中国国际食品安全与质量控制大会

20th China International Food Safety & Quality Conference

POST-EVENT REPORT

28–29 October 2026 | Shanghai, China



食品更安全，生活更健康

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AT A GLANCE

Twenty Years of Food Safety Dialogue

Held in Shanghai on 28–29 October 2026, the China International Food Safety & Quality Conference (CIFSQ) marked its 20th anniversary by bringing together regulators, scientific institutions, researchers and industry to examine food safety in a changing food system. Day 1 combined keynote addresses, regulatory updates, industry perspectives and the 20th Anniversary Awards Ceremony; Day 2 offered 14 parallel breakout sessions on the most pressing scientific and regulatory topics.

20th Annual edition	**2** Conference days	**5** Plenary sessions	**14** Breakout sessions
150+ Speakers, chairs & panelists	**591** Delegates	**15** Countries & regions	**20** Sponsors & exhibitors

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> *Food safety is, at its core, a shared global responsibility. The conversations that happen at this conference matter, and they reflect the kind of international collaboration that makes our food system safer for everyone.*
>
> **Donald A. PRATER, D.V.M.**
> Acting Deputy Commissioner for Food, U.S. FDA — video greeting to CIFSQ 2026





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EXECUTIVE SUMMARY

Proven Controls, Emerging Challenges

Held in Shanghai on 28–29 October 2026, CIFSQ marked the conference's 20th anniversary by bringing together regulators, scientific institutions, researchers and industry representatives to examine food safety in a changing food system. The program linked established control measures with emerging challenges associated with novel foods, new contaminants, digital technologies and changing consumer expectations. Four messages ran through the two days:

1 From detection to risk

Hazard detection alone is not the same as understanding risk: better analytical sensitivity and more data must be accompanied by exposure assessment, toxicological interpretation, risk characterization and proportionate decisions.

2 Prevention over reaction

Several sessions addressed the shift from reactive compliance to preventive, risk-based management, including environmental monitoring programs, food safety culture, supply-chain controls, food authenticity and the use of surveillance and omics data.

3 Responsible innovation

Novel foods and alternative proteins were discussed in the context of food security, sustainability and innovation, alongside the need for clear pre-market assessment pathways, ingredient characterization, process control and evaluation of final products.

4 New tools, fit for purpose

New Approach Methodologies (NAMs), AI, omics and computational tools are important opportunities whose regulatory value depends on fit-for-purpose qualification, transparent evidence, human relevance, reliable data and collaboration between developers, regulators and users.

Across the program, speakers returned to the same foundations: scientific assessment, prevention and international cooperation. Regulators from China, the United States, Europe, Singapore and international organizations shared their current priorities, while industry described how risk interpretation, food safety culture and data are changing everyday practice.











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20TH ANNIVERSARY CELEBRATION

Honoring Two Decades of Partnership

The 20th Anniversary Awards Ceremony on Day 1 recognized the organizations and individuals whose collaboration, partnership and participation have sustained CIFSQ since its first conference in 2007.

★ Distinguished Supporters

For collaboration that has strengthened international cooperation, including Shanghai JS Life Sciences Institute, the German Federal Institute for Risk Assessment (BfR), the U.S. FDA, the USDA, EFSA (in absentia) and the FAO.

★ Long-standing Partners

Organizations that have partnered with CIFSQ over the years, including Coca-Cola, Conagra Brands, Mengniu, Hong Kong Baptist University, the Food Safety Consortium, the Mars Global Food Safety Center and PepsiCo.

★ Continued Participation

Companies whose continued participation has supported the conference, including Agilent, LGC, MGI Tech and Mérieux NutriSciences.

★ Outstanding Contribution

Three individuals recognized for their contributions to the educational value of CIFSQ: WU Yongning, Cindy JIANG and William MARLER (in absentia).

SPECIAL HONORS

GE Zhirong
Honorary Chairman

CHEN Junshi
Senior Advisor, for scientific leadership

IAFP
Long-standing partnership as global host









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20th Anniversary Awards Ceremony

To close the celebration, Cindy JIANG introduced the song “Food Safety Starts with You and Me”, written earlier in the year and translated into Chinese, performed by a group of singers with a robot joining the dance, linking the anniversary theme to food safety culture.











Keynotes and Regulatory Updates

Opening Session & Opening Keynotes

Emcee: Kenny SUN, CIFSQ Conference Secretariat

Moderator: CHEN Junshi, CIFSQ Conference Advisor; Academician, Chinese Academy of Engineering

The conference opened by marking its 20th anniversary. Speakers set its central context: food safety systems are evolving alongside globalized supply chains, new food technologies, emerging contaminants and digital transformation, and depend on scientific assessment, prevention and international cooperation.

Welcome Addresses

Lisa GARCIA (IAFP) · GE Zhirong (CIFSQ Honorary Chairman) · WANG Lin (Shanghai Municipal Administration for Market Regulation) · CHEN Junshi (CIFSQ Conference Advisor)

IAFP, the conference's global host, encouraged delegates to build the food safety community. GE Zhirong reviewed China's progress, including more than 50 new or revised national food safety standards this year, and emerging challenges from alternative proteins, microplastics, PFAS and AI. WANG Lin described Shanghai's traceable, controllable, preventable and accountable governance system.

Food Safety Risk Assessment and Management in China

FAN Yongxiang, Deputy Director, CFSA

Monitoring is stable and improving: heavy metals continue to decline, mycotoxins have trended lower and persistent organic pollutants are broadly under control. Continuing concerns include emerging mycotoxins, migration from new food-contact materials and microbial hazards led by Salmonella. China has 1,775 national food safety standards covering more than 300 food categories.

U.S. Regulatory Updates and Priorities

Sarah McMULLEN, FDA China Office Director, U.S. FDA; video greeting by Donald A. PRATER

FDA regulates about 80% of the U.S. food supply. Its reorganized Human Foods Program is working to prevent foodborne illness, reduce diet-related chronic disease and ensure chemicals in food are safe, including a proposed rule to reform the GRAS process and a systematic post-market chemical assessment program.

Quo Vadis? Food in a Globalized World – European Perspectives

Andreas HENSEL, President, German Federal Institute for Risk Assessment (BfR)

Geopolitical conflict, supply disruption and fast-spreading misinformation are pressuring food safety. Contrasting the careful pace of science with emotive social media, he stressed the role of public authorities as a trusted anchor; BfR surveys show a gap between expert and public concerns.

Safeguarding Meat, Poultry, and Egg Products

Jeremy 'Todd' REED, Deputy Administrator for Science and Policy, FSIS, USDA

FSIS covers roughly 20% of the U.S. food supply through continuous inspection, with staff in about 7,000 facilities every day and around 100,000 samples collected a year, working in partnership with FDA and CDC.

Regulatory Updates and Industry Perspectives

Moderator: Geoffry SMITH, President, ILSI Southeast Asia Region

Prevention, Control and Response to Non-traditional Food Safety Risks

HAN Bing, Deputy Director, Bureau of Law Enforcement and Inspection, SAMR

Risks increasingly driven by intentional misconduct and new business models, processes and ingredients are hard for traditional HACCP to predict, such as illegal additives structurally modified to evade routine testing.

