

FRI eNews provides updates on research and events at FRI and UW-Madison and other current food safety news.

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## FRI News

**FRESH seminars:** FRI's spring seminars are underway! All seminars will be at 11 a.m. central time and will be held via webinar. You can learn more and register [here](#).

- Thursday, March 20: **Amy Schultz** (WI State Lab of Hygiene) conducts research to improve our understanding of how **environment shapes human health** across the lifespan.
- Tuesday, April 8: **Rob Striker** (UW-Madison) conducts work to **improve therapy for human infectious diseases**, including making new antimicrobials and **improving stewardship of existing antimicrobials**.



FRI affiliate member **Anne Marie Singh** and colleagues [recently published](#) a study investigating **accidental ingestions of food allergens by pediatric children with food allergies**. The study found that during a one-year period, more participating parents reported at least one accidental ingestion when captured prospectively using an app (31.1%) than when asked at the year's end (19.0%). Each month, 10 to 25% of participants in the prospective cohort reported an accidental ingestion. Milk, wheat, tree nuts, sesame, and egg were frequently associated with accidental ingestions, with multiple ingestions, particularly to milk, noted. Anaphylaxis after an accidental exposure was reported for 33.1% of exposures in the prospective cohort (who reported exposures using an app), almost twice the rate (16.7%) reported at clinic visits by the retrospective cohort.

FRI executive committee member **Jeri Barak** and her lab demonstrated that *Salmonella* colonization of tomato plants is facilitated by previous infection with the water-soaking plant pathogen, *Xanthomonas hortorum*. **Can other water-soaking plant pathogens also contribute to *Salmonella* colonization?** [In FRI-funded research](#), the Barak lab and colleagues found, surprisingly (given the similar macroscopic effects caused by both *Xanthomonas* and *Pseudomonas*), ***Pseudomonas* infection of the plant does not promote *Salmonella* colonization of tomato plants; on the contrary, it appears to interfere with *Salmonella* survival**. A better understanding of microbial interactions and colonization mechanisms may provide novel biological approaches to improving food safety of produce.



FRI executive committee member **Kristin Schill** and FRI emeritus scientist **Kathy Glass** recently participated in the **FAO Expert Meeting on Toxigenic Clostridia in Foodborne Disease**. You can read the summary and conclusions of the meeting [here](#).

Registration is closed and full for **FRI's Better Process Cheese School** in Madison, Wisc., March 25–26.



with the Kaitlyn Casulli (University of Georgia) and Ann Charles Vegdahl (Cornell) will teach this course.

Registration is [open](#) for a symposium sponsored by **FRI**, **IFSH**, and **IAFNS** on **Innovations in Cleaning and Sanitation for Low Moisture Foods**, to be held April 29–30 in Arden Hills, Minn.

Registration is now open for the **FRI Annual Spring Meeting** (May 20–21) in Madison, Wisc. The hybrid program will include presentations on recent public health concerns, applied food safety research, applied microbiome research in manufacturing, FRI Applied Food Safety Lab update, recent developments in foodborne toxins and allergens, and basic research of bacterial foodborne pathogens. **Jim Dickson** of Iowa State University will present the William C. Frazier Memorial lecture and will be recognized for his contributions to food microbiology and safety.

## Food Safety News



**A *Listeria monocytogenes* outbreak associated with ready-to-eat frozen supplemental shakes** produced by Prairie Farms Dairy in Fort Wayne, Ind., **has claimed at least 12 lives** in recent years. While the **earliest cases date back to 2018**, more than half of the 38 cases (who had a **median age of 78 years**) occurred within the past year. Previous CDC investigations related to the outbreak occurred in 2018, 2021, and 2023, but a link to

a specific food was not made during those investigations. The shakes, all of which have been recalled, were sold to institutions such as long-term care facilities. **FDA's investigation found a *L. monocytogenes* strain closely related to the outbreak strain in environmental swabs** obtained at the Prairie Farms facility.

**The *Salmonella* outbreak associated with mini-pastries** that sickened **at least 69 people in Canada** (with 22 hospitalizations), as reported in last month's eNews, **has also impacted U.S. consumers**. In the U.S., at least 18 people **have been sickened** (with one hospitalization but no deaths) by the **same strain of *Salmonella* Enteritidis** that was investigated in the Canadian outbreak. The foods linked to the outbreak are Sweet Cream-brand mini pastries, which were manufactured in Italy and were served at catered events and food service locations such as restaurants and institutions.



