



PFAS in pesticides

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To: Ms. Kyriakides
European Commissioner for Health and Consumer Policy
European Commission
B-1049 Brussels.

Concerning: Insecticides contaminated with PFAS

Dear Ms. Kyriakides,

New research of Lasee et al.¹ demonstrates the presence of fluorinated substances in pesticide formulations. After having previously found concentrations of a variety of PFAS substances in soil samples in the site studied (5 fields)², the author now has been looking for the source of the contamination. In this study 24 members of the very large fluorinated family of PFAS (>4000 substances) were studied in 10 insecticide formulations that were previously used on the site. Perfluorooctane sulfonic acid (PFOS) was found in 6 of the 10 formulations with concentrations ranging from 3.92 to 19.2 mg/kg. PFOS (mg/kg) was found in Abamectin 3.92 ± 0.51 , in Novaluron 9.18 ± 0.34 , in Mineral Oil (Petroleum oil) 8.64 ± 0.67 , in Imidacloprid 13.3 ± 1.4 , in Spiromesifen 19.2 ± 1.2 , and in Malathion 17.8 ± 0.7 . Other members of the family were present at a lower level. PFOS (ng/kg dry soil) in soil was demonstrated in the 5 fields at 698 ± 120 , 1150 ± 165 , 1720 ± 299 , 156 ± 26 , 247 ± 14 , while the blank value was 0.0. PFAS-contamination was also demonstrated in three samples of foodstuff crops (corn, beans, and peanuts) that were grown on site. Multiple PFAS species were found in soil and plant grab samples beyond what was observed in the insecticides tested (PFOS).

Dear Commissioner, we think the discovery of PFAS contamination is a serious matter. The sample taken (10 insecticides) is not big, but the data do no lie: 6 formulations contain substances of the PFAS-family at a high level. The study also shows soil contamination and crop contamination and potential health concerns. Likely the levels in surface water of PFAS will be exceeded (see new EQS of 0,0044 ug/L -sum of 24 PFASs- in the Water Framework Directive) by pesticide application.

Per- and polyfluoroalkyl substances (PFAS) consist of >4000 man-made chemicals, produced since the 1950s. Because of their water-, dirt- and grease-repellent quality, they are used in a variety of consumer and industrial products, like outdoor clothing, baking paper, food-packing materials, non-stick coating in pans and fire-fighting foam, among

¹ Steven Lasee, Kaylin McDermott, Naveen Kumar, Jennifer Guelfo, Paxton Payton, Zhao Yang, Todd A. Anderson, Targeted analysis and Total Oxidizable Precursor assay of several insecticides for PFAS, Journal of Hazardous Materials Letters 3 (2022) 100067.

² A United States Department of Agriculture (USDA) cropping systems research laboratory greenhouse.

other things. PFAS can simply migrate into the environment. Most PFAS are not biodegradable, can easily spread through the air and water and can be taken up by plants and animals. PFAS are hydrophobic and have an increased affinity with proteins in the human body. They have a tendency to accumulate in humans, because of their very long elimination half-life up to 8.5 years. A wide range of adverse effects of PFAS has been described in adults, like liver damage, increased risk of testicular and kidney cancer, thyroid disorders and changes in plasma lipid concentrations³. The most sensitive effect identified in children is a decreased response to tetanus, hepatitis B and diphtheria vaccinations due to prenatal PFAS exposure. Rodent studies show concerning developmental effects in offspring that was exposed to high levels of PFAS during pregnancy or in early life. Effects consist of a wide range of developmental effects, such as growth restriction, altered behavioral patterns and endocrine disruption. PFAS exposure predominately takes place by inhalation of dust. Research indicates⁴ that trans-placental transmission and breastfeeding are the most important determinants of PFAS exposure in early life. EFSA's Health-Based Guidance Value for the four main PFAS-substances⁵ (even without applying uncertainty factors) is already exceeded by a large part of the population. Any further addition of PFAS should be prevented, especially for the unborn.

We urge you to mandate EFSA to carry out its own sampling and analysis of PFAS residues and, based on the results, activate article 69 and suspend the pesticides in question, while asking EFSA for an opinion in parallel. It would be good to test the formulations but also representative soil, water and crops where these formulations have been used. And ask the member states to do the same for the formulations they have authorised. Additionally, we respectfully ask you to mandate EFSA to carry out a solid risk assessment on human health and the environment. And ban any use of PFAS in pesticide formulations (Art. 27, put them – all fluorinated but, more widely, also all halogenated substances- on the list of unacceptable co-formulants).

Commission already stated⁶: Per- and polyfluoroalkyl substances (PFAS) require special attention, considering the large number of cases of contamination of soil and water - including drinking water - in the EU and globally, the number of people affected with a full spectrum of illnesses and the related societal and economic costs. That is why the Commission proposes a comprehensive set of actions to address the use of and contamination with PFAS. We note that it is not the first time additional undeclared toxic compounds are found in commercial formulations⁷, it is time the Commission takes action.

³ Inge A.L.P. van Beijsterveldt, Bertrand D. van Zelst, Sjoerd A.A. van den Berg, Kirsten S. de Fluite, Manouk van der Steen, Anita C.S. Hokken-Koelega, Longitudinal poly- and perfluoroalkyl substances (PFAS) levels in Dutch infants, *Environment International* 160 (2022) 107068

⁴ Inge A.L.P. van Beijsterveldt, Bertrand D. van Zelst, Sjoerd A.A. van den Berg, Kirsten S. de Fluite, Manouk van der Steen, Anita C.S. Hokken-Koelega, Longitudinal poly- and perfluoroalkyl substances (PFAS) levels in Dutch infants, *Environment International* 160 (2022) 107068

⁵ Schenk et al., Risk to human health related to the presence of perfluoroalkyl substances in food, 2020 European Food Safety Authority, doi: 10.2903/j.efsa.2020.6223

⁶ COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Chemicals Strategy for Sustainability Towards a Toxic-Free Environment, Brussels, 14.10.2020 COM(2020) 667 final

⁷ Gilles-Eric Seralini and Gerald Jungers, Toxic compounds in herbicides without glyphosate, *Food Chem Toxicol.* 2020 Dec;146:111770. doi: 10.1016/j.fct.2020.111770. Epub 2020 Oct 4.

We hope for your support and your reaction,
Sincerely yours,

Hans Muilerman,
Pesticide Action Network, Brussels.
