



The Connecticut Agricultural Experiment Station

123 HUNTINGTON STREET, P.O. BOX 1106, NEW HAVEN, CONNECTICUT 06504

*Putting Science to Work for Society
Protecting Agriculture, Public Health, and the Environment*

Founded 1875

1. Current CAES PFAS Analytical Capabilities

- Extraction, preparation, and analysis of soil samples for PFAS
 - Quantitation of 24 compounds, including those in EPA 537
 - Limit of detection ~ 25 ppt for PFOA, PFNA, PFDA, PFUnDA, PFDoA, PFTrA, PFBS, PFPeA, PFHxS, PFHpS, PFOS, PFNS, PFDS
 - Limit of detection ~ 250 ppt for PFBA, PFPeA, PFHxA, PFHpA, PFTeDA, PFOSA, MeFOSAA, EtFOSAA, 4-2FTS, 6-2FTS, 8-2FTS
 - Qualitative screening for additional PFAS
- Analysis of PFAS in water samples
 - Quantitation of 24 compounds, including those in EPA 537
 - Limit of detection ~ 50 ppt for PFOA, PFNA, PFDA, PFUnDA, PFDoA, PFTrA, PFBS, PFPeA, PFHxS, PFHpS, PFOS, PFNS, PFDS
 - Limit of detection ~ 500 ppt for PFBA, PFPeA, PFHxA, PFHpA, PFTeDA, PFOSA, MeFOSAA, EtFOSAA, 4-2FTS, 6-2FTS, 8-2FTS
 - Qualitative screening for additional PFAS
- Method development for PFAS analysis in additional solid and liquid matrices
- Note: **Methods at CAES utilize liquid chromatography - high resolution mass spectrometry and specialized software which is essential for screening for “unknown” PFAS compounds**
 - Thousands of PFAS analytes exist and can be found in environmental samples

2. Potential CAES PFAS Analytical Capabilities (may require additional staff and/or funding)

- Implementation of EPA 537 and 537.1 for analysis of low levels of PFAS in drinking water
 - ~100x reduction in limit of detection compared to current water analysis method
- Extraction, preparation, and analysis for PFAS in sediment, biosolids, wastewater, fish, plant, food, and consumer product samples
- Improvement of detection limits is expected with additional time spent on method optimization
- Bring PFAS analysis methods under the scope of our ISO/IEC 17025:2017 accreditation

3. Ongoing PFAS Research at CAES

- Investigating the interactions between PFASs and nanomaterials in food crops
- Investigate nanoceria to potentially inhibit PFAS accumulation in food
- Quantification of PFAS in soil and plants from Loring Air Force Base, ME
- Building an internal library for analysis of “unknown” PFAS

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WWW.CT.GOV/CAES

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4. About the Connecticut Agricultural Experiment Station (<https://portal.ct.gov/caes>)

- Independent state agency- approximately 100 staff; 46 Ph.D. Scientists
- Hosts a combination of research, regulatory and outreach programs in Public Health, Agriculture, and the Environment
- Department of Analytical Chemistry:
 - Primary chemistry laboratory for:
 - CT Department of Consumer Protection (DCP)
 - CT Department of Energy and Environmental Protection (DEEP)
 - CT Department of Agriculture (DoAg)
 - Department head is the State Chemist.
 - Works directly with Department of Public Health (DPH), State Police ESU, FMI WMDD, local law enforcement, and cities/towns on samples as needed.
 - Participates in several federal programs
 - ISO/IEC 17025:2017 accredited for pesticides, heavy metals, and aflatoxins analysis in food and feed
 - Funded in FDA FERN cCAP (Chemical Terrorism) since 2005
 - State EPA FIFRA Laboratory