**Two additional multistate foodborne disease outbreaks are under investigation now in the U.S.**, including a ***Salmonella* Newport** outbreak (with 29 cases so far) and **another *L. monocytogenes* outbreak** (with at least 36 cases). No food products have been linked yet to these outbreaks.



**The Institute for the Advancement of Food and Nutrition Sciences (IAFNS)** is looking for highly motivated students to participate in the **2025 Summer Research Opportunity Fellowship program**. This is a **paid, part-time, remote** opportunity for **graduate students** to directly participate in projects that advance food safety or nutrition sciences.

Applications are due March 31. More information about the program and projects can be found at [here](#).

**Highly pathogenic avian influenza (HPAI) H5N1 in cows and milk as well as birds and humans** continues to be an important topic in the news.

### HPAI in Animals

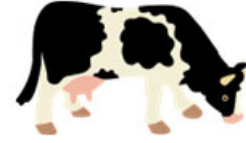
**As collated** by **Hon Ip, PhD**, director of the **Diagnostic Virology Laboratory at the National Wildlife Health Center in Madison**, during February 2025, **USDA**



herds, 50 wild birds from 12 different species and 24 mammals of eight different species including the harbor seal.

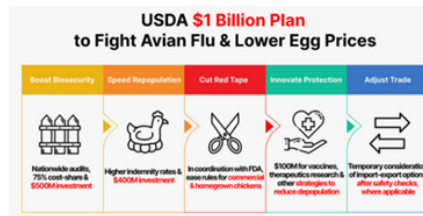
#### • Cows

- As of March 4, **977 dairy herds in 17 states** have been affected by H5N1 infections.
- As of Jan. 31, **a second genotype of H5N1** has been found in dairy herds.
  - Previously, infections in dairy cattle had been belonged to H5N1 clade 2.3.4.4b, **genotype B3.13**.
  - Dairy herds in Nevada and Arizona have now been shown to be infected with the **genotype D1.1**, which is the main genotype circulating now in wild birds and domestic poultry as well as in other mammals.
  - On Feb. 14, state officials reported that the D1.1 genotype was also found in milk produced by a herd in Arizona. The cattle had not yet shown symptoms at that time.
  - Sequencing of the D1.1 genotype virus found in dairy herds suggests that **multiple introductions of this viral genotype into cattle have occurred**. In addition, sequence analysis also shows **critical reassortment that increases adaptation to mammalian influenza receptors**.
  - **The D1.1 genotype has been found in some human H5N1 cases**, including the individual in Louisiana who died and the teenager in Canada who was in intensive care but also some with less severe symptoms.
- A new publication from USDA researchers (available as a preprint) demonstrated that **calves fed raw milk from cows that were experimentally inoculated with H5N1 developed infection**, sometimes with **mild symptoms** such as nasal discharge and loose stools. Because some **mild symptoms might be overlooked**, the **movement of calves between farms could result in farm-to-farm transmission of the virus**.



#### • Birds

- U.S. Secretary of Agriculture Brook Rollins announced USDA's strategy to combat avian influenza and reduce egg prices. The plan includes initiatives to **boost biosecurity**, **speed repopulation** and **minimize depopulation**, **strengthen vaccine research and development**, and **incorporate new measures to expand domestic egg availability** (expanding import of eggs from other countries, possibly blocking state restrictions for laying hens). In addition, **avian response staff that had been fired recently were rehired**. **Cattle are not mentioned** in Secretary Rollins' strategy to combat avian influenza.
- On Feb. 13, the company Zoetis **received a conditional license from USDA for a poultry vaccine for avian influenza**. According to Zoetis, "the conditional license was granted on the demonstration of safety, purity, and reasonable expectation of efficacy based on serology data... The decision to vaccinate commercial poultry flocks against HPAI, however, rests solely with national regulatory authorities in partnership with the poultry industry." An NBC news report states that a USDA spokesman clarified that **the conditional license does not mean that it is approved for commercial use or that poultry farmers can purchase it now**. Of note: **This vaccine is against H5N2**, which is closely related to the H5N1 virus currently circulating in poultry but should allow discrimination between naturally infected birds and those that are vaccinated. This could lessen past reluctance to vaccinate poultry for HPAI related to export limitations on potentially infected birds.