Advancing Cross-Border Food Safety Through Mutual Recognition

XIE Qiuhui, Professor, Shanghai Customs College

Mutual recognition of standards, inspection and certification supports both food safety and trade facilitation; conformity-assessment costs can far exceed tariffs.

GB 7718 / GB 28050 Labeling Transition

YU Hangyu, Deputy Director, Center for Food Safety Standard, CFSA

The updated labeling standards, issued on 16 March 2025, take full effect in March 2027, with changes to ingredient ordering, date marking and nutrition labeling.

From Detecting Hazards to Understanding Risk

Zoltan SYPOSS, SVP, Quality & Food Safety, Danone

Detection at parts-per-trillion levels — "a drop of water in 20 Olympic swimming pools" — is outpacing risk interpretation; detecting more does not automatically make food safer.

Panel: Food Safety Culture — From Compliance Checkbox to Measurable Organizational Behavior

Moderator: Cindy JIANG, with ZHAO Yueju (Mars), Kitty WANG (PepsiCo), LI Li (Qingmei), ZHANG Yingchun (Mengniu), Joan MENKE-SCHAENZER (Van Drunen Farms)

Panelists discussed turning responsibility into daily behavior when no one is watching and under production pressure — and how a strong culture supports productivity and profitability.

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Afternoon Plenary Sessions

Biomanufacturing & Beyond: Policy, Safety Assessment, and Emerging Technologies

Moderator: WU Yongning, Chief Scientist, CFSA

The central question: how can food safety assessment and regulation keep pace with new production technologies while protecting public health and enabling responsible innovation?

Biomanufactured Food in China's 15th Five-Year Plan

WU Yongning, Chief Scientist, CFSA

Biomanufacturing is one of six strategic growth areas in the plan. Under China's "Big Food" concept, plant-based, fermentation-derived and cell-based sources could replace about 40% of protein by around 2040; cell-cultured foods will need new evaluation rules supported by NAMs.

Modernizing Food Safety Assessment for Biomanufactured Foods: A WHO Perspective

Simone Moraes RASZL, World Health Organization (video)

Rather than building a parallel assessment architecture for every technology, the existing one should be made ready for change — problem formulation, hazard characterization, exposure assessment and uncertainty remain the foundations.

From AI-Powered Prediction to New Approach Methodologies

Masami TAKEUCHI, Food Safety Officer, FAO

Food safety is a "trust system" with scientific evidence at its core. Tracing assessment from JECFA to today's cell-based and precision-fermentation foods, she described how FAO helps lower- and middle-income countries build that trust.

Portable Non-Invasive Testing for Fruit and Chinese Medicinal Materials

ZHU Furong, Chair Professor in Physics, Hong Kong Baptist University

A portable near-infrared sensor paired with AI models enables rapid, on-site screening without damaging samples, from sulfur-fumigated yam slices to look-alike grape varieties.

NAMs Plenary Session

Moderator:
CHEN Junshi. Panel moderator: LI Guojun, Chief Expert, Beijing CDC

NAMs are moving from research toward regulatory use, but their value depends on clearly defined regulatory questions, fit-for-purpose qualification, transparent and human-relevant evidence, and international collaboration.

NAMs for China's Food Safety — Welcome and Framing

CHEN Junshi, CIFSQ Conference Advisor

NAMs have evolved from "non-animal methods" into "new approach methodologies" — a broader concept that now extends into risk assessment itself.

China's NAMs Landscape

WU Yongning, Chief Scientist, CFSA

Organ-on-a-chip and organoids are national frontier technologies; vascular- and skin-chip standards are published, with a liver-chip standard under approval.

The Evolving NAMs Landscape at FDA's Human Foods Program

Kirk ARVIDSON, U.S. FDA

FDA's Expanded Decision Tree, first published in 2025, has 47 questions and almost 400 decision nodes; read-across is used heavily in the Food Contact Notification and GRAS programs.

Panel: Shared Priorities for NAMs

Kirk ARVIDSON (FDA), Jean Lou DORNE (EFSA), ONG Zhan Yuin (SFA), Maresha CHARLES (Coca-Cola), Sue O'HAGAN (PepsiCo), YANG Hui (CFSA), George PUGH, Jr. (GeTox)

China can integrate NAMs in a practical, stepwise way — "start small, start simple" — while cross-industry collaboration and shared case studies build confidence.





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Breakout Sessions A–G

A Novel Foods & Alternative Proteins

Chairs: WU Yongning (CFSA); Masami TAKEUCHI (FAO)

From China's regulatory approach to alternative proteins through cell-culture media safety, scale-up of cultivated pork, mycoprotein and cultivated fish, to Singapore's and the EU's novel-food and allergenicity experience and China's new plant-based meat standards. Most hazards are familiar ones in new settings, so assessment must cover the production platform and inputs as well as the final product, be designed alongside the process, and address allergenicity, scale-up changes and labeling.

B Risk Communication

Chairs: XU Jiao (CFSA); LUO Yunbo (Beijing Technology and Business University)

Eight presentations examined how food-risk communication is changing as information moves to social platforms and AI-driven search: large-model-era communication, gamified science outreach, culturally responsive approaches, AI-era public opinion, university teaching and digital food education. Facts alone are not enough — communication must be credible, participatory, culturally aware and designed around real behavior, while organizations monitor and correct AI-amplified misinformation.

C AI for Food Safety: Predictive & Pre-emptive Risk Management

Chair: WANG Yeru (CFSA); Co-chair: Peter WANG (IQC Consulting)

Eight talks moved from practical AI use to modeling — disease-burden microsimulation, food–pathogen ranking, risk from manure-amended produce, norovirus below detection limits — and to industry applications at Mars, Yili and in incident management. The main barrier is no longer the algorithm but data quality, standardized processes and organizational readiness; AI supports, rather than replaces, human judgment and accountability.

D Food Safety Culture 2.0

Chair: Cindy JIANG; Co-chair: YUE Jin (Shanghai Jiao Tong University)

Starting from GFSI's updated position paper and the culture requirements of FSSC 22000 and SQF, the session added the consumer perspective of the Alliance to Stop Foodborne Illness and practice at Ferrero, Mingkanghui, PepsiCo and Wallace. Culture is not posters, slogans or audit scores: it rests on leadership commitment, employee empowerment, consistent behavior when no one is watching, and concerns that lead to action.

E Safety of Food Contact Materials

Chair: ZHANG Hong (CFSA); Co-chair: ZHONG Huaining (Guangzhou Customs Technology Center)

China's food-contact-material standards and the U.S. framework were reviewed, followed by recycled plastics — regulation, novel decontamination and draft Codex guidance — and non-intentionally added substances (NIAS) in natural materials, packaging and adhesives. Compliance must be managed across the supply chain through standards, migration testing, screening and information transfer, with practical, risk-based NIAS assessment rather than ever-lower limits.

F NAMs Scientific Foundations & Methodologies

Chair: CHEN Junshi; Co-chair: Geoffry SMITH (ILSI Southeast Asia Region)

Covered CFSA's NAMs framework, FDA's qualification framework and ENTRÉE pilot, the Expanded Decision Tree and in vitro models, organ-on-a-chip, AI toxicity prediction, titanium dioxide, industry use, read-across for steviol glycosides and the UK approach to alternative proteins. NAMs must be qualified for a defined context of use and integrated into weight-of-evidence assessment, not treated as universal replacements.



