. Stachiw told the Tribune she called Taylor and Mendez because she disagreed with their report.

Stachiw noted that Dow researchers found the kidney lesions only in male offspring at that lower dose and classified them as "very slight to slight degeneration" rather than severe. Those rats didn't have heavier kidneys, a different sign of trouble. For true toxicity, Stachiw said, she would expect moderate or severe lesions as well as heavier kidneys in those rats.

Though Dow scientists thought the lesions were harmful, Stachiw said: "I think they were just trying to be as conservative as possible, but being as conservative as possible isn't always correct science."

Stachiw, now retired, added, "If you cut your finger, it's an effect. Is it adverse compared to cutting your finger off? No."

In an interview, Mendez said she and Taylor looked at the data again after Stachiw called. Mendez said they decided the lesions Dow had labeled as toxic effects were actually a healthy response.

"It's a good thing that the kidney is gearing itself up for battle to get rid of the compound from the body," she said. Taylor declined to comment.

Bus, the Dow consultant, said the company did not influence Stachiw or the EPA. He said Dow was surprised when the EPA revised the no-adverse-effect level.

"We were totally out of the loop," Bus said.

Talking up Dow

Abel Uribe / Chicago Tribune

Farmers and their children listen to Dow representatives talk about the company's new GMO crops and the weedkiller Enlist Duo in a baseball-themed presentation Sept. 2, 2015, at the Farm Progress Show in Decatur, Ill.

(Abel Uribe / Chicago Tribune)

When the Society of Toxicology's journal published the Dow study results in 2013, the article said the kidney lesions in the rat offspring dosed with 7 mg/kg "were judged to be not treatment related."

Bus said he and his colleagues adopted the position of the Canadian and EPA scientists. "It's not uncommon for reviewers to say, 'Wait a minute, we have an alternative interpretation of your data,'" he said. "... I would not have serious disagreement with how they interpreted that data."

Industry-funded researchers have found kidney trouble before in animals consuming low doses of 2,4-D, the Tribune found. An industry group representing Dow and other 2,4-D manufacturers submitted five studies to the EPA in the 1980s that documented kidney abnormalities in rats and mice at doses far lower than the one the agency now is using to set safety levels for people.

EPA scientists and the trade group agreed three decades ago that the kidney was the "target organ for toxicity" with anomalies seen at doses as low as 5 mg/kg, records show.

Bus said of those studies: "Earlier conclusions that might have been interpreted as adverse may not be considered adverse in more modern science."

Asked whether studies should be discounted when they're that old, the National Toxicology Program's Foster said, "You can look at the differences in study quality, but the way we

remove kidneys and look at them under a microscope has not changed in the last 60 or 70 years."

The EPA's Mendez said her agency considered the "whole gamut of studies."

When she and Taylor raised the no-adverse-effect level to 21 mg/kg, they paved the way for the agency to reduce consumer protections.

EPA scientists had no remaining questions about the chemical's harmful effects, and there was no longer evidence of the special susceptibility of children because the revised view of the Dow study held that the toxic effects in the offspring occurred at the same dose as in the parents. So, the agency dropped the tenfold child-safety factor.

Rather than dividing the rat dose by 1,000, as it had done a decade ago, the agency divided only by 100, resulting in a far less protective limit. Regulators set the allowable daily intake of 2,4-D for people at 0.21 mg/kg, 41 times more than the government had previously considered safe.

This was a victory for Dow because the calculations made it easier for the EPA to approve the new uses of 2,4-D the company needed in order to market its genetically modified crops. The agency could tell consumers these new uses wouldn't be harmful.

The Environmental Working Group, a nonprofit that is among those suing the EPA for approving Enlist Duo, scrutinized the Dow study results outlined in the EPA's official human health risk assessment. That document didn't mention that Taylor and Mendez had revised their interpretation.

Even so, a scientist for the nonprofit independently settled on the same measure of toxicity that the EPA and Dow initially had used: 7 mg/kg.

The group concluded that agency officials had "contradicted standard scientific practice" in choosing as their no-adverse-effect level a dose at which rats actually suffered multiple toxic effects — not just the kidney lesions but also the thyroid and reproductive organ changes.

That group also argued that the agency by law must apply the child-safety factor to its risk calculations because the offspring were more susceptible than the parents. Under that reasoning, the allowable daily intake would be 0.007 mg/kg.

The EPA's own worst-case exposure estimates, included in the official human health assessment, found toddlers could wind up consuming three times more than that.

Yet the agency, responding to critics, reassured the public that its scientists had determined that nobody would consume too much, even using the hypothetical limit of 0.007 mg/kg.

When the Tribune asked how that could be possible, the agency said its scientists made

additional calculations based on more realistic assumptions of exposure, describing that step as a standard practice.

Those calculations, records show, estimated that toddlers could consume 0.0066 mg/kg of 2,4-D — just four ten-thousandths shy of the hypothetical limit.

The math, once again, worked in 2,4-D's favor.

The future of farming

Abel Uribe / Chicago Tribune

At the 2014 Farm Progress Show in central Iowa, Dow unveiled its vision of the future of American agriculture: rows of soybeans and corn plants genetically engineered to withstand 2,4-D and glyphosate.

(Abel Uribe / Chicago Tribune)

A chemical future

At last year's Farm Progress Show in the heart of Iowa, Dow unveiled its vision of the future of American agriculture: rows of lush soybeans and towering corn plants genetically engineered to withstand 2,4-D and glyphosate.

This year, Dow didn't bother to plant those crops for the farm show held in Decatur, Ill. On display instead was an air of inevitability.

Ben Kaehler, Dow AgroSciences' U.S. sales leader, was there to extol the benefits of the crops. But rather than convincing farmers that the technology works, Kaehler tried to persuade them to plant Dow's offerings rather than Monsanto's proposed crops, which are immune to glyphosate and dicamba, a 1960s weedkiller.

The question wasn't whether to plant the next generation of genetically modified crops — it was which of those crops to plant.

On a faux brick wall in the Dow tent, a Wrigley Field-style scoreboard pitted Dow against Monsanto. Each inning featured a question about the crops or the different weedkillers, with salespeople revealing the answers one by one. Overhead, a banner beckoned: "Grow your field of dreams."

At that point, the only holdup for Dow was China, a major buyer of U.S. crops. Grain elevators here still are waiting for China's approval before agreeing to handle the new crops.

EPA moves to withdraw approval of controversial weed killer

ANDREW TAYLOR

The Environmental Protection Agency is taking steps to withdraw approval of a controversial new weed killer to be used on genetically modified corn and soybeans. The EPA announced in a court filing that it had received new information from manufacturer Dow AgroSciences that a weed killer called...

(ANDREW TAYLOR)

Now Dow also must address the concerns EPA raised last week about Enlist Duo's effects on endangered plants. An agency scientist noticed that a patent application for the product said it had "synergistic weed control" properties that made glyphosate and 2,4-D "more effective in combination than when applied individually."