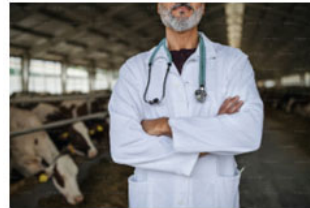


#### • Humans

- CDC has now confirmed H5 bird flu in 70 people in the last year. No person-to-person transmission appears to have occurred.



- Those infected include a dairy worker in Nevada, a poultry worker in Ohio, and the owner of a backyard poultry flock in Wyoming. All three had contact with infected animals or birds.
- The Wyoming and Ohio individuals with poultry connections had severe illness with respiratory involvement and required hospitalization. The Wyoming individual was reported to have underlying conditions.
- Sequence information is available for the dairy worker and the backyard flock owner in Wyoming). Both were infected with the D1.1 genotype. Both isolates contained a mutation (in the same protein, but at a different position) associated with more efficient replication in mammals. Both of these mutations have been seen previously in human cases (in Chile in 2023 and in Texas of 2024).
- While the D1.1 genotype has been associated with several severe cases in humans in North America, at least several other human cases with this genotype have confirmed in the U.S. in the past year and do not appear to have had severe symptoms.
- A new report from CDC reports that three of 150 U.S. bovine veterinarians tested had antibodies to H5, indicating they had a recent infection with the HPAI A (H5) virus; however, those with positive results did not report having any symptoms. None of three vets knew of any contact with infected cattle, including one vet who only practiced in states that have not to date had confirmed H5 infections in cattle, suggesting that more states may have H5 in dairy herds than is currently known.
- A mini-review by a NIAID working group was published in February which evaluates knowledge and gaps related to assessing human pandemic risks arising from the bovine H5N1 outbreak.
- In late 2024, the U.S. Department of Health and Human Services (DHHS) granted funding to Moderna to accelerate development of a human avian influenza vaccine; however, it has been reported that DHHS is now re-evaluating this contract.



## Government & Regulatory News

**Jim Jones**, the first deputy commissioner for human foods at FDA, resigned in February after less than two years in that new position. Jones cited recent widespread staffing cuts in his resignation letter. More than 1,000 FDA staff reportedly have been fired, although about 300 of these are expected to be rehired. Jones' position is being filled by **Kyle Diamantas (pictured)**, a former corporate lawyer who has worked for clients in the food, drug, cosmetic, dietary supplement, and other consumer goods industries. His work included **defending Abbott Laboratories** on a recent case related to problems associated with a **formula for premature infants**.



**The nominee for the new FDA Commissioner, Marty Makary**, is currently undergoing confirmation hearings.

**Thousands of scientists and regulators employed at U.S. government agencies (including CDC, FDA, and USDA) have been fired in the recent weeks** with many of the firings under legal challenge and some individuals almost immediately rehired. For a recent snapshot of these activities, read more here.

**The Department of Health and Human Services** announced that it will no longer use the public notice and comment rulemaking procedures on "matters related to agency management or personnel or to public property, loans, grants, benefits, or contracts."

To comply with the mandate that all new regulations be reviewed by the incoming administration, the final rule for **FDA's definition of healthy** has been delayed from Feb.





Two members of the U.S. House of Representatives have introduced **legislation that would block USDA's proposed *Salmonella* rule for raw poultry products**, arguing that the rule is not based on science, would hurt producers, and increase consumer costs without improving safety. However, numerous consumer advocates and public health groups **have supported the proposed rule** and believe it will reduce *Salmonella* illnesses caused by poultry.

## Current Literature

Not all *Salmonella* serovars cause human disease, so simply reducing *Salmonella* prevalence in meats such as chicken might not (and has not) reduced outbreaks.