G Environmental Monitoring Programs (EMP)

Chair: Zoe WANG (Commercial Food Sanitation)

Environmental monitoring was presented as an active, risk-based system for finding and eliminating pathogens before they reach food, not a routine swabbing exercise: program design under Chinese requirements and Codex guidance, the revised Codex recommendations for Listeria monocytogenes, hygienic design, rapid detection, investigation of positives and a hands-on sampling exercise. Each positive should trigger structured investigation and lasting correction.

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Breakout Sessions H–N

H Emerging Chemical Contaminants: PFAS, Microplastics & Beyond

Chair: LI Jingguang (CFSA); Co-chair: ZHANG Lei (CFSA)

Topics included China's new national standard method for PFAS, microplastics in seafood, next-generation and mixture risk assessment, PFAS in Singapore's drinking water, gestational exposure, FDA PFAS monitoring and packaging chemicals in fast-food diets. Progress depends on standardized, fit-for-purpose methods and reliable occurrence data; evidence on microplastics is not yet sufficient for a formal risk assessment.

J Omics-Enabled Risk Assessment

Chair: BAI Li (CFSA); Co-chair: ZHOU Zhemin (Soochow University)

Genomic and other omics approaches for surveillance and risk assessment of foodborne pathogens and antimicrobial resistance under One Health. The chair traced the growing use of whole-genome sequencing in China's surveillance and standards, including GB 31615 (2025). Sequence data are most useful when interpreted in context, with standardized methods, shared nomenclature and data sharing that protects confidentiality.

L Biotoxin: From Single-Toxin Control to Systemic Risk Management

Chair: YANG Dajin (CFSA)

Mycotoxin and other biotoxin risks were examined in the context of climate change, grain production, analytical capability and regulatory monitoring — from a proactive prevention system for grain and Bacillus cereus emetic toxin to FDA ochratoxin A monitoring and multi-mycotoxin methods. The shift is from single-toxin control to systemic risk management, interpreting data in a broader exposure and combined-toxicity context.

N Food Safety Hot Topics

Chair: Minghua WANG (Conagra Brands)

Part 1 covered nanozyme-based detection, standardization of nutrient methods, reactive carbonyl chemistry in processing, valorization of apple pomace into a probiotic beverage and mechanism-driven assessment of combined contaminant exposure. Part 2 addressed highly pathogenic avian influenza in the U.S., compliance for Chinese food companies expanding overseas, FDA's Food Traceability Final Rule, and food innovation and regulation in America.

I Food Authenticity, Integrity & Fraud

Chair: WU Di; Co-chair: Andrew CANNAVAN (Queen's University Belfast)

The session examined international and U.S. food fraud control, the evolution of authenticity testing, and stable-isotope and multi-element methods for verifying origin, with case studies on chicken, yak milk, coconut water, baijiu and tea, before turning to micro- and nanoplastic analysis. Analytical methods work best when validated, matched to the question and embedded in traceability, risk-based targeting and enforcement.

K Food Safety Culture 2.0 (Part 2)

Chairs: Cindy JIANG; YUE Jin (Shanghai Jiao Tong University)

From frameworks to implementation: psychological safety and listening, data and analytics in laboratory networks, AI-assisted culture assessment, the Alliance to Stop Foodborne Illness toolkit and the move from audit compliance to daily habit. In a closing workshop, participants drafted 30- to 90-day plans to elevate food safety culture back at work. Culture is what happens when no one is watching — and assessment matters only if leaders act on it.

M NAMs International Regulatory Case Studies

Chair: YANG Hui (CFSA); Co-chair: LI Guojun (Beijing CDC)

How NAMs are being developed and considered for regulatory use in Japan, Singapore, Europe, the United States and industry, including method qualification, read-across, physiologically based kinetic (PBK) modeling, weight-of-evidence approaches and applying NAMs to contaminants and mixtures. A NAM should answer a defined risk-assessment question and be integrated with other evidence; shared data build confidence.



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PRESENTATION SUMMARY

Day 1
Keynotes & Plenaries



PRESENTATION SUMMARY

Day 1 — Keynotes & Plenaries

Opening Session and Opening Keynote & Regulatory Updates



Emcee: Kenny SUN, CIFSQ Conference Secretariat

Opening keynote session moderator: CHEN Junshi, CIFSQ Conference Advisor; Academician, Chinese Academy of Engineering; Researcher & Chief Advisor, China National Center for Food Safety Risk Assessment (CFSA); Founding President, Shanghai JS Life Sciences Institute

Session overview. The conference opened by marking its 20th anniversary, with welcome remarks from the global host and senior Chinese and municipal figures, followed by keynote presentations on China's food safety situation and on regulatory priorities in the United States and Europe. Speakers set the conference's central context: food safety systems are evolving alongside globalized supply chains, new food technologies, emerging contaminants and digital transformation, and depend on scientific assessment, prevention and international cooperation.

Opening addresses — Welcome remarks

Lisa GARCIA, GE Zhirong, WANG Lin, CHEN Junshi





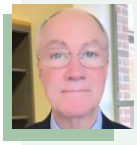

The opening session, hosted by emcee Kenny Sun and marking 20 years of CIFSQ, featured four welcome addresses. Lisa GARCIA, Executive Director of the International Association for Food Protection (IAFP), the conference's global host, described IAFP as a member-based association bringing together industry, education and government to advance food safety worldwide through its publications (the IAFP Report, Food Protection Trends and the Journal of Food Protection) and meetings, and encouraged delegates to build the food safety community and take their knowledge home. GE Zhirong, Honorary Chairman of the CIFSQ Conference, congratulated the conference on its 20th year and reviewed China's progress and priorities, including more than 50 new or revised national food safety standards during the year, strengthened source-to-market controls, and emerging challenges from alternative-protein foods, new contaminants such as microplastics and PFAS, and new technologies including novel toxicology methods and AI. WANG Lin, Deputy Director of the Shanghai Municipal Administration for Market Regulation, welcomed delegates on behalf of Shanghai's food authorities, described Shanghai's traceable, controllable, preventable and accountable governance system, and noted the forthcoming China International Import Expo as a platform for cooperation. CHEN Junshi, CIFSQ Conference Advisor, welcomed participants, thanked IAFP and the secretariat, and noted that the program covered current food safety hot topics and that Day 2 would hold 14 breakout sessions.



Food Safety Risk Assessment and Management in China

FAN Yongxiang (Deputy Director, China National Center for Food Safety Risk Assessment (CFSA))

The speaker reviewed China's food safety situation and emerging priorities, framed by the national goal of building a "Healthy China" by 2035 and the shared responsibility of government, industry and consumers. Overall monitoring was described as stable and improving: heavy-metal levels have continued to decline, mycotoxin contamination has trended lower despite weather-related fluctuation, and persistent organic pollutants are broadly under control. Continuing concerns included emerging mycotoxins (such as Fusarium and Alternaria toxins), multi-element migration from new inorganic non-metallic food-contact materials, and microbiological hazards: Bacillus cereus and anaerobic Clostridium in vacuum-packed ready-to-eat foods, parasites in freshwater foods, and foodborne viruses such as norovirus and hepatitis E detected in shellfish, nuts and pig liver. Foodborne-disease surveillance showed microbial contamination as the leading problem, with Salmonella first (notably in meat, eggs and, strikingly, baked goods), Vibrio parahaemolyticus second, and E. coli and norovirus also significant, alongside high antimicrobial-resistance rates and continuing toxic plant and mushroom poisonings. The speaker said China has 1,775 national food safety standards covering more than 300 food categories and over 20,000 control indicators, and identified challenges in source and process control of traditional hazards, cross-sector coordination under a One Health approach, management of food additives, the planned national food-safety standard for pre-prepared foods, and the premarket approval of synthetic-biology ingredients, with digital labeling highlighted as a way to carry both environmental and nutrition information.