Previously, the agency had maintained that the two chemicals were no more toxic together than they were on their own. That's why the health assessment of Dow's weedkiller hinged solely on the new risks posed by 2,4-D. Glyphosate already is widely used on corn and soybeans.

The EPA has asked the appellate court to rescind its approval of Enlist Duo while agency scientists decide whether a bigger no-spray zone is needed near the edge of farm fields. Dow said it's confident the issue can be resolved before spring planting.

The EPA told the Tribune it isn't reopening its human health risk assessment. William Jordan, deputy director of the agency's Office of Pesticide Programs, said the combination of 2,4-D and glyphosate doesn't create added risk for people. Jordan cited tests in which researchers gave large one-time doses of Enlist Duo to rats, rabbits, birds and fish, then monitored the animals for two weeks. There was no increased toxicity from the mixture, he said.

Landrigan, the pediatrician whose work led to the lead-paint ban, is more concerned about the long-term health effects of the chemical mixture. One-time doses and short-term monitoring don't address that.

The EPA said it has no plans to ask Dow for studies that chronically dose rats with the combination of 2,4-D and glyphosate.

For anyone concerned about exposure to toxic weedkillers, a different disclosure in Dow's patent applications may be more telling.

The company's application for its genetically modified corn and soybeans foreshadows the day when weeds develop resistance to glyphosate and 2,4-D. Dow, these records show, envisions adding traits to corn and soybeans so they can survive being sprayed with weedkillers from up to 17 different chemical families.

pcallahan@tribpub.com

Twitter @TribuneTrish

To: Jones, Jim[Jones.Jim@epa.gov]; Wise, Louise[Wise.Louise@epa.gov]; Sterling, Sherry[Sterling.Sherry@epa.gov]; Mojica, Andrea[Mojica.andrea@epa.gov]; Dunton, Cheryl[Dunton.Cheryl@epa.gov]
From: Strauss, Linda
Sent: Tue 12/1/2015 7:32:10 PM
Subject: FW: chic tribute story

;;
From: Strauss, Linda
Sent: Tuesday, December 01, 2015 2:31 PM
To: Jordan, William ; Sisco, Debby ; Vogel, Dana
Subject: chic tribute story

Some notes I took…anything to add Bill/Debby/Dana? OPA wants to know if there is any response we want to send to Chic Trib today?

∀ 2,4-D and the next generation of GE crops. What was originally pitched as environmentally-friendly way to go now replacing older p's - 2 decades later resurrecting older pesticides.

∀ Lead to more chems in water and food, weakened consumer protection.

∀ WHO possible carcinogen

∀ US Kids could consume levels that other countries feel is unsafe and that rise to levels that EPA thought were unsafe once.

∀ 41X more 2,4-D

∀ Science was changed b/c of a pivotal rat study. 6 months later Menendez/Taylor change of heart/changed measure of tox after being persuaded by conversation with Laurie Sashoah (sp), Canada toxicologist – not b/c EPA received any new data.

∀ Dow changed data which made it easier for us to approve weed killer. Data showed less toxic that EPA originally thought.

∀ EPA math favored Dow every step of the way.

∀ When there are effects, industry does more studies.

∀ Phil Landrigan urged Gina to reject Enlist Duo and is calling for the NTP to assess dicamba/glyphosate combo.

∀ Concern with GMO is the herbicide not the corn/soybean plant.

∀ 2,4-D data from 1995 RA showed kidney, repro, blood issues; 5 studies in 80's showed risk

∀ Extended One-Gen study - EPA removed 10X– ILSI committee came up with it - one EPA employee has since gone to work w/industry. EPA, Dow, OECD agree - but Paul Foster, NTP, won't use it.

∀ Safe level would be .0007? vs. .00066?

∀ EWG scrutinized 7 mg/kg NOEL and thought rats suffered multiple effects.

∀ Remand proof that the 2 pesticides more toxic that we thought – did EPA has synergism data on combo product before? (yes, and didn't show it was a problem).

∀ XX -Owe her residue level on turf we used.

To: Jones, Jim[Jones.Jim@epa.gov]; Wise, Louise[Wise.Louise@epa.gov]; Cleland-Hamnett, Wendy[Cleland-Hamnett.Wendy@epa.gov]
Cc: Strauss, Linda[Strauss.Linda@epa.gov]
From: Mojica, Andrea
Sent: Fri 12/16/2016 7:27:43 PM
Subject: RE: glyphosate SAP update

There was no overall consensus. There are differing opinions on the epi and animal data and whether these are indicative of glyphosate causing cancer. They seem to be in agreement on the genotox. While the panel indicated that it was not their job to classify glyphosate several of them did give their opinions; some said suggestive others said not likely.

One thing that Dr. Portier mentioned at the end was that this was a panel with lots of disagreement and it mostly was around the epi data. He urged EPA to finalize our 2010 guidance as that would give the panel members something concrete. I bring this up because it is my understanding that OPP plans to release the updated epi framework with the TCVP risk assessment at the end of December. This is apparently a supporting document to the TCVP risk assessment. During the general it was discussed that there was a relationship between the FQPA safety factor paper and the TCVP assessment, but I had not heard mention of the epi document. Just wanted to flag for your awareness.

Please let me know if you would like additional information.

From: Mojica, Andrea
Sent: Friday, December 16, 2016 11:58 AM
To: Jones, Jim <Jones.Jim@epa.gov>; Wise, Louise <Wise.Louise@epa.gov>; Cleland-Hamnett, Wendy <Cleland-Hamnett.Wendy@epa.gov>
Cc: Strauss.Linda@epa.gov
Subject: glyphosate SAP update

Not all the panel members have spoken, but Dr. Portier just said that he agrees with the EPA's conclusion of not carcinogenic at doses relevant for human exposure.

To: Jones, Jim[Jones.Jim@epa.gov]; Wise, Louise[Wise.Louise@epa.gov]; Cleland-Hamnett, Wendy[Cleland-Hamnett.Wendy@epa.gov]
Cc: Strauss, Linda[Strauss.Linda@epa.gov]
From: Mojica, Andrea
Sent: Fri 12/16/2016 4:57:34 PM
Subject: glyphosate SAP update

Not all the panel members have spoken, but Dr. Portier just said that he agrees with the EPA's conclusion of not carcinogenic at doses relevant for human exposure.

To: Jones, Jim[Jones.Jim@epa.gov]
From: Mojica, Andrea
Sent: Fri 12/16/2016 5:51:34 PM
Subject: RE: glyphosate SAP update

Panel taking a quick break; below are some of what has been said. Currently debating whether the epi data indicates cancer. Portier said if this is the case then the conclusion cannot be not likely. So the panel is trying to decide if they think the epi data does indicate cancer.

