



February 18, 2025

SB345 Pesticides - PFAS Chemicals - Prohibition

Senate Education, Energy and the Environment (EEE) Committee

Statement in Support of SB345

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The Environmental Working Group is a research and policy organization based in Washington, DC, with extensive experience researching the effects of PFAS and pesticide exposure to human health.

We offer the following letter in support of HB386. PFAS generally are known to harm health at very low levels, and we support efforts to protect public health through reducing exposure to PFAS by phasing out the use of PFAS pesticides. These PFAS pesticides are widely found in food, and are environmentally persistent, which can lead to contamination of water sources.

PFAS pesticides are widely detected in food, putting our food supply at risk

Food is expected to be a major route of exposure to pesticides and PFAS. PFAS pesticides directly contaminate foods when they are applied to crops before, during, and after the growing season.

Based on testing data from the Department of Agriculture's Pesticide Data Program from 2017-2023, **half, or 33, of the registered PFAS active ingredients have been detected in produce sold in the United States**, and 17 are found in at least 5 percent of samples for a given commodity. Out of the 52 commodities analyzed 39 have at least five percent of samples containing one or more PFAS active ingredients. All the analyzed commodities had at least one detection of a PFAS active ingredient.

Nine types of fruits and vegetables, including kale, grapes, sweet bell peppers, hot peppers, mustard greens, peaches, raisins, frozen strawberries and tomatoes had detections of five or more different PFAS active ingredients.

Current regulatory approaches do not consider how mixtures of pesticides may impact human health even though human exposure routinely occurs as a mixture.

The fungicides fluopyram and fludioxonil as well as the insecticides bifenthrin and flonicamid are some of the most prevalent PFAS active ingredients in foods found on 22 and 13, and 20 and 8, different commodities respectively.



PFAS are a class of toxic chemicals

PFAS, or per and polyfluorolalkyl substances, are a class of chemicals structurally defined as having one fully fluorinated carbon atom. This definition comes from the Organization for Economic Cooperation and Development, has been adopted by multiple state and federal agencies, and codified in dozens of states, including Maryland law.

This class of chemicals consists of thousands of individual structures, including the 66 pesticide active ingredients, or PFAS pesticides, in HB386.

Well studied members of this chemical class have been shown to be extremely toxic to human health, associated with numerous adverse health effects including increased risk of several cancers, suppression of the immune system, adverse birth outcomes like low birth weight, and high cholesterol¹.

Exposure during pregnancy may be particularly harmful, causing harm to children after they're born such as reducing the effectiveness of vaccines which may lead to increased risk of infection.

These well studied compounds raise serious red flags about the potential health effects of all members of the PFAS class, including PFAS active ingredients, especially for immunotoxicity and developmental and reproductive toxicity.

In fact, 35 of the PFAS active ingredients do not have updated reproductive and developmental toxicity studies according to an analysis from the Environmental Protection Agency². And in an analysis of pesticide immunotoxicity studies, 40 percent of immunotoxic pesticides were PFAS active

¹ Carol F. Kwiatkowski, David Q. Andrews, Linda S. Birnbaum, Thomas A. Bruton, Jamie C. DeWitt, Detlef R. U. Knappe, Maricel V. Maffini, Mark F. Miller, Katherine E. Pelch, Anna Reade, Anna Soehl, Xenia Trier, Marta Venier, Charlotte C. Wagner, Zhanyun Wang, and Arlene Blum
Environmental Science & Technology Letters 2020 7 (8), 532-543
DOI: 10.1021/acs.estlett.0c00255

² US EPA. List of Conventional Registration Review Chemicals for Which an FFDCA Section 408(p)(6) Determination is Needed. October 26, 2023. Available at:
<https://www.regulations.gov/document/EPA-HQ-OPP-2023-0474-0002>



ingredients³, even though they make up a much smaller percentage of pesticide registrations.

Dozens of pesticide active ingredients that meet the PFAS definition are used in Maryland

According to Maryland Pesticide Use Surveys from 2014, 2020 and 2022, about 520,000, 212,000 and 792,000 pounds of 32, 29, and 29 PFAS active ingredients were used in the state, respectively during that time. In 2022, the most recent year for which data are available, excluding one highly used herbicide, this represented just **5 percent of total pesticide use in Maryland** primarily in the state's eastern counties.

Similarly, data from USGS estimates that about 59,000 to 103,000 pounds of 22 to 27 PFAS pesticides were used in Maryland in 2018, the most recent year for which data are available.

However, lack of detailed reporting requirements makes it difficult to determine patterns and trends in use of pesticides overall.

PFAS pesticides are persistent in the environment

A key concern and uniqueness of PFAS is their extreme persistence in the environment due to the strength of the carbon fluorine bond, and subsequent resistance to degradation. Currently, the EPA only requires degradation studies for pesticides that are 1-4 months in duration, which can miss degradation products that form over years ³. Similarly, the assessment of the toxicity of these breakdown products is inadequate. Conversely, European regulations incorporate chemical persistence into regulatory policies⁴.