Video greeting to CIFSQ 2026

Donald A. PRATER (Acting Deputy Commissioner for Food, U.S. Food and Drug Administration)

The following is the full text of Dr. Prater's video greeting, included because it recognizes the conference's 20-year history and the longstanding relationship between CIFSQ and the U.S. FDA.

To the organizers, distinguished speakers and all the participants gathered in Shanghai for the 20th China International Food Safety and Quality Conference: good morning, and thank you for the invitation. It's an honor to join you today, celebrating 20 years of protecting the world's food supply. I'm Dr. Donald Prater, Acting Deputy Commissioner for Food at the U.S. Food and Drug Administration. I'm genuinely sorry that I'm unable to be with you in person this year. The energy and expertise that fills this conference is something I've experienced firsthand, and I assure you, I wish I were there.

FDA's relationship with the CIFSQ runs deep. We were there at the very beginning in 2007, when Dr. Bob Brackett delivered his keynote address on U.S. food safety requirements. Since that inaugural conference, FDA has been privileged to contribute to this program every single year — through keynote addresses, breakout sessions and scientific dialogue — because we believe that food safety is, at its core, a shared global responsibility. The conversations that happen at this conference matter, and they reflect the kind of international collaboration that makes our food system safer for everyone.

This year, I'm pleased that Dr. Sarah McMullen will be representing FDA in a keynote address. Dr. McMullen will speak to FDA's current priorities and the emerging topics shaping the future of food safety, and I encourage you to listen closely, because we are genuinely at an exciting moment in food safety regulation. New science, new tools and a renewed commitment to prevention are converging in ways that will define the next chapter for all of us.

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Finally, I want to extend my warmest congratulations to CIFSQ on reaching this remarkable milestone: 20 years of convening the brightest minds in food safety and quality from across the globe. This is an extraordinary achievement and a testament to the vision and dedication of everyone who has built and sustained this conference. On behalf of the U.S. FDA, thank you. We look forward to many more years of partnership. Be well, and have a wonderful conference.



U.S. Regulatory Updates and Priorities

Sarah McMULLEN (FDA China Office Director and Acting U.S. Health Attaché to China, U.S. Food and Drug Administration)

The speaker set out FDA's priorities and emerging issues in U.S. food safety. FDA regulates about 80% of the U.S. food supply, with the Human Foods Program (reorganized in 2024 into microbiological food safety, food chemical safety/dietary supplements/innovation, and a Nutrition Center of Excellence) working to prevent foodborne illness, reduce diet-related chronic disease and ensure chemicals in food are safe, in support of the "Make America Healthy Again" agenda. In food chemical safety, FDA issued a proposed rule in August to reform the GRAS process, requiring manufacturers to notify FDA when concluding a substance is GRAS, and finalized a systematic post-market chemical assessment program (after more than 70,000 public comments) that scores and prioritizes chemicals for review. As part of efforts to phase out petroleum-based food dyes, FDA revoked the authorized use of Orange B in July and proposed to revoke Citrus Red No. 2 (neither currently in use by industry), following the 2025 revocation of Red No. 3. In nutrition, work includes developing a federal definition of ultra-processed foods, front-of-package labeling and a final rule permitting salt substitutes. In microbiological food safety, FDA is strengthening import oversight using AI and machine learning to target shipments, engaging stakeholders quarterly on the Food Traceability Rule, developing a 10-point plan to reduce Cyclospora in produce for the 2027 growing season, and continuing work on Listeria monocytogenes prevention. Under Operation Stork Speed, FDA is testing infant formula for contaminants (lead, mercury, PFAS, pesticides) and proposed updates to nutrient requirements in October 2026. The speaker pointed delegates to related FDA presentations later in the program.



Quo vadis? Food in a Globalized World – European Perspectives

Andreas HENSEL (President, German Federal Institute for Risk Assessment, BfR)

The speaker considered the pressures on food safety in a globalized system, including geopolitical conflict, supply disruption, public-health emergencies and the rapid spread of misinformation. Describing BfR as combining the roles of several agencies and covering food, feed, chemical and product safety as well as risk communication, the speaker contrasted the careful, neutral pace of science with fast, emotive social media, and stressed the role of public authorities as a trusted anchor. He outlined BfR's annual consumer risk-perception surveys (which show a gap between expert and public concerns, with microplastics, antibiotic resistance and pesticide residues prominent for consumers), Europe's move to a "resilience strategy" including food, feed and "fake news" defense, and the EU system of independent risk assessment, a network of national reference laboratories, the Rapid Alert System for Food and Feed, and the separation of risk assessment from risk management under Regulation (EC) 178/2002. He described probabilistic pesticide-residue modeling aiming at a high-percentile (around P99.9) consumption-data target, a vegan pre-study and the new COPLANT cohort comparing diets (with reported findings including PFAS, calcium and vitamin B12), and the FoodChain-Lab traceability system used to resolve contamination outbreaks. He concluded that harmonization of standards, analytical data and formats, joint risk assessment to avoid duplication, integration of public risk perception, and careful use of digital tools and AI are the way to a safer future.



Safeguarding Meat, Poultry, and Egg Products: An Overview of the U.S. Food Safety and Inspection Service

Jeremy 'Todd' REED (Deputy Administrator for Science and Policy, Food Safety and Inspection Service (FSIS), U.S. Department of Agriculture)

The speaker explained FSIS's remit for meat, poultry and egg products, distinguishing it from FDA, which covers about 80% of the U.S. food supply while FSIS covers the other roughly 20%, and from CDC, which handles foodborne illness and outbreak tracing; the three agencies work in partnership. Reflecting on decades of change in China since the early 1990s, the speaker described FSIS's continuous inspection model, with staff present in every facility every day, covering about 7,000 facilities with about 6,500 of some 7,300 employees on the front line and collecting around 100,000 samples a year, drawing authority from five main statutes. A recurring theme was that most food producers are small businesses; regulations therefore need to be written so that the people who make the food can understand and implement them. The speaker emphasized leading with science and independent risk assessment, noting that "not all Salmonella is the same" and that amount and type matter, and that FSIS focuses on its people, modern tools used cautiously (with skepticism about hype), transparent data-sharing, and proactive communication to counter misinformation.



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Day 1 — Keynotes & Plenaries (continued)



Day 1 — Regulatory Updates and Industry Perspectives

Session moderator: Geoffry SMITH, President, International Life Sciences Institute (ILSI) Southeast Asia Region

Session overview. This session moved from public enforcement and cross-border governance to China's updated food labeling standards and an industry view of interpreting risk, and closed with a panel on food safety culture. The presentations emphasized risk-based enforcement, mutual recognition of standards, consistent labeling, and the move from detecting more hazards to understanding and managing risk.