Dr. Green says if she has to choose between suggestive and not likely then, not likely is the better answer and that she doesn't think the dose qualifier is needed

Dr. Parsons – doesn't agree with the not likely classification; believes that there is sufficient evidence that glyphosate is a carcinogen to rodents at high doses; believes that suggestive evidence is the most appropriate descriptor based on the rodent data

Dr. Taioli (epidemiologist) – suggestive (based on human data); if she could choose equivocal she would chose that

Dr. Zelterman – did not make a recommendation on the classification just said that he wondered if there were other health effects outside of carcinogenicity that we need to consider

Dr. Sheppard - agrees with Dr. Taioli; clearly it is suggestive to her and the most appropriate public health conclusion to reach, says that other data could change this study, says that the epi evidence strengthens the animal evidence (she reads the guidelines as just need evidence in one species); thinks our conclusion is inappropriate based on our guidelines

From: Jones, Jim
Sent: Friday, December 16, 2016 12:09 PM
To: Mojica, Andrea <Mojica.andrea@epa.gov>
Subject: Re: glyphosate SAP update

Wow

Sent from my iPhone

On Dec 16, 2016, at 11:57 AM, Mojica, Andrea <Mojica.andrea@epa.gov> wrote:

> Not all the panel members have spoken, but Dr. Portier just said that he agrees with the EPA's conclusion of not carcinogenic at doses relevant for human exposure.

To: Mojica, Andrea[Mojica.andrea@epa.gov]
Cc: Wise, Louise[Wise.Louise@epa.gov]; Cleland-Hamnett, Wendy[Cleland-Hamnett.Wendy@epa.gov]; Strauss, Linda[Strauss.Linda@epa.gov]
From: Jones, Jim
Sent: Fri 12/16/2016 7:33:35 PM
Subject: Re: glyphosate SAP update

Thx for the report. Jim

Sent from my iPhone

On Dec 16, 2016, at 2:27 PM, Mojica, Andrea <Mojica.andrea@epa.gov> wrote:

There was no overall consensus. There are differing opinions on the epi and animal data and whether these are indicative of glyphosate causing cancer. They seem to be in agreement on the genotox. While the panel indicated that it was not their job to classify glyphosate several of them did give their opinions; some said suggestive others said not likely.

One thing that Dr. Portier mentioned at the end was that this was a panel with lots of disagreement and it mostly was around the epi data. He urged EPA to finalize our 2010 guidance as that would give the panel members something concrete. I bring this up because it is my understanding that OPP plans to release the updated epi framework with the TCVP risk assessment at the end of December. This is apparently a supporting document to the TCVP risk assessment. During the general it was discussed that there was a relationship between the FQPA safety factor paper and the TCVP assessment, but I had not heard mention of the epi document. Just wanted to flag for your awareness.

Please let me know if you would like additional information.

From: Mojica, Andrea
Sent: Friday, December 16, 2016 11:58 AM
To: Jones, Jim <Jones.Jim@epa.gov>; Wise, Louise <Wise.Louise@epa.gov>; Cleland-Hamnett, Wendy <Cleland-Hamnett.Wendy@epa.gov>
Cc: Strauss.Linda@epa.gov
Subject: glyphosate SAP update

Not all the panel members have spoken, but Dr. Portier just said that he agrees with the

EPA's conclusion of not carcinogenic at doses relevant for human exposure.

To: Mojica, Andrea[Mojica.andrea@epa.gov]
From: Jones, Jim
Sent: Fri 12/16/2016 5:09:01 PM
Subject: Re: glyphosate SAP update

Wow

Sent from my iPhone

On Dec 16, 2016, at 11:57 AM, Mojica, Andrea <Mojica.andrea@epa.gov> wrote:

> Not all the panel members have spoken, but Dr. Portier just said that he agrees with the EPA's conclusion of not carcinogenic at doses relevant for human exposure.

To: Jones, Jim[Jones.Jim@epa.gov]; Wise, Louise[Wise.Louise@epa.gov]; Lewis, Susan[Lewis.Susan@epa.gov]
From: Mojica, Andrea
Sent: Tue 1/5/2016 7:46:30 PM
Subject: glyphosate - response to Portier
reply_letter_to_mr_portier.pdf

European Commission

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Prof. Christopher J. Portier
Senior Contributing Scientist, Environmental Defense Fund
CH-3600 Thun, Switzerland
cportier@mac.com

Brussels, 15. 12. 2015
ARES(2015)

Dear Mr Portier,

Thank you for your letter dated 27 November 2015, signed by 96 scientists and of which you are the corresponding author, concerning the review of the carcinogenicity of glyphosate by the European Food Safety Authority (EFSA) and the German Federal Institute for Risk Assessment (Bundesinstitut für Risikobewertung, BfR).

As requested, the Commission shared your letter with the Member States represented in the Standing Committee on Plants, Animals, Food and Feed on 10/11 December 2015.

Your letter outlines concerns about the renewal assessment of glyphosate, in particular, regarding the assessment of human, animal and mechanistic data by the Rapporteur Member State (RMS) Germany, and the subsequent peer review by all other Member States and EFSA. I have asked EFSA to consider these concerns, where appropriate in cooperation with the RMS, and you will receive a response directly from EFSA shortly.

Furthermore the letter raises some general issues to which I would like to respond, including some clarifications on the EU regulatory framework for plant protection products and your request that the Commission disregard the findings of EFSA.

Having become aware of the classification of glyphosate by the International Agency for Research on Cancer (IARC) in March 2015, the Commission asked EFSA to take the findings of IARC into account in the peer review of glyphosate, and to invite experts of the European Chemicals Agency (ECHA) as observers. ECHA is the agency responsible for the assessments of chemicals as regards their classification according to Regulation (EC) No 1272/2008. The Commission has taken note of the EFSA Conclusion, published on 12 November 2015, including the assessment of carcinogenicity, and noted the different opinions of IARC and EFSA on classification.

My services are now analysing the Conclusion to inform the Commission's decision-making process on whether to propose to renew the approval of glyphosate.

As you refer to BfR in your letter, allow me to briefly clarify its role in the assessment of glyphosate. BfR contributed to the Renewal Assessment Report of the RMS, which is the basis for the peer review by the other Member States and EFSA. The Renewal Assessment Report is amended at different stages of the procedure to reflect the conclusions as the peer review progresses. The most recent version of that report, with changes from the initial version clearly highlighted, has been published as a background document to the EFSA Conclusion on the EFSA website. The European legislation on plant protection products (Regulation (EC) No 1107/2009) refers specifically to the RMS's Assessment Report and to the EFSA Conclusion to be taken into account when the Commission drafts a proposal for the approval/renewal or the non-approval of an active substance. As these are legal obligations, I am not able to accommodate your request to simply disregard the EFSA Conclusion.

The Council of the European Union and the European Parliament as co-legislators of Regulation (EC) No 1107/2009 agreed on a pivotal role of EFSA in the review of pesticide active substances in the EU. I have full confidence in the EU process established by that Regulation, to assess and manage the risks that are inherent to the use of plant protection products. The process relies on the pooling of expertise between EFSA and all 28 Member States. Overall, the experience of a large number of evaluations of active substances that have been conducted in the past years has resulted in detailed and robust assessments.