For the 66 PFAS pesticide active ingredients, **the parent compounds or their degradates are likely to be perpetually persistent in the environment with the potential to contaminate water sources**. One such terminal degradate is the ultra-short chain PFAS, trifluoroacetic acid, or TFA. The presence of TFA in the

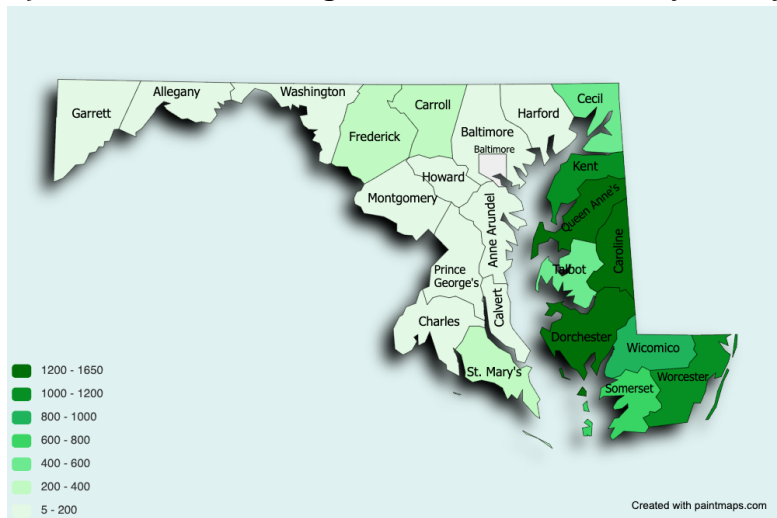
³ Donley N, Cox C, Bennett K, Temkin AM, Andrews DQ, Naidenko OV. Forever Pesticides: A Growing Source of PFAS Contamination in the Environment. Environ Health Perspect. 2024 Jul;132(7):75003. doi: 10.1289/EHP13954. Epub 2024 Jul 24. PMID: 39046250; PMCID: PMC11268133.

⁴ Mohr, T., Schliebner, I., Neumann, M. et al. Progress in European chemicals policy to support the protection of the environment and human health from persistent, mobile and toxic and very persistent and very mobile substances. Environ Sci Eur 36, 99 (2024). <https://doi.org/10.1186/s12302-024-00932-7>

environment, meaning, water, people, dust, plants and animals, is increasing, and **PFAS pesticides are a likely source of TFA formation**⁵, especially in agricultural regions.

According to one study, it is estimated that **25,000 to 83,000 pounds of TFA could form annually from the use of PFAS pesticides in Maryland** (Figure A and B)⁶.

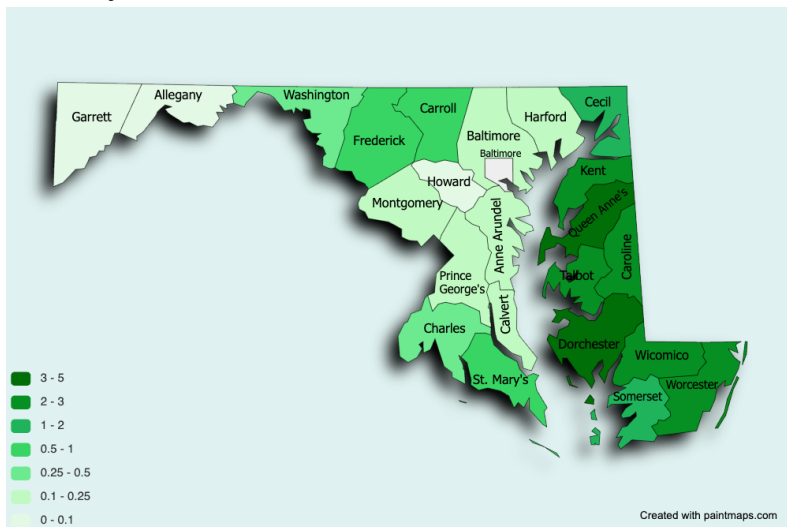
A) Estimated total kilograms of TFA formation by county in Maryland



⁵ Arp HPH, Gredelj A, Glüge J, Scheringer M, Cousins IT. The Global Threat from the Irreversible Accumulation of Trifluoroacetic Acid (TFA). *Environ Sci Technol*. 2024 Nov 12;58(45):19925-19935. doi: 10.1021/acs.est.4c06189. Epub 2024 Oct 30. PMID: 39475534; PMCID: PMC11562725.

⁶ Joerss H, Freeling F, van Leeuwen S, Hollender J, Liu X, Nödler K, Wang Z, Yu B, Zahn D, Sigmund G. Pesticides can be a substantial source of trifluoroacetate (TFA) to water resources. *Environ Int*. 2024 Nov;193:109061. doi: 10.1016/j.envint.2024.109061. Epub 2024 Oct 10. Erratum in: *Environ Int*. 2024 Dec;194:109198. doi: 10.1016/j.envint.2024.109198. PMID: 39442319.

B) Estimated total kilograms per square mile of TFA formation by county in Maryland



Source: Adapted and modified from Joerrs et al. 2024. **Pesticides can be a substantial source of trifluoroacetate (TFA) to water resources.** *Environment International*. 193 (2024) 109061. Available at <https://www.sciencedirect.com/science/article/pii/S0160412024006470>

In summary, although PFAS pesticides represent a small amount of overall pesticide use and registrations, they may have an outsized impact on human health because of their toxicity and persistence.

We urge you to pass SB345 to reduce PFAS exposure in Maryland.