**Knowledge of the prevalence of *Salmonella* serovars in food animals vs. those implicated in human disease can help prioritize control of certain serovars over others.** Towards this end, **a new report** in the current edition of Food Protection Trends summarizes and compares the reporting frequency of *Salmonella* serovars reported in two large food animal data sets (from USDA FSIS and National Center for Biotechnology Information Pathogen Detection databases). While differences in the two data sets were highlighted, the authors concluded that isolation patterns of some serovars (such as *Salmonella* Infantis) were more aligned with human outbreaks. The authors suggest that examining both datasets will provide **a better understanding of which serovars are most important to control to reduce human *Salmonella* disease from poultry and meat products.**



**What effects do different weather factors (and combinations of such factors) have on mycotoxin contamination in corn?** **A new publication** used data collected over 17 years from 12 countries to investigate this question. Associations found in previous studies (including the optimal temperature ranges for mycotoxin production) were also observed in this study. Among new insights: ***Aspergillus* toxins levels are increased when the median temperature is greater than 22°C during the critical period from 60 days before harvest until harvest, and a positive association between winds originating more from the north and *Aspergillus* toxins was found.** More work in this area can help better define the combined effects of such weather factors and mycotoxin contamination of crops.

A new review article **highlights recent advances in biofilm control technologies for the food industry, including chemical, physical, enzymatic, and biological strategies.**

Several other recent reports highlight advances related to biofilms:

- **One report** examined the **unique features associated with *Salmonella* biofilms found in dry environments vs. those found in wet environments.**
- **Shark skin** may look sleek and smooth, but up close, it has tiny scales that reduce drag but also prevent bacterial attachment. **Researchers** used lasers to carve nanoscale patterns on metal to mimic the shark-skin texture and found that not only did the pattern reduce microbial attachment to the metal, it also made the surface more water-repellent and therefore less likely to support growth of those microbes that might attach. The authors plan to develop machine learning models to optimize laser surface texturing for specific applications.



**Is there a relationship between certain environmental contaminants (heavy metals, microplastics) and the development of antibiotic resistance in bacteria?** **A new**

antibiotics. The authors further hypothesize that **microplastics act as substrates for bacterial biofilm formation** that can serve as “hotspots” for genetic exchange between bacteria, spreading antibiotic resistance.

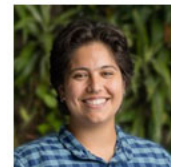
## UW-Madison and Wisconsin News

Did you know that the **D.C. Smith Greenhouse** (across the street from the building where the Food Research Institute is located) has hosted a hydroponics system for the past year? Tilapia fish and various plants both grow, with the fish waste used to fertilize the plants and the plants filtering the water for the fish. In the future, other species of plants and animals are expected to be tested in the system. (Photo by Keegan Gering, CALS)



**Two former FRI graduate students and FRI fellowship recipients will be speaking at the 2025 UW Madison Life Sciences Career Day on Saturday, April 12:**

- **Megan Dixon** (former FRI Deibel Food Safety Fellowship recipient and graduate student with FRI executive committee member Jeri Barak, currently employed as a Biosafety Specialist at UW-Madison)
- **Carolina Mendoza** (former FRI Foster Fellow with Laura Knoll, currently employed as a Scientist at Promega Labs).



To learn more or register for the event, which is designed to introduce graduate students and postdocs to a wide range of career opportunities they might consider, visit [this website](#).



The Wisconsin Association of Food Protection is seeking volunteers to help in its mission to advance food quality and leadership in food safety training and education for Wisconsin food manufacturers. Committees with current openings include scholarship and membership committees. Interested individuals should email WAFP at [admin@wifoodprotection.org](mailto:admin@wifoodprotection.org).

**The Perlman Symposium**, an annual event showcasing **UW-Madison research related to antimicrobials and antibiotics**, will be held on Friday, April 25. The event is held in memory of **David Perlman**, dean of the UW-Madison School of Pharmacy from 1968–1975. Registration for this free symposium is now open.



**Upcoming training opportunities on the UW-Madison campus** include the following:

- [Basic Harvest and Fabrication Workshop](#) (March 25–27)
- [Cheesemaking Fundamentals](#) (March 11–12 and May 6–7)
- [Cheesemaking Fundamentals in Spanish](#) (online starting March 18)
- [Cheese Grading and Evaluation](#) (March 18–20)
- [Advanced Cheesemaking: American Varieties](#) (April 29–May 1)
- [Confectionary Technology Course](#) (“Candy School”) (July 21–Aug. 1, 2025)

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