You rightly highlight transparency as an important aspect of the scientific process. In this regard I note that EFSA, in line with its approach for all other active substances, has made available on its website the Summary Dossier submitted by the applicant, carried out a public consultation on the

Renewal Assessment Report, and published its Conclusion as well as the corresponding background documents of more than 6000 pages, which include the Renewal Assessment Report after completion of the peer review, all comments received from Member States and the public, with the appropriate responses, and the reports of the various expert meetings on the different scientific areas covered by the evaluation.

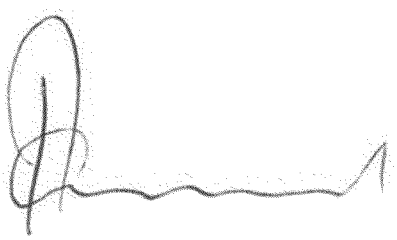
On certain occasions, the information on the identity of study authors is restricted in documents published by EFSA. This is in accordance with the provisions on confidentiality in Regulation (EC) No 1107/2009, which exempts the names and addresses of persons involved in testing on vertebrate animals from being disclosed (Article 63(2)(g)).

During a recent exchange of views in the Committee on the Environment, Public Health and Food Safety of the European Parliament, the EFSA representatives invited IARC and all other interested parties to scrutinise the findings of the EU peer review on glyphosate, given that the above mentioned information is now available on the EFSA website.

I would like to encourage you to take up that invitation with the aim of resolving or at least further clarifying the contentious scientific issues. Diverging scientific opinions on such a widely used product is indeed disconcerting.

I hope that my explanation combined with the publication of the findings of EFSA will help alleviate your concerns. I am looking forward to our meeting next January to discuss further this important matter.

Yours sincerely,



C.c.: Mr Phil Hogan, Commissioner for Agriculture and Rural Development

Mr Xavier Prats Monné, Director-General, DG SANTE

Mr Ladislav Miko, Deputy Director-General, DG SANTE

Mr Bernhard Url, Executive Director, EFSA

Mr Giovanni La Via, Chair, Committee on the Environment, Public Health and Food Safety of the European Parliament

EFSA Panel on Plant Protection Products and their Residues

Mr Christian Schmidt, Federal Minister of Food and Agriculture, Germany

Mr Helmut Tschiersky, President, Federal Office of Consumer Protection and Food Safety, Germany (BVL)

Mr Andreas Hensel, President, Federal Institute for Risk Assessment, Germany (BfR)

Mr Christopher Wild, Director, IARC

Mr Jim Jones, Assistant Administrator, US Environmental Protection Agency

To: Jones, Jim[Jones.Jim@epa.gov]
From: Chris Portier
Sent: Wed 5/4/2016 11:38:18 AM
Subject: Fwd: glyphosate: POLITICO on EPA report

;;;;Jim,
FYI.

C.

Subject: glyphosate: POLITICO on EPA report

GLYPHOSATE STORM'S A-BREWIN': The U.S. Environmental Protection Agency has made a preliminary finding that glyphosate is unlikely to cause cancer in humans — but the agency isn't ready to go public yet. The EPA briefly posted online an October 2015 final report from its Cancer Assessment Review Committee, which concluded glyphosate is "not likely to be carcinogenic to humans." It then pulled it from its website. The committee said evidence from existing epidemiological studies and tests of lab animals doesn't meet the bar for classifying the herbicide as a carcinogen. An agency spokesperson told POLITICO the report was removed because assessment was ongoing. "Our assessment will be peer reviewed and completed by end of 2016," said the spokesperson.

— Why this matters for the EU: A political scrum over what to do about glyphosate is underway in the EU. Parliament voted to extend the chemical's authorization for seven years, the Commission is pushing for 10, but the real decision comes in a Plant, Animal, Food and Feed Committee meeting on May 18-19. Advocates for banning glyphosate altogether cite a March 2015 study by International Agency for Research on Cancer, which said it caused cancer. Glyphosate's political supporters cite a November study with the opposite conclusions. This latter group might now have another study in their arsenal — and from a reputable U.S. government agency. "In line with the 90,000 pages, and 3,300 studies already published in support of the reapproval of glyphosate, the EPA report casts yet more doubt on the conclusions of IARC," a spokesperson for the European Crop Protection Association told Morning Agri. Greenpeace EU, which opposes using glyphosate as long as there is no scientific consensus, told Morning Agri it had not yet read the study and so couldn't comment. More: http://reut.rs/23mbxYf.

To: Knott, Steven[Knott.Steven@epa.gov]
Cc: Mccarthy, Gina[McCarthy.Gina@epa.gov]; Housenger, Jack[Housenger.Jack@epa.gov]; Anderson, Neil[Anderson.Neil@epa.gov]; Jones, Jim[Jones.Jim@epa.gov]; Harris, Jeffrey[Harris.Jeffrey@epa.gov]; john.neumann@gao.gov[john.neumann@gao.gov]; Moriarty, Thomas[Moriarty.Thomas@epa.gov]; Les Davies[les.davies@apvma.gov.au]
From: R MASON
Sent: Wed 11/16/2016 8:40:37 AM
Subject: German Government accuses BfR and EFSA of scientific fraud
Open Letter to the European Chemical Agency about Scientific Fraud and Ecocide.pdf

Dear Steven Knott

I note that CLA and Monsanto have got their way...Dr Peter Infante has been excluded from the SAP! You will be interested to hear that the International Monsanto Tribunal reported that the German Government has accused BfR and EFSA of scientific fraud; the Vimeo from Dr Peter Clausing will explain why.

Yes the complete set of recordings from the Monsanto Tribunal have been published and links to it are in the attached document. **Open Letter to the European Chemicals Agency about Scientific fraud and ecocide.** Presumably their 2002 registration of glyphosate was fraudulent as well, since it involved the same individuals in the WHO/FAO/JMPR.

Yes, the US EPA, Monsanto and the CLA presumably anticipated that they would get backing from the European Chemicals Agency...but I wouldn't be so certain.

Incidentally, the Judges decision as to whether to recommend that Monsanto is prosecuted in the International Criminal Court for Ecocide (and possibly genocide) will probably be announced on December 10th so it might be rather embarrassing for EPA to be seen to be so close to Monsanto.

I would be grateful if this could be forwarded to the FIFRA SAP.

Kind regards

Rosemary Mason

Open Letter to the European Chemicals Agency about Scientific Fraud and Ecocide

Geert Dancet
Executive Director
European Chemicals Agency

Dear Geert Dancet

When you were appointed in 2007 as ECHA's Executive Director you had previously served in the European Commission's industry directorate for more than 20 years. NGO's expressed their dismay; they had serious doubts about your independence from the Commission.
Let's hope you prove them wrong over the reassessment of glyphosate.
The German Government has accused the German Rapporteur Member State Federal Institute of Risk Assessment (BfR) and EFSA of scientific fraud for using Glyphosate Task Force (GTF) statistics but for some considerable time claimed them to be BfR's own work.
ECHA must ban glyphosate **NOW**. Human health and the environment are being totally destroyed by it and the hundreds of other chemicals that have been registered illegally.
European regulators can no longer rely on industry assessments.