Prevention, Control and Response to Non-traditional Food Safety Risks

HAN Bing (Deputy Director, Bureau of Law Enforcement and Inspection, State Administration for Market Regulation, SAMR)

The presentation approached non-traditional food safety risks from an enforcement perspective, in three parts: understanding their seriousness and complexity, identifying key prevention and control points, and selecting governance measures. The speaker distinguished traditional farm-to-table physical, chemical and biological hazards (microbial contamination, pesticide and veterinary-drug residues, heavy metals) from risks increasingly driven by intentional misconduct and by new business models, processes and ingredients, which traditional HACCP struggles to predict. Concrete points included illegal additives structurally modified to evade routine testing; the rapid expansion of fraud risk through e-commerce, illustrated by about CN¥1.6 billion in penalties on seven platforms (the largest food safety penalty since the 2015 Food Safety Law) and 270,000 cases handled by market regulators in the first half of 2026; and cross-border e-commerce (worth about CN¥2.84 trillion in 2025), where products made to foreign standards and personal-import channels fall outside traditional import oversight. The speaker set out a control approach built on proactive detection, rapid identification, lawful disposal and source governance, including non-targeted screening, a rapid identification mechanism for new illegal substances, penetrating supervision of platforms, whistleblower incentives and training of frontline staff, referencing the March 2025 central guidance strengthening whole-chain food safety oversight (22 measures across eight areas). The speaker noted that in 2025, procuratorial organs prosecuted more than 5,000 food safety crimes and arrested nearly 10,000 suspects.



Advancing Cross-Border Food Safety Through Mutual Recognition of Standards

XIE Qiuhui (Former Deputy Commissioner of Shanghai Customs; Former First-Level Inspector, Shanghai Customs Special Commissioner's Office; Professor, Shanghai Customs College)

The speaker argued that mutual recognition and cooperation among standards, inspection and certification systems can support both food safety and trade facilitation. The speaker reviewed the structure of China's trade (which grew from about US$4 trillion to about US$6 trillion over the 14th Five-Year Plan, with diversification toward Belt and Road and ASEAN partners) and noted that conformity-assessment costs can far exceed tariffs. A "1-2-3-4-5" management concept was presented: one scientific enterprise credit-assessment and product risk-management system; two-dimensional supervision combining enterprise classification with product risk analysis; three risk classes (high, higher and general) with convertible standards; four enterprise categories assessed on nine aspects and 27 elements; and five supervision modes, the best being credit-based supervision. The central message was to make compliant, trusted businesses more efficient to manage while concentrating regulatory attention on higher-risk areas, supported by international cooperation and mutual recognition of standards (including ESG-related standards), illustrated by examples such as a Starbucks roasting facility and imported fresh milk with a 14-day shelf life.



GB 7718 / GB 28050 Labeling Transition — Countdown to March 2027

YU Hangyu (Associate Researcher & Deputy Director, Division I, Center for Food Safety Standard, CFSA)

The speaker explained the relationship between China's updated prepackaged-food labeling standards GB 7718 (general labeling) and GB 28050 (nutrition labeling), issued on 16 March 2025, and SAMR's accompanying administrative rules on food labeling supervision, noting that companies must now distinguish technical-standard requirements from administrative ones and that little time remains before the March 2027 transition. Key changes included: ingredient lists ordered by the descending amount added during production (not content in the final product), with functional food additives always declared; a shift in mandatory date marking to production date plus expiry date, with a year-month-day order required for all foods including imports, and production date exemptions allowed for longer-shelf-life or small-surface products via expiry date plus shelf-life; and, importantly, that the eight priority allergen categories move from recommended to mandatory declaration, which the speaker described as a milestone, with future adjustments to be based on Chinese population data rather than simply following international lists, and precautionary allergen labeling remaining voluntary for now. Nutrition labeling under GB 28050 expands the panel from "1+4" to "1+6" by adding sugar and saturated fat, with a warning near the panel that children and adolescents should avoid excess oil, salt and sugar, and clarifies that "sugar" covers five sugars so that claims such as "no sucrose" do not mislead consumers.



From Detecting Hazards to Understanding Risk

Zoltan SYPOSS (SVP, Quality & Food Safety, Danone)

The speaker challenged the assumption that detecting more hazards automatically makes food safer. This was illustrated with the considerable progress in analytical capabilities, which can now detect substances at parts-per-trillion levels—likened to "a drop of water in 20 Olympic swimming pools"—while risk assessment and contextualization of risk must still keep pace. The presentation described three paradoxes: the detection paradox (detection outruns risk interpretation); the consistency

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paradox (academia, regulators and industry read the same evidence through different lenses, exemplified by the food additive titanium dioxide, which the EU banned in 2022 following EFSA's 2021 opinion while China, the U.S. FDA, Canada and JECFA continued to find no safety concern, creating complexity and eroding public trust); and the zero-risk paradox (eliminating every detectable hazard at all costs can cause food waste, reduced availability, environmental harm and other unintended effects). The example of end-to-end risk-based qualification of non-intentionally added substances in recycled PET packaging was used to illustrate adherence to the fundamental risk-analysis framework, from hazard identification through characterization and exposure assessment to risk characterization, and complemented by the recent risk-based evolutions of allergen labeling from simple precautionary presence toward probability- and threshold-based assessment. The speaker argued for completing the whole risk-assessment process and for stronger, science-based, cross-border collaboration among science, regulators and industry to rebuild trust.

Panel discussion — Food Safety Culture: From Compliance Checkbox to Measurable Organizational Behavior



Moderator:
Cindy JIANG, Global Food Safety Ambassador, former Global Food Safety Senior Director, McDonald's Corporation.
Panelists:
ZHAO Yueju (Head, Mars Global Food Safety Center);
Kitty WANG (Senior Director, Scientific and Regulatory Affairs, APAC, PepsiCo);
LI Li (Vice President, Shanghai Qingmei Green Food Group);
ZHANG Yingchun (Senior Director, Safety Quality Management, China Mengniu Dairy);
Joan MENKE-SCHAENZER (Chief Quality Officer, Van Drunen Farms and FutureCeuticals)

The panel addressed how to turn food safety responsibility into daily behavior, especially when no one is watching and under production pressure. Joan MENKE-SCHAENZER described a leafy-greens grower whose workers stomped down harvested produce to make fewer trips to the processor; when a quality leader asked why they would do for commercial production what they would not do for their own family, the practice stopped, microbiological counts became consistent, line productivity rose and profitability improved, illustrating that a strong food safety culture connects "through the heart" and supports profitability. LI Li (Shanghai Qingmei) said monitoring alone is not enough: whether employees follow training during emergencies such as power or water cuts and line changeovers, and whether records (always neat, always on the hour) reflect reality, must be cross-checked and verified. Kitty WANG (PepsiCo) described PepsiCo's culture of speaking up, recently reframed from "voice of opinion fearlessly" (VOF) to "Include Everyone's Voice" (IEV) as a more inclusive way to create a safe environment, supported by near-miss reporting and closed-loop feedback with KPIs and recognition. Yueju Zhao (Mars GFSC) shared her thoughts on food safety culture from a scientific and research perspective. She emphasized that we cannot rely on a single metric to assess food safety culture. We should look not only at outcomes, but also at the early signals that can help us anticipate those outcomes, enabling organizations to identify risks earlier, understand them faster, and take timely action. She also highlighted that food safety is not the responsibility of one team or function, but a shared responsibility for everyone. Ultimately, it is people who turn scientific insights into action. ZHANG Yingchun (Mengniu), with 24 years at the company, stressed that assessment results must be translated into language frontline staff understand and put it into action, and that trends in employees' answers to the same questions reveal where culture needs work. Asked for one change each would make, panelists called for everyone to see themselves as responsible for food safety, extending culture across the entire food supply chain, making sure people know the "why" and not only the "what", and making problems visible.

