UNIVERSITY OF
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Department of Physics and Astronomy

Testimony in Support of SB 158 Pesticide Regulation – PFAS Testing – Requirements

February 2, 2023
Committee: Education, Energy, and the Environment
Submitted by: Graham Peaslee, Professor of Physics
Position: Favorable

I am Graham Peaslee, a professor at the University of Notre Dame and **I specialize in studying the fate and transport of PFAS in commercial products and in the environment.** I have **expertise in analytical methods used to measure PFAS and total organic fluorine** as a rapid screening method for PFAS. My research has led to over 25 peer-reviewed publications on PFAS and more than 230 total publications in my 35-year career in chemistry and physics. I am a Fellow of the American Chemical Society, and I have active grants from US DoD, US EPA, USGS, and Water Research Foundation to measure PFAS in the environment.

I will first briefly introduce PFAS and why it is essential to restrict them in pesticides (and every other product that releases them directly into our water supply.)

The grave threat posed by PFAS, a class of over 12,000 emerging and dangerous contaminants, cannot be overstated. All PFAS are man-made and share a common feature: they persist in the environment for centuries or even millennia, earning them the nickname "forever chemicals." Alarmingly, many PFAS have already been linked to toxicity at shockingly low levels in drinking water, while the toxicity of the rest remains unknown. Furthermore, many PFAS have a tendency to accumulate in the food we eat (including plants, meat, fish, and eggs), putting future generations at risk. **To tackle this growing problem, we must regulate PFAS as a class, rather than just addressing them one by one** as we do with other toxic chemicals.

PFAS contamination has been called the largest environmental contamination issue in the US, with evidence pointing to it already being present in a majority of our drinking water supplies. This is a problem that demands a committed effort, akin to the response to the ozone hole, as well as regulations to prevent further contamination. And, as media attention continues to rise with the realization that our use of PFAS has surpassed Earth's planetary boundaries, with no water or air untouched, the damage to human health will increase as well. **Unlike the ozone hole, the damage from PFAS will occur wherever they are released, putting pressure on state and local regulators to act.** The EPA is taking action at the national level, but the challenge is compounded by the fact that the profitable PFAS industry is larger than the refrigeration industry that caused the ozone hole. Thus, regulation will necessarily be slow, as seen by the slow progress in formalizing drinking water standards and PFAS analysis methods. **Swift action in Maryland is crucial, as PFAS contamination is already widespread in the US and will continue to affect the health of our communities and the agricultural industry if allowed to spread**. The solution requires state and local regulators to work together for a comprehensive and effective response.

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I am here today to support this bill that aims to regulate the use of PFAS in pesticides. **It is crucial to understand that PFAS are not necessary components in pesticides,** as most pesticides globally do not contain it as an active ingredient. Despite this, **recent evidence from Dr. Lasee shows that some pesticides in the US contain PFAS as an additive**. Although it is not the primary component, the PFAS in these products still exist at high concentrations of **millions of parts per trillion**. A single gallon of such a pesticide can potentially contaminate tens of millions of gallons of water, exceeding the EPA's health advisory limit of 0.02 parts per trillion of PFOS.

This PFAS threat to our communities is significant and it can be readily stopped by adopting the language contained in this bill. PFAS is not an essential ingredient for these pesticides, as there is a sufficient number of alternative pesticides available without PFAS currently, so it should not be an undue burden to simply require pesticides without PFAS. **As a PFAS measurement expert, I can attest that it is possible to identify pesticides that contain significant amounts of PFAS (in the thousands and millions of parts per trillion) using readily accessible commercial PFAS testing laboratories.** More importantly, there are commercial laboratories and even alternative methods that are able to distinguish those pesticides that don't have any significant concentrations of PFAS.

There is no pesticide-specific method needed for these analyses. Any water-based pesticide can simply be diluted a thousand times with distilled water, and this standard laboratory practice would remove any concern about a matrix, oily or otherwise. The new EPA standard method 1633 or even any routine drinking water EPA method would work quite well on such extractions taken from any commercial pesticide on the market as the sample now resembles drinking water.

In addition, **this bill provides an even quicker and less expensive method to determine that there are no PFAS in a pesticide – the total organic fluorine measurement provision.** If there is no measurable total organic fluorine above 10 ppb, it means there are no PFAS in the product at concentrations of concern. Total organic fluorine screening methods are relatively new, but commercial companies already offer this test at a much lower cost than EPA method 1633. Eurofins USA lists the detection limits of their total organic fluorine test as a part per billion, for example, that would satisfy this bill's requirement easily. Oher companies and total organic fluorine methods with the same sensitivity will be available in the future too. **This is a very practical alternative in this bill that would routinely protect the agricultural communities of Maryland from the contamination of their crops and waters by PFAS.**

Lastly, it's important to note that some pesticides may contain PFAS due to contaminated plastic containers. Our tests have shown that PFAS from the containers can indeed migrate into the pesticides during storage and reach high concentrations in a short period of time, even increasing in hot conditions. This contamination can be detected through EPA method 1633 or total organic fluorine screening just as easily, allowing manufacturers to test their supplies before entering Maryland.

Regardless of its origin, these harmful "forever chemicals" should not be present in pesticides, nor allowed to enter Maryland crops and waters.

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