The current EU legislation was originally set up to protect the pesticides industry. Monsanto and other agrochemical corporations helped the EU to design the regulatory systems for their own products and chose which country should be appointed as Rapporteur Member State. Regulation 1107/2009, Article 63 specified that: *"All confidential data …shall be deleted or redacted."* Much of the industry data submitted to the German RMS was redacted. ECHA has used redactions in some submissions to their own consultation.
REACH (Registration, **E**valuation, **A**uthorisation and Restriction of **Ch**emical substances)
The Biocidal Product Regulation (BPR, Regulation (EU) 528/2012) concerns the placing on the market and use of biocidal products which are used to protect humans…from the action of the active substances contained in the biocidal product.
"REACH is a regulation of the European Union, adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals, while ***enhancing the competitiveness of the EU chemicals industry****. It also promotes alternative methods for the hazard assessment of substances in order to reduce the number of tests on animals."*
It came into force on 02/08/07.

Chemical Watch article endorses scientists who work for the pesticides industry
Philip Lightowlers wrote in Chemical Watch about the re-assessment of glyphosate.
https://chemicalwatch.com/50875/scientists-challenge-iarc-hazard-only-identification-of-carcinogens?pa=true#utm_campaign=50814&utm_medium=email&utm_source=alert
The initial wording is identical to that published in *prnewswire.com*, an industry organisation that provides a news service for journalists delivered straight into their letterbox.
Lightowlers says: *"Published last month as a commentary article in the peer-reviewed journal Regulatory Toxicology and Pharmacology, its ten authors maintain that hazard-only approaches inappropriately group together chemicals with very different toxicities and lead to reactionary public policies."* **Did he examine the original paper himself?**

Classification schemes for carcinogenicity based on hazard identification have become outmoded and serve neither science nor society
http://www.sciencedirect.com/science/article/pii/S0273230016303038

There were several authors with conflicts of interest

The lead author Professor Alan Boobis is Vice-President of the International Life Science s Institute (ILSI) Europe , an organisation that had received money from both Monsanto and CropLife International. Angelo Moretti is a board member of ILSI's Health and Environmental Services Institute. Boobis and Moretti were Chair and co-Chair respectively of the Joint FAO/WHO Meeting on Pesticides Residues (JMPR) that made the decision that glyphosate was non-carcinogenic and non-genotoxic. *"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."*
https://www.theguardian.com/environment/2016/may/17/unwho-panel-in-conflict-of-interest-row-over-glyphosates-cancer-risk

US National Resources Defense Council wrote to the WHO/FAO/JMPR to protest
The letter sent on 16/06/2015 objected to the presence of the following people on the JMPR: Alan Boobis, Angelo Moretti, Vicki Dellarco ex-US EPA and Roland Solecki Head of the BfR. They cited conflicts of interest.
https://www.nrdc.org/sites/default/files/hea_15061501a.pdf
Other authors of the paper quoted in Chemical Watch included Fenner-Crisp (who had been author with Dellarco in a paper at an ILSI workshop in 2007) and Charles Wolf from Syngenta USA. The paper also quoted Cancer Research UK who's Chairman Michael Pragnell was founder of Syngenta and former Chairman of Croplife International.

Public Integrity criticized two journals for their ties with industry
"*Regulatory Toxicology and Pharmacology is one of two scientific journals known for their industry ties have become go-to publications for researchers who minimize risks from chemicals.*" This was according to the organization Public Integrity.
https://www.publicintegrity.org/2016/02/18/19307/brokers-junk-science

The second is: *Critical Reviews in Toxicology.* In 2016 Volume 46 Monsanto commissioned five reviews published in a supplement to *Critical Reviews in Toxicology.* Monsanto also funded them. "*As stated in the declarations of interest at the foot of each paper, all are funded by Monsanto via the industry consultancy firm Intertek. Many of the authors have links to Monsanto, other chemical companies, and industry consultancy firms.*" Critics describe the journal as a purveyor of junk science – "*misleading industry-backed articles that threaten public health by playing down the dangers of well-known toxic substances.*"
www.gmwatch.org/news/latest-news/17253-surprise-monsanto-funded-papers-conclude-glyphosate-not-carcinogenic-or-genotoxic

It is not surprising therefore that Intertek contributed to the FIFRA US EPA SAP comments on the lack of carcinogenicity of glyphosate. That is what Monsanto paid the scientists for.
https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0094

Is the European Chemicals Agency preparing itself to support EFSA, the European Commissioners and the Glyphosate Task Force (GTF) to re-license glyphosate in 2017 ?
Of the 293 responses to ECHA's consultation, an overwhelming majority supported the International Agency for Research into Cancer (IARC) position. They were mainly from France. France has already announced its intention to ban glyphosate. The comments were numbered.
Organisations included IARC (France) and the 94 scientists supporting IARC, the Consensus Statement: Concerns over use of glyphosate-based herbicides and risks associated with exposures by 14 scientists, scientists from UCL London, Pesticides Action Network (Germany/Europe), Danish Society for Nature Conservation, Testbiotech and RISK

Consultancy US. All the Organisations were named, apart from one. A Belgian Organisation, the name of which was redacted, had six comments, but these were spread though the responses. They all supported the GTF.

Individuals from France, Germany, Italy, Finland, Hungary, Romania, Ireland, Sweden, Bulgaria, UK, Slovenia, Portugal and the Czech Republic attested to the dangers of glyphosate and were concerned that the industry studies were flawed. Comments number 290 and 291, in common with mine (number 119) quoted numerous studies of glyphosate's damaging effects on ecosystems. Submission number 128 from an individual in Germany cites many independent studies of the toxicity of glyphosate and gave extensive evidence of lobbying by the agrochemical industry and documented corruption, receipt of money and conflicts of interest in the FAO/WHO/JMPR/RMS/EFSA/GTF/ILSI. Why did ECHA redact some of these comments?

The German Government summoned Prof Dr Andreas Hensel before the Committee on Agriculture and Food and accused BfR of scientific fraud for using GTF statistics
The report says that BfR stands *"accused of endangering the population"* and also of *"intentional falsification of the content of scientific studies"*.
http://www.gmwatch.org/news/latest-news/17307-german-toxicologist-accuses-eu-authorities-of-scientific-fraud-over-glyphosate-link-with-cancer

"The statistical dodge employed by the German authorities to defend glyphosate was the subject of an explosive in-depth news report that aired on German TV last October (2015) *in the midst of deliberations by EU authorities on whether to re-authorize the chemical.*
The news report was broadcast by MDR, which is part of ARD, the main public national TV network in Germany. The report says that BfR stands "accused of endangering the population" and shows BfR director Prof Andreas Hensel facing questions from experts before the German Parliamentary committee for food and agriculture.
One of the experts, Prof Dr Eberhard Greiser, a retired epidemiologist at the University of Bremen, says of BfR's actions, "I'd say this is an intentional falsification of the content of scientific studies."
The MDR film notes that BfR, in its initial report to the EU authorities, claimed that there were no signs of cancer in the animal studies: "They took the position that even though one of the five studies on mice did show a significant increase in malignant lymphoma, they dismissed it as irrelevant, because, the BfR asserted, the other four studies did not indicate any cancer risk..." But Dr Peter Clausing showed how they did it.