20th Anniversary Awards Ceremony



The anniversary ceremony recognized four groups of recipients: distinguished supporters whose collaboration has strengthened international cooperation (including Shanghai JS Life Sciences Institute, the German Federal Institute for Risk Assessment, the U.S. FDA, the USDA, EFSA and FAO); organizations that have partnered with CIFSQ over the years (including Coca-Cola, Conagra Brands, Mengniu, Hong Kong Baptist University, the Food Safety Consortium, the Mars Global Food Safety Center and PepsiCo); companies whose continued participation has supported the conference (including Agilent, LGC, MGI Tech and Mérieux NutriSciences); and three individuals recognized for their outstanding contributions to the educational value of CIFSQ — WU Yongning, Cindy JIANG and William MARLER, the last unable to attend and recognized in absentia. Three special honors were then presented, to GE Zhirong (Honorary Chairman), CHEN Junshi (Senior Advisor, for scientific leadership) and the long-standing partnership with the International Association for Food Protection (IAFP). To close the celebration, Cindy JIANG introduced the song "Food Safety Starts with You and Me", written earlier in the year and translated into Chinese, performed by a group of singers with a robot joining the dance, linking the anniversary theme to food safety culture. A networking luncheon followed.



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Day 1 — Keynotes & Plenaries (continued)

Day 1 — Afternoon Plenary (28 October 2026)

Biomanufacturing & Beyond:
Policy, Safety Assessment, and Emerging Technologies

Session moderator: WU Yongning, Chief Scientist, CFSA; Director, NHC Key Lab of Food Safety Risk Assessment

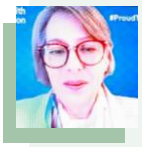
Session overview. The afternoon plenary explored the policy and scientific implications of biomanufactured foods and alternative proteins, with perspectives from WHO and FAO and an example of portable non-invasive testing. Across the presentations, the central question was how food safety assessment and regulation can keep pace with new production technologies while protecting public health and enabling responsible innovation.



Biomanufactured Food in China's 15th Five-Year Plan: Alternative Protein and the Big Food Concept

WU Yongning (Chief Scientist, CFSA; Director, NHC Key Lab of Food Safety Risk Assessment)

The speaker positioned biomanufacturing as one of six strategic growth areas ("new quality productive forces") in China's 15th Five-Year Plan, combining synthetic biology and AI for green bio-manufacturing. Biomanufacturing was defined as using inexpensive carbon sources, cell factories or bioreactors to produce food ingredients and components such as enzymes, functional ingredients and dietary supplements, as a low-carbon, sustainable alternative to relying on raising animals. The speaker linked this to China's "Big Food" concept (and FAO's "new food resources and production systems"): diversifying protein beyond conventional livestock and fisheries to plant-based, fermentation-derived (including precision fermentation) and cell-based approaches, with a projection that by around 2040 such sources could replace about 40% of protein relative to traditional animal agriculture. Drawing on a WHO Western Pacific Region exercise on alternative-protein regulation, the speaker said plant-based products are largely a matter of regulatory compliance, microbial fermentation fits existing new-food-ingredient approval, and cell-cultured foods need new evaluation rules, with New Approach Methodologies (computational, in vitro, omics and gene-chip methods) needed to build a human-relevant assessment system that reduces animal testing.



Modernizing Food Safety Assessment for the Next Generation of Biomanufactured Foods: A WHO Perspective

Simone Moraes RASZL (Nutrition and Food Safety Department, Standards and Scientific Advice, World Health Organization)

The speaker argued that the question for biomanufactured foods and alternative proteins is not whether to discard established food safety principles but how to apply them in ways that keep pace with innovation, within the WHO/FAO Global Strategy for Food Safety 2022–2030. The key message was not to build a parallel assessment architecture for every technology but to make the existing architecture ready for change: problem formulation, hazard identification and characterization, exposure assessment and uncertainty description remain. Citing 2023 FAO/WHO work on cell-based food, the speaker noted that many potential hazards also occur in conventional production, so the task is to distinguish familiar hazards in unfamiliar settings from genuinely new assessment questions, especially as the object of assessment shifts from a stable ingredient with a history of use to a whole production platform (organism or cell line, genetic changes, substrates, media, process parameters and final matrix) that may change during scale-up. Six questions were posed on identity, comparator, exposure, matrix, allergenicity and scale-up. The speaker cautioned that a new method is not automatically better, that confidence must be established through transparent criteria for relevance, reliability and uncertainty, and that evidence must travel with the product from characterization through commercial verification and post-market learning, with WHO convening and helping countries of different capacities participate.



The Next Generation of Food Safety Assessment: From AI-Powered Prediction to New Approach Methodologies

Masami TAKEUCHI (Food Safety Officer, Food and Agriculture Organization of the United Nations)

The speaker framed food safety as a "trust system": using the example of unrefrigerated long-life milk in an unfamiliar country, the speaker argued that whether a consumer trusts a food rests on scientific evidence at its core, supported by resources, legal systems, accountability, traceability and personal experience, and that FAO helps lower- and middle-income countries build this trust. Tracing the history of assessment from Codex's origins (1961–1963) and JECFA's single-substance toxicological testing, through the comparative/"substantial equivalence" approach that arose with GMOs, to today's evolving production systems such as cell-based food and precision fermentation, the speaker used the thalidomide case to show that assessment must be fit for the human-safety purpose and context, not merely reliant on animal testing. NAMs (in silico prediction, in chemico, in vitro and ex vivo, and omics approaches) were presented as tools to fill evidence gaps, but the speaker stressed starting from the right question and being selective: the value of a method lies not in its newness but in whether it is more efficient, more accurate or fills a real gap, and in gathering feasibility and cost evidence from those who do the work, including industry.



Portable Traceable Non-Invasive Testing Technology for Fruit and Chinese Medicinal Materials

ZHU Furong (Head of Department and Chair Professor in Physics, Hong Kong Baptist University)

The speaker presented a portable, non-invasive near-infrared (NIR) sensing system developed by his team at Hong Kong Baptist University. Inspired by biological vision, the system uses a multispectral photodetector to capture NIR signals associated with the chemical composition of Chinese medicinal materials, fruits and other organic matter. AI models compare the resulting spectral signatures with a reference database, enabling rapid, on-site screening without damaging the sample. Demonstrations included screening sulfur-fumigated Chinese yam slices for sulfite residues and distinguishing visually similar grape varieties. With appropriate calibration and reference data, the system can assess attributes such as soluble-solids content, a proxy for sweetness, and moisture, as well as support product authentication. When scanned data are digitally recorded and linked to the relevant platform, they can also contribute to batch-level traceability, making advanced optical testing more accessible beyond the laboratory.

