Should farmers be concerned about PFAS?

Alan Hahn for *Progressive Dairy*

AT A GLANCE

Under certain circumstances, PFAS pose a potential threat to agricultural properties, operations and livelihoods. Knowing some of the "red flag" sources of PFAS should help you take a measured evaluation of PFAS risks on your farm.

Alan Hahn
Business Development Manager
Dragun Corporation
ahahn@dragun.com
www.dragun.com

As many farmers are well aware, there were several farms in the U.S. that have been impacted by per- and polyfluoroalkyl substances (PFAS). In fact, PFAS could pose a significant environmental threat to agriculture. Now PFAS have shown up in the Midwest in beef from a farm in Michigan. How did this happen? What can you do? What should you do?

What are PFAS?

Used for decades dating back to the 1940s, PFAS are a group of 4,000 to 5,000 (or more) manmade chemicals. Importantly, PFAS-containing products have wide-ranging industry applications in automotive, construction, electronics, firefighting foam (aqueous film-forming foam or AFFF) and more.

The commercial application of these chemicals was very effective in providing heat, stain and water resistance. They have been used in consumer products such as grease-resistant paper (for fast-food packaging and pizza boxes), non-stick cooking pans, stain- and water-resistant carpeting, and certain clothing, cosmetics, dental floss and much more.

With decades of use and such varied use of PFAS, it is easy to understand why these chemicals are found in the environment around the globe and the blood of many, if not most humans.

Chemically, PFAS have a strong carbon-fluorine bond, which means the chemicals do not easily break down and have been called "forever" chemicals. Some of the PFAS are potentially carcinogenic and are therefore a concern to human health and the environment.

How toxic are PFAS chemicals?

This is the crux of the PFAS issue currently. It's important to remember: Although PFAS share the commonality of a carbon-fluorine bond, they are a group of chemicals with different chemical structures, different chemical characteristics and likely different toxicities. There has been some talk of regulating all 4,000 to 5,000 PFAS chemicals as a group. However, the current science indicates PFAS should be evaluated individually or perhaps by category (e.g., number of carbon atoms in the chain).

Current data suggests that two of the PFAS (PFOA and PFOS) are possible carcinogens at very low levels, measured in parts per trillion. For perspective, a part per trillion is equivalent to a grain of sand in an Olympic-sized swimming pool.

We are waiting on more clarity as the EPA develops standards for PFOA and PFOS. Some states have already developed some standards for a few PFAS compounds.

Agriculture and PFAS

Two primary ways PFAS have affected agriculture include the use of firefighting foams close to farms and land application of biosolids.

Continued on page 28

Should farmers be concerned about PFAS? cont'd from page 27

A common question is, 'Should I test for PFAS on my farm?' Ultimately, this is a question for your legal counsel. However, for a variety of reasons, we caution our clients regarding the voluntary collection and testing of samples. If the question is posed to you by anyone, seek counsel from trusted legal and technical advisers.

A dairy farm in New Mexico is hydraulically downgradient from a military base (i.e., the groundwater flows from the military base toward the farm) that used AFFF for fire suppression. The foam contains PFAS and unfortunately impacted the groundwater used by the dairy farm for irrigation and water supply. The farmer lost more than 1,000 dairy cows, had to dump 72 million pounds of milk, and the farm can no longer be used for dairying.

Farms in Maine and the farm in Michigan (with the PFAS in beef) land-applied biosolids from the local publicly owned treatment works (POTW). This practice has been used for years as a beneficial reuse providing soil amendments. It was viewed as an effective method to recycle biosolids that would have otherwise been landfilled.

Unfortunately, some companies that discharged their processed water and wastewater to the POTW used PFAS. Since most POTWs cannot effectively treat PFAS, it ends up in the biosolids that are land-applied to farm fields. The POTWs that have been most at risk for PFAS contamination are those that accepted industrial discharges from chromium platers and paper companies.

The land-applied biosolids containing PFAS are taken up in the crops and, in some instances, impact the groundwater. The crops, animals and farm property become an environmental liability.

What can or should farmers do?

News of farms negatively impacted by PFAS is, to say the least, troubling for farmers. So what can and should farmers do? A common question is, "Should I test for PFAS on my farm?" Ultimately, this is a question for your legal counsel. However, for a variety of reasons, we caution our clients regarding the voluntary collection and testing of samples. If the question is posed to you by anyone, seek counsel from trusted legal and technical advisers.

If you have not applied biosolids on your farm field and you are not downgradient from a military base or airport that used AFFF (or other "known" sources of PFAS), chances are your farm is not impacted by PFAS. Even if you have land-applied biosolids, with the exception mentioned above of POTWs that treated PFAS wastewater, chances are good your farm has not been impacted.

The FDA provided a PFAS update in October 2021. In their update, the agency said, in part: "Our ongoing testing of samples from the general food supply has resulted in very few having detectable levels of PFAS, and after assessing the potential health risk, we have no scientific evidence indicating a need to avoid any food in the general food supply."

It is clear that under certain circumstances, PFAS pose a potential threat to agricultural properties, operations and, in some cases, livelihoods by forcing farms to close. Knowing some of the "red flag" sources of PFAS should help you take a measured evaluation of PFAS risks on your farm.

For more information on environmental issues that may affect agriculture, we have developed a free resource page under the Agricultural–Environmental Resources tab of our website (www.dragun.com/agricultural-environmental-resources).