Dr Peter Clausing gave evidence at the International Monsanto Tribunal
"Ample evidence has been provided above showing that European Authorities twisted or ignored scientific facts and distorted the truth to enable the conclusion that glyphosate is not to be considered a carcinogen, thereby accepting and reinforcing the false conclusion proposed by the Monsanto-led GTF. The German Federal Institute for Risk Assessment (BfR) and the European Food Safety Authority (EFSA) committed scientific fraud."
In his evidence to the Tribunal, Clausing systematically demolished arguments that the EU authorities used to dismiss the significant findings of glyphosate-induced malignant lymphoma in mouse carcinogenicity studies.
http://www.pan-germany.org/download/Memo_Monsanto-Tribunal_Peter_Clausing_10_2016.pdf

The complete recordings from the International Monsanto Tribunal are now available. Below is the link to Dr Peter Clausing's presentation: his is the third one on page 8.
https://vimeo.com/channels/mten/page:8

The first presentation on page 8 is by Lawyer Maogato Jackson who talked about Monsanto's War Crimes andLawyer Koffi Dogbevi who discussed Ecocide (destruction of the environment) as a crime against humanity that is likely to be subject to prosecution in the International Criminal Court. T he Office of the Prosecutor proposed this on 14/09/2016.
https://www.theguardian.com/global/2016/sep/15/hague-court-widens-remit-to-include-environmental-destruction-cases
The second is Human Rights Lawyer William Bourdon speaking on the peoples Right to Information. In Britain, the M edia has deliberately deprived us of this right.

Dr Shiv Chopra, an expert from regulatory agency Canada: Pressure on stakeholders and institutions. He talked about the problems of being a whistle blower in Canada.
Claire Robinson PhD Editor of GM Watch: she explained how the industry-funded UK Science Media Centre and Monsanto led a vicious worldwide media campaign against Prof Séralini's 2-year study of rats fed Monsanto's GM Maize and Roundup.
On 16 October 2015, Prof Gilles-Eric Séralini was awarded Whistle blower of the Year(a shared award) 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."*

The US EPA, having concluded that glyphosate is not a carcinogen (presumably in common with ECHA), also invited public comments

Public comments were invited on 16/09/2016 to the Scientific Advisory Panel of FIFRA (Federal Insecticide, Fungicide and Rodenticide Act) onUS EPA Glyphosate Issue Paper: Evaluation of Carcinogenic Potential. However, only 4 days before the meeting it was suddenly delayed. *'Given the importance of epidemiology in the review of glyphosate's carcinogenic potential, the Agency believes that additional expertise in epidemiology will benefit the panel and allow for a more robust review of the data."*
https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0385-0094

Why did US EPA delay the FIFRA SAP meeting at such short notice?

Carey Gillam suggests that EPA bowed to intense industry lobbying.
http://www.huffingtonpost.com/carey-gillam/epa-bows-to-chemical-indu_b_12563438.html

CropLife America (a US trade association representing the major manufacturers, formulators and distributors of crop protection and pest control products) had written to EPA to object to Dr Peter Infante, an epidemiologist, being included on the list of members of the SAP. They said that: *"Dr Infante is a member of the Collegium Ramazzini which has taken a radical anti-pesticide position such as calling for a prohibition on all 'pesticide use in public areas and recreation grounds' even if regulatory agencies have such uses were safe."*
http://191hmt1pr08amfq62276etw2.wpengine.netdna-cdn.com/wp-content/uploads/2016/01/CLA-Comments-on-SAP-Disqualification-10-12-16.pdf

CLA produced five pages of spurious allegations as to why Dr Infante would be biased against glyphosate. CLA also called into question the presence of Kenneth Portier, Christopher Portier's (IARC) brother on the committee.

Lawsuits against Roundup for causing Non-Hodgkin's Lymphoma have been put together

https://www.schmidtlaw.com/roundup-lawsuits-centralized-in-mdl-in-northern-california/

On October 4 2016 a Panel of Federal Judges created a Multi-District Litigation (MDL) to centralize dozens of Roundup Lawsuits in one court in California. The Schmidt Firm, PLLC, a national law firm says: *"All of the lawsuits accuse Monsanto of failing to warn consumers and regulators about the risks of NHL of exposure to Roundup, a popular weed killer that contains glyphosate."* Lawyers also say that: *"the combination of glyphosate with the surfactant POEA makes Roundup even more toxic that glyphosate alone.*

Why was the Collegium Ramazzini singled out for holding such a reasonable position, bearing in mind that the 'so-called' regulatory agencies are controlled by industry?
Monsanto's neurotoxic sweetener aspartame was licensed in 1982 by similarly fraudulent means. For the first 16 years aspartame was banned by the FDA because it was highly toxic to the nervous system. FDA Scientist Adrian Gross told Congress that without a shadow of a doubt, aspartame can cause brain tumors and brain cancer and that it violated the Delaney Amendment, which forbids putting anything in food that is known to cause cancer.

Aspartame was due to be re-licensed in 2013/2014 and Monsanto had chosen Britain to be its Rapporteur Member State for aspartame because it could trust it to be obliging.
The UK had obliged Monsanto since 1982. The Collegium Ramazzini wrote in 2013 to object to Monsanto's neurotoxic sweetener aspartame being re-licensed because it found evidence of long-term neurotoxicity.
Prof David Coggon was Chairman of the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (CoT) at the time of reassessment of aspartame (and Prof Alan Boobis the Vice Chairman of ILSI Europe is current Chairman).
A statement said: *"At its meeting on 29 October 2013, the Committee on Toxicity discussed a paper, describing results from a study led by scientists at Hull York Medical School"*...No-one is allowed to see this study until it has been accepted for publication in a peer-reviewed journal. *"The Committee judged the delay acceptable since the results presented did not indicate any need for action to protect the health of the public."* EFSA had also re-evaluated the safety of aspartame. As a result, it concluded in December 2013 that *'aspartame and its breakdown products are safe for human consumption at current levels of exposure'*.
Professor Erik Millstone, Professor of Science Policy at the University of Sussex sent a 67-page detailed response to the Head of EFSA 'Food Ingredients and Packaging' Unit and the Senior Scientific Officer.
https://www.sussex.ac.uk/webteam/gateway/file.php?name=millstone-on-efsa-on-aspartame-16dec2013.pdf&site=25
This was ignored by EFSA, just as the findings of the Ramazzini Foundation have been ignored in Europe and Dr Betty Martini and Dr John Olney have been ignored in the US.