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Day 1 — Keynotes & Plenaries (continued)

Day 1 — NAMs Plenary Session

Session moderator: CHEN Junshi, CIFSQ Conference Advisor; Academician, Chinese Academy of Engineering.

Session overview. The plenary comprised two framing keynotes and a panel on New Approach Methodologies (NAMs). The shared message was that NAMs are moving from research toward regulatory use, but their value depends on clearly defined regulatory questions, fit-for-purpose qualification, transparent and human-relevant evidence, and international collaboration.



NAMs for China's Food Safety — From Science to Regulation: Welcome and Framing

CHEN Junshi (CIFSQ Conference Advisor; Academician, Chinese Academy of Engineering)

The opening framing made two points. First, on the evolution of the term: NAMs began as "non-animal methods" aimed at replacing animal testing, and are now "new approach methodologies", a much broader concept in which replacing animal testing remains important but is no longer the only aim. Second, NAMs are no longer only methodological innovation in toxicology but now extend into risk assessment itself, which is why they have drawn strong attention from regulators, academia and industry worldwide. The speaker noted that NAMs research has two sides, developing new methods and applying them in (food) regulatory science, standards and regulation, and introduced the two guiding keynotes and the panel, encouraging delegates interested in methodological and application detail to attend the Day 2 NAMs breakout sessions.



China's NAMs Landscape: Current Status of Food Safety Evaluation and Development of NAMs in China

WU Yongning (Chief Scientist, CFSA; Director, NHC Key Lab of Food Safety Risk Assessment)

The speaker reviewed China's NAMs activity, noting that organ-on-a-chip and organoids are a national frontier technology under the 14th and 15th Five-Year Plans, supported by the Ministry of Science and Technology, the Natural Science Foundation and national R&D programs, with a pioneer program in the drug field and supporting policies from the national healthcare security administration and from Beijing. The speaker focused on standardization progress: within the omics/organ-chip technical committee (TC 421), a dedicated organ-on-a-chip sub-committee has been established, with vascular-chip and skin-chip standards already published, a liver-chip standard under approval (led by Gu Zhongze, with the speaker a main participant) and an intestinal-chip standard being drafted and expected next year. The team also helped launch a NAMs-focused journal. The speaker described the development path from animal testing toward human-cell-based organoids and in silico data, supported by representative Chinese toxicology databases, as the future of next-generation risk assessment.



Modernizing Chemical Safety Assessment for Food: The Evolving NAMs Landscape at FDA's Human Foods Program

Kirk ARVIDSON (Chief, Regulatory Management Branch, Human Foods Program, Office of Postmarket Assessment, Division of Additives and Ingredients, U.S. FDA)

The speaker described FDA's development and use of NAMs for assessing the safety of food chemicals such as food additives, color additives and food contact substances, noting their potential for faster, lower-cost safety development. The speaker introduced the Expanded Decision Tree, a structure-based tool first published in 2025 with 47 questions and almost 400 decision nodes, roughly half built out, and emphasized that read-across is used heavily in the Food Contact Notification and GRAS programs, often more than quantitative structure–activity predictions, with databases incorporating studies from partners including the U.S. Environmental Protection Agency. He noted that building the decision-tree software itself does not involve AI in the chemical analysis step. He then introduced the ENTRÉE pilot program ("Engaging NAMs for Toxicant Regulation and Effects and Evaluation"), based loosely on the drug center's ISTAND program, for qualifying NAMs for use in the Human Foods Program, with four central steps beginning with informal discussion with FDA, and pointed delegates to the Day 2 NAMs sessions (ENTRÉE, the Expanded Decision Tree and in vitro work) for more detail.

Panel discussion — Shared Priorities for NAMs: What Industry, Regulators, and Academia Each Need



Moderator: **LI Guojun, Chief Expert, Beijing Center for Disease Prevention and Control; Chair, Committee of Toxicological Alternative and Translational Toxicology (TATT), Chinese Society of Toxicology**

Panelists: **Kirk ARVIDSON (U.S. FDA); Jean Lou DORNE (EFSA); ONG Zhan Yuin (SFA); Maresha CHARLES (The Coca-Cola Company); Sue O'HAGAN (PepsiCo); YANG Hui (CFSA); George PUGH, Jr. (GeTox Consulting; Calorie Control Council Scientific Advisor)**

The panel discussed how NAMs can move into regulatory use and what each stakeholder group needs. YANG Hui said China can integrate NAMs in a practical, stepwise way, not replacing all animal studies at once, closing with a Tao Te Ching line that great things are built from small, simple beginnings ("start small, start simple"). A recurring theme from EFSA and others was that higher-throughput, systematic testing can help fill data gaps for complex chemicals as the science matures, supported by databases and case studies. Maresha CHARLES, drawing on cosmetics-industry experience with animal-testing bans, described how cross-industry collaboration built confidence in in vitro methods for endpoints such as irritation and genotoxicity, and argued that science and the questions asked change over time (the questions of 2026 differ from those of the 1980s), so generating new data to substantiate safety, including recent re-evaluations of sweeteners such as aspartame by JECFA and EFSA, is critical. Kirk ARVIDSON highlighted a key food-specific challenge: unlike drugs, which are single entities taken for short periods, foods are complex mixtures of many chemicals consumed daily over a lifetime, and he called for work on qualification infrastructure and collaboration. Panelists from industry and regulators agreed that broader acceptance requires global collaboration, data sharing and sustained investment, that developers should honestly report method limitations, and that trade associations can help coordinate this work. The panel's overall message was that progress will come from sustained collaboration and real-world case studies rather than isolated method development.

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PRESENTATION SUMMARY

Day 2 — Morning Breakout Sessions

Session A – G



Day 2 Morning — Breakout Sessions

Breakout Session A

Novel Foods & Alternative Proteins

Session chairs: WU Yongning, Chief Scientist, CFSA; Masami TAKEUCHI, Food Safety Officer, FAO

Session overview. The session moved from China's regulatory approach to alternative proteins through the safety assessment of cell-culture media, the industrial scale-up of cultivated pork, mycoprotein and cultivated fish, to Singapore's and the EU's experience with novel-food assessment and allergenicity, synthetic-biology proteins and China's new plant-based meat standards. Speakers agreed that most hazards in new protein production are familiar ones arising in new settings. Assessment therefore has to cover the production platform and inputs as well as the final product, be designed alongside the process rather than added afterwards, and give particular attention to allergenicity, process changes during scale-up and consistent labeling.

The Current Status, Prospects, and Challenges of Alternative Protein Regulation from the Perspective of the "Big Food" Concept

SONG Yan / OU Tong, on behalf of SONG Yan (Division III, Risk Assessment, CFSA)

The speaker reviewed the policy rationale for diversifying protein supply under China's "Big Food" concept and compared regulatory approaches to plant, microbial, insect, algal and cell-based proteins internationally. It explained how an established history of food use determines whether a plant protein is treated as a conventional food or a new food raw material, while new organisms and production processes trigger pre-market review. The speaker described China's new food raw material framework and the dossier considerations for protein-rich ingredients, including allergenicity and nutritional quality. For cell-cultured meat, the speaker said the specific management mechanism has not yet been defined, but it will certainly follow the principle of pre-market approval. The safety-assessment framework under consideration covers the cell line, production inputs such as culture-medium components, and the final product. Key challenges identified were cell-line stability, serum-free media, scale-up, contamination control, analytical methods for production inputs and consumer acceptance.

