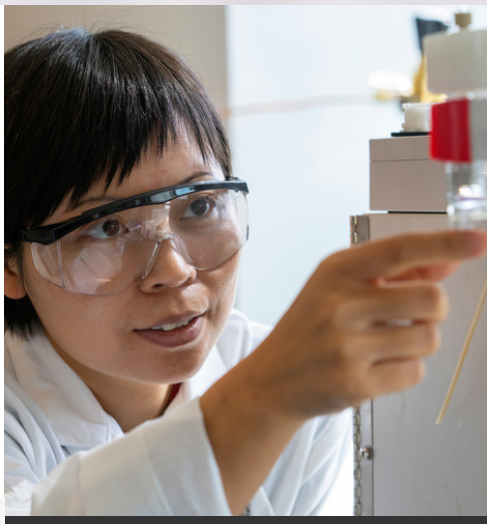
Per- and polyfluoroalkyl substances, PFAS

Addressing the problem of 'forever chemicals'

Per- and Polyfluoroalkyl Substances, or PFAS, are a complex group of manmade chemicals, many of which are known to degrade very slowly. As such, they build up over time in humans, animals and environments. PFAS are found in many products including stain-resistant substances, firefighting foams, clothing, furniture, food packaging and cookware. PFAS are known to produce negative impacts, the extent to which is uncertain.



12,000+

PFAS chemicals are known to exist, yet long-term impacts may take decades to understand – posing the possibility of significant economic consequence during that time.

Opportunities

Methods to Identify PFAS
Few laboratory techniques exist that can identify PFAS. They are time-consuming and expensive. Research must focus on developing techniques that rapidly and cheaply identify PFAS, as well as sampling techniques that provide holistic representations of sampled areas.

Fate and Transport in the Environment
When PFAS is introduced in the environment, where does it go, how does it get there, and how long does it stay? We currently understand very little about how PFAS moves through surface and groundwater, soil and air. Research must advance knowledge about the fate and transport of these chemicals through our environment to make us aware of their entering into our drinking water, food and other systems.

Vision

Texas A&M AgriLife aims to lead a community of practice and engagement where research and outreach experts will converge to develop cutting edge methods and approaches for addressing today and tomorrow's PFAS problems.

Commitment

Texas A&M AgriLife Research is committed to advancing cutting-edge research and innovations, sustainable production systems, economic strength and healthy human living across Texas, the nation and the world.

TEXAS A&M AGRILIFE RESEARCH

Opportunities

Bioaccumulation Impacts
We do not yet know what precise accumulation causes health concerns in humans, livestock, wildlife or other natural resources. However, evidence of negative health effects include increased risk of cancers and developmental delays in humans and wildlife. We also know that plants grown for human consumption can uptake PFAS compounds and be passed to humans. Research must build the information base needed to quantify PFAS accumulation and its impacts to humans and animals.

Testing of Proprietary mixtures
More than 12,000 individual PFAS chemicals have been identified. However, testing of individual PFAS is costly and time consuming. At the same time, we know that certain mixtures of PFAS chemicals are proprietary and used in the production of specific products. Research must develop methods for testing proprietary PFAS mixtures in order to track and address the source of PFAS entering environments.

Treatment/Remediation
Just as we gain understanding of how to detect PFAS, how it moves through the environment, and exposure levels, we must also learn how to treat and remediate affected areas. Facilities like utility wastewater treatment plants and rural at-home drinking water treatment could help mitigate PFAS where it enters drinking water sources.

Communication
The concept of PFAS exposure is foreign to the much of the public. Education and outreach must educate Texans – an effort to assist them in decision-making about the products they consume every day.