In 1991 an archival document showed that the US EPA Health Effects Division colluded with Monsanto: glyphosate to be changed from a Group C carcinogen to Group E (evidence of non-carcinogenicity for humans)
http://www.epa.gov/opp00001/chem_search/cleared_reviews/csr_PC-103601_30-Oct-91_265.pdf

Members of US EPA's Toxicology Branch of the Hazard Evaluation Division Committee, in a consensus review on March 4 1985, had classified glyphosate as a Group C carcinogen, 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, but on June 26 1991 the Health Effects Division Carcinogenicity Peer Review Committee met 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 should be classified as Group E (evidence of non-carcinogenicity for humans). However, three of the Committee refused to sign and wrote: DO NOT CONCUR.

Monsanto's sealed secret studies from the US EPA obtained under Freedom of Information
US Scientist Anthony Samsel analyzed Monsanto's sealed secret long-term studies (15,000-20,000 pages) from the US EPA (on mice, rats, rabbit and beagles) and showed that Monsanto knew that glyphosate was carcinogenic from the 1970s. Bioaccumulation of ^{14}C-radiolabelled glyphosate was also confirmed contrary to Monsanto's claim that glyphosate did not accumulate. Residues were present in most organs of the body. Professor Alan Boobis was the same chairman of the JMPR team that reassessed glyphosate in 2002 and Roland Solecki Head of the BfR was also a member. In 2002 JMPR also concluded that glyphosate was not carcinogenic or genotoxic.
But in 2015, a full 13 years later, the German Government said that this conclusion by BfR was 'intentional falsification of the content of scientific studies ' and BfR stands 'accused of endangering the population'. On 20/12/ 2013, Dan Goldstein, Senior Science Fellow and Lead, Medical Sciences and Outreach, Monsanto said that glyphosate was structurally related to the amino acid glycine and is excreted unchanged in the urine.
Goldstein referred to the European 2002 reassessment when he repeated their statement that glyphosate did not accumulate. Thanks to US Scientist Anthony Samsel's perseverance we now know that the first part was true and that glyphosate can substitute for glycine in the body, but the second part was a lie; it does cumulate.

Glyphosate causes cataracts and interstitial damage
Among Monsanto's long term studies an unpublished study on albino rats in 1990 showed that glyphosate entered the eye and caused cataracts and tissue damage. 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.
A 2016 study by the WHO also confirmed that the incidence of cataracts had greatly increased: '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.
http://apps.who.int/iris/bitstream/10665/204585/1/9789241565196_eng.pdf
In the US between 2000 and 2010 the number of cases of cataract rose by 20% from 20.5 million to 24.4 million. It is projected that by 2050, the number of people with cataracts will have doubled to 50 million.

In Swansea the indiscriminate use of Roundup and other pesticides on Japanese knotweed that grows on old industrial sites where the ground is disturbed has poisoned our reserve
Between 2010 when we wrote our two photo-journals (Speckled Bush Crickets and The Year of the Bumblebee) and 2016 we have had massive biodiversity losses in our small nature reserve. Bumblebees, butterflies, moths, bush crickets, spiders, dragonflies, ladybirds, solitary bees, hoverflies, bats, beetles, shield bugs and many other small creatures have all but disappeared. These photo-journals become historical documents.

If this is happening to these species, what is happening to our children and to us?
Glyphosate was found to be present in samples of water (river and tap water) taken in August 2013 and sent to a laboratory in Leipzig, Germany. The level of glyphosate in a Welsh river draining from areas of Japanese knotweed spraying was 190 parts per trillion (ppt) and in local tap water was 30 ppt. These were of the order of concentrations found in a laboratory study in 2013 that showed that breast cancer cell proliferation is accelerated by glyphosate in extremely low concentrations. Analysis in local tap water in August 2014 revealed a 10-fold increase since August 2013: from 30 ppt to 300 ppt. In 2015, a three-year Japanese knotweed eradication programme was planned in the valley adjacent to our

reserve 'while it was still legal' I was told. Under FOI in December 2015, we learned that 1440 kg Roundup had been sprayed. But Roundup is also used for private contractors working for estate agents. A house must be free of Japanese knotweed before it can be sold.

Wildlife Law: Control of Invasive Non-native Species and statutory powers
Law Commission Report: On 11 February 2014, The Law Commission published its final report, Wildlife Law: Control of Invasive Non-native Species. *"This is the first item to be delivered from the full project. This element of the project was brought forward at the request of Defra and the Welsh Government to enable them to consider whether to introduce early legislation."* If landowners do not comply, this new law will give the relevant body (Defra, the Welsh Government and statutory bodies such as the Environment Agency, Forestry Commission, Natural England and Natural Resources Wales) the power to enter land for the purposes of species control. Japanese knotweed is among the plant species specified, but the law is coy about stating the me thod to be used.

Swansea City and County Council revealed in November 2016 "a war on weeds"
An extract from the Swansea Leader November 2016: *"The Council has already treated 1,500 km of roadside around the city over the summer with weed-killer to keep unwanted plants at bay. And in the autumn the council treated them all over again in an effort to prevent them returning in the spring."* The applicators ignored the new rules by CRD (see next paragraph). The Council are presumably aware that Roundup is under scrutiny, so *"while it is still legal"* it is trying to kill as many weeds as possible before it is banned. One of our neighbours, found spraying his drive, had similar ideas about using up his tank spray in case it was banned.

Chemical Regulations Directorate NEW RULES 2012 for Roundup spraying
Streets and pavements: *"From 2012 new rules from the regulator, Chemical Regulations Directorate (CRD) prohibits blanket spraying of any herbicide on non-porous hard surfaces. Targeted treatment of weeds must be undertaken on roads, pavements, concrete and paved areas and drains must not be over-sprayed."*

The citizens of Swansea are sick; with cancers, neurological diseases and cataracts, just as Monsanto found in long-term studies before it gained illegal registration with the US EPA
There are cancer hotspots in the surrounding villages where Roundup is sprayed. Over the last few years friends and acquaintances have been treated for (or have died from) numerous diseases: brain tumours (mostly glioblastomas), cancers of the breast, ovary, prostate, lung (more than half of which were in non-smokers), oesophagus, colon, pancreas, rectum, kidney, melanoma, osteosarcoma, non-Hodgkin's lymphoma, uterine carcinoma, leiomyosarcoma of the uterus, multiple myeloma, Parkinson's, Multiple sclerosis, Motor - neurone Disease and Alzheimer's/Dementia. Many of the cancers are aggressive and unusual; they resemble the cancers that were seen in factory workers in the pesticides industry in the 1960s. Had I detailed the many cancers affecting people in our area at the beginning of my campaign, I would have been accused of being 'anecdotal.' But if we link these cancers to the total disappearance of wildlife from our nature reserve and the sudden diagnosis of cataracts/ macular degeneration amongst this group of people after intense application of Roundup to 3,000 km of city roads during the summer and autumn 2016, we have a perfect storm.

The UK State of Nature Report 2016; the environment in Britain is 'pretty knackered'
Mark Eaton of the RSPB, the Report's first author said: *"The report includes a new "biodiversity intactness index", which analyses the loss of species over centuries. The UK has lost significantly more nature over the long term than the global average with the UK the*

29th lowest out of 218 countries. "It is quite shocking where we stand compared to the rest of the world, even compared to other western European countries: France and Germany are quite a way above us in the rankings," said Eaton. *"The index gives an idea of where we have got to over the centuries, and we are pretty knackered."*

Food and Environment Research Agency (FERA) survey of pesticides 1988 to 2014
These indicate that Pesticide Residues on British food are increasing annually. A survey of pesticide (active substances) usage on Oil Seed Rape (OSR) 1988-2014 showed that the number of active substances applied had increased from 5 in 1988 to 15 in 2014 (Fig 1) and the number of treatments had increased from 5 in 1988 to 12 in 2014. (Fig 2) In 2014, herbicides were used on 98.4% OSR and seed treatments on 95.8%.
In 2014 glyphosate was used on Wheat (601,330 kg) Winter barley, Spring barley, Oats, Rye, Triticale, Oilseed rape (577,969 kg), Linseed, All potatoes, Peas, Beans, Sugar beet, with a total of 1,765,465 kg glyphosate on all crops. The total weight of pesticides (herbicides and desiccants, fungicides, growth regulators, molluscicides and repellants, insecticides and seed treatments) applied to farmland in 2014 was in excess of 16,000 tonnes.

Pesticide usage statistics show massive increase in glyphosate between 2012 and 2014
Fera statistics showed that in 2012 the area treated by glyphosate was 1,750,000 ha. This had increased in 2014 to 2,250,000 ha. Guy Gagen, Chief Arable Adviser for the NFU, said increased glyphosate use (up one third since 2012, to an area the size of Wales) was probably due to treatment of 'black grass.'
http://www.thetimes.co.uk/tto/environment/article4528297.ece
Black grass is a glyphosate-resistant super-weed just like Japanese knotweed. Herbicide resistant black grass, first seen in 1982 (two years after farmers started spraying glyphosate pre-harvest) and is now found on 16,000 farms in 34 counties. Gagen said that spraying wheat could result in traces of glyphosate ending up in bread sold in supermarkets but the amount was well below the maximum residue level set by the EU. A Defra spokesman said: *"There are extensive regulations in place so that people and the environment are protected from pesticides. The approval of glyphosate for use across Europe is being reviewed by the EU Commission."*

Figure: Pesticides - active substances

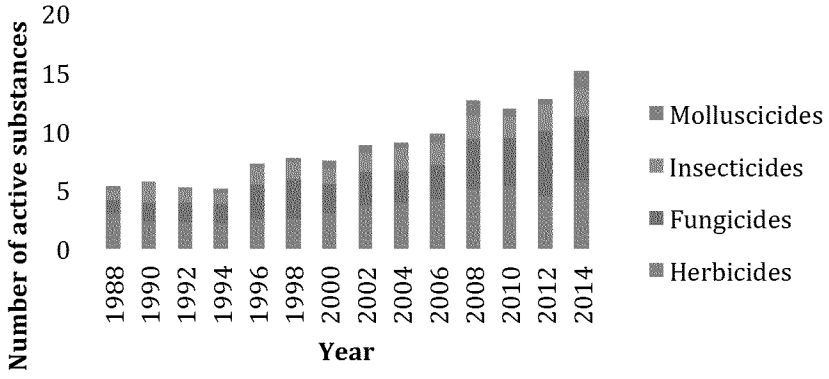


Fig. 1 PESTICIDES: Number of active substances used on Oil Seed Rape in the UK between 1988 and 2014: By kind permission of John Hoar, Hampshire Beekeeper's Spray Liaison Officer. Figures supplied by FERA

Figure: Pesticides - times treated

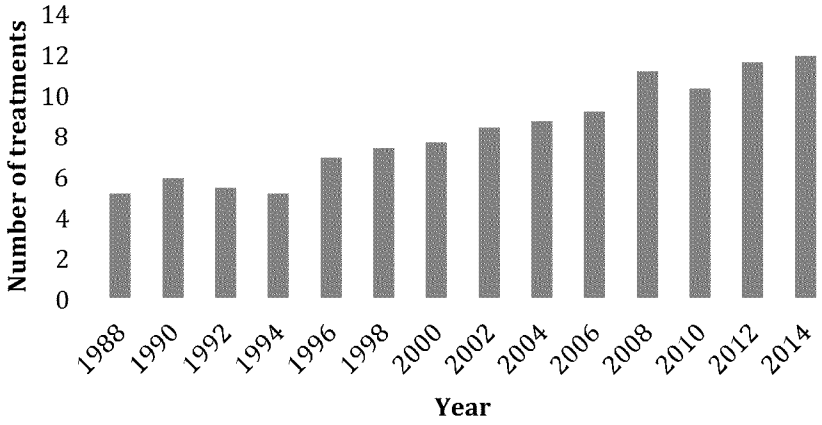


Fig. 2 PESTICIDES TIMES TREATED: used on Oil Seed Rape in the UK between 1988 and 2014: By kind permission of John Hoar, Hampshire Beekeepers Spray Liaison Officer. Figures supplied by FERA

Healthy Harvest-safeguarding the Crop Protection toolbox: June 2014

The National Farmers' Union (NFU), the Crop Protection Association (CPA) and Agricultural Industries Confederation (AIC) launched *Healthy Harvest – safeguarding the crop protection toolbox* in June 2014. https://www.nfuonline.com/healthyharvest_final_digital/

The NFU and pesticide companies continually defend the use of pesticides for economic reasons and complain at any attempt to restrict the 320 at their disposal. One farmer defended aerial spraying of bracken with herbicide. CPA, AIC and the NFU commissioned Andersons to write a Report: The effect of the loss of plant protection products (i.e. pesticides) on UK Agriculture and Horticulture that predicted dire economic effects on UK farming if pesticides were restricted.

Why are you all protecting the pesticides industry? Have you no insight? You and your families are likely to be affected by some of these diseases in the future

Monsanto has been lying to you for the sake of money. They wanted to control the food. "*Control the food and you control the people*". The CEO Hugh Grant and the US EPA knew that glyphosate caused all of these problems. The Corporation concealed the carcinogenic effects of PCBs on humans and animals for seven years. They have no plans to protect you and your families from the tsunami of sickness that is affecting us all in the UK and the US.

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

The global élite may be able to survive by eating organic food, but not by the pollution of water, soil and air by genotoxic and teratogenic herbicides, insecticides and other industrial chemicals. Governments and Regulators only measure a small fraction of them. The chemical industry has intentionally created a toxic environment from which none can escape. The devastating effects of these silent killers in our environment do not distinguish between farmers or city dwellers, the wealthy or the poor, between media moguls, editors or their reporters, Monsanto or Syngenta Executives, Prime Ministers or Presidents. Many people in the UK are no longer reaching the biblical age of three-score-years-and ten because they are dying of cancers, neurological diseases such as Alzheimer's, Motor Neurone disease, multiple sclerosis, Parkinson's, obesity, diabetes, kidney failure, liver