Risk Assessment of Culture Medium Components in Cell-cultured Meat

WANG Hongping, on behalf of JIN Fen (Institute of Quality Standards & Testing Technology for Agro-products, CAAS)

The speaker reviewed international regulatory expectations for cell-culture media, including requirements in the United States and Singapore, and described a risk-based, tiered approach to individual components. Media contain ordinary nutrients as well as biologically active substances such as hormones, antibiotics and growth factors. Components were grouped by whether they have a history of permitted food use, an established health-based guidance value, or neither, with the last group given priority attention. The team built a database of medium ingredients and applied non-targeted screening and targeted quantification to cell-cultured meat samples. Non-targeted screening matched 776 substances with a database score above 80, mainly peptides and lipids, and flagged 22 potential chemicals of concern for follow-up. Targeted measurements were then compared with derived safe-use levels: for example, measured hydrocortisone and penicillin levels were below the safe-use levels derived from residue limits and dietary data. Using a worst-case scenario in which cell-cultured meat replaced all conventional meat, the team concluded that the overall risk for the two cell-cultured meats studied was low, while noting that some substances have limited toxicological data. The speaker proposed four next steps: a positive list of medium components with safe-use levels, toxicological profiles for components, standardized targeted and non-targeted screening methods, and systematic dietary exposure assessment.

From Kilograms to Tons: Key Technologies and Industrial Progress in Large-Scale Production of Cultured Pork

DING Shijie (CEO, Nanjing Joes Future Food Technology Co., Ltd.)

The speaker traced the team's cultivated-pork platform from China's first 5-gram cultured pork sample in 2019 to industrial-scale bioreactors: an 80-liter bioreactor in 2022, 500 liters in 2023 and 2,000 liters in 2025, supported by a pilot plant built in Nanjing in 2025. In a 2,000-liter run in December 2025, about 120 kg of cells were harvested over roughly 20 days. The speaker stressed that the key to scale-up is a cell line that grows in serum-free suspension, which took one to two years of adaptation. Single-cell transcriptomic work showed that, during adaptation from adherent to serum-free suspension culture, porcine cells lost their muscle-cell characteristics and moved toward an adipogenic progenitor-like state, a finding the team had not expected. Stable master and working cell banks, and safety indicators drawn from vaccine and biopharmaceutical cell-line practice (such as no tumor formation in vitro or in vivo), were described as essential. In a 50-liter comparison using the same cell bank, semi-continuous operation yielded about 6.6–7 kg of biomass over about 14 days, compared with about 1 kg for batch and perfusion modes, and converted medium inputs most efficiently. The speaker reported a medium-to-meat conversion ratio of about 0.63:1, compared with a feed-to-meat ratio of about 3:1 for pigs, and noted that the company's novel food application in Singapore was awaiting final approval.

Mycoprotein Fermentation Scale-Up: Safety Considerations from Strain Selection to Downstream Processing

LI Demao (Tianjin Institute of Industrial Biotechnology, Chinese Academy of Sciences)

The speaker addressed safety considerations in scaling up mycoprotein (fungal protein) fermentation. The speaker noted that the institute is involved in two production lines under construction, a 60,000-tonne line in Tianjin and a 10,000-tonne line in Jiangsu, and said that cost competitiveness is currently a greater constraint than safety. The production system was organized around feedstock, process and product. Assessment should cover the production strain and any genetic modification, the fermentation environment, contamination control, downstream processing and the final ingredient. Safety considerations included toxicity, allergenicity, horizontal gene transfer and the fate of introduced genetic material, metabolic balance and the possibility of process changes during scale-up. The speaker emphasized that assessment should focus strongly on the final product while still considering process controls and the supply chain, and that regulatory clarity and consumer acceptance remain important for commercialization.

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Advances in Development of Key Technologies and Products of Cell-Cultured Fish Meat

ZHENG Hongwei (College of Food Science & Technology, Ocean University of China)

The speaker described research on cell-cultured fish meat organized around five practical challenges: selecting suitable fish cells, developing low-cost culture conditions, producing edible scaffolds or microcarriers, scaling cell growth in bioreactors and processing fish substitutes. Fish cells differ from mammalian cells in isolation and culture, and the team developed marine fish cell lines, including immortalized lines, whose temperature and gas requirements may lower production costs. Serum-free media used marine microalgae and fish-processing by-products as sources of functional nutrients to replace fetal bovine serum. The team also developed edible microcarriers with adjustable structure, moving from 2-liter to 100-liter microcarrier production. In scale-up work, a 100-liter culture system reached a total of about 800 billion cells and produced about 3 kg of product per batch. In food processing work, several processing strategies were explored and some cultured fish substitutes were prepared. The work also explored ways to influence the fatty-acid profile, including omega-3 enrichment. The speaker presented these as advances toward industrial feasibility rather than evidence that the technical and regulatory challenges have been resolved.

Novel Food Safety Assessment in Singapore: Regulatory Experience and Emerging Considerations for Precision Fermentation

LIM Xin Shan (Specialist Team Lead, Singapore Food Agency)

The speaker reviewed Singapore's novel-food requirements, which are now provided for under the Food Safety and Security Act. Novel foods are foods or ingredients without a history of human consumption, using 20 years as the reference, and may include traditionally consumed ingredients produced through new biotechnology. Classification as novel is therefore a starting point for deciding whether pre-market assessment is needed, not a conclusion about safety. Singapore's framework covers the product life cycle: company safety assessment, SFA review supported by its Novel Food Safety Expert Working Group, licensing of local manufacturers, and market surveillance and risk communication after approval. Revised guidance clarifies requirements for overseas applicants and post-approval changes, and SFA publishes a list of approved novel foods (18 approvals were listed as of 14 August 2026), although approval of one product does not establish the safety of another. For precision fermentation, assessment follows the production pathway: the host organism and any genetic modification, fermentation inputs and possible contamination, and downstream processing that may introduce solvents, enzymes or processing aids. The speaker noted that the same protein produced in a different host may differ, for example through post-translational modification, and that predicting the allergenicity of novel proteins remains a major scientific challenge because IgE binding does not always translate into clinical reactions. International collaboration was presented as essential.

New Protein Sources – New Allergy Risks? Risk Assessment and Labeling of Food Allergens in the EU

Valérie TRENDELENBURG (Scientific Officer, German Federal Institute for Risk Assessment, BfR)

The speaker explained the mechanisms of food allergy and the distinction between sensitization and clinical allergy. In Germany, about 20–26% of people are sensitized to at least one food allergen, while about 3–6% have a diagnosed food allergy. The EU requires 14 major allergens to be declared when they are added and present as an ingredient in foods. The FAO/WHO Expert Committee on Risk Assessment of Food Allergens established a global priority allergen list based on prevalence, severity and potency, and proposed a watch list that includes, among others, various legumes and seeds. Using peas as an example of an increasingly used alternative protein, the speaker explained that peas are not subject to mandatory allergen labeling in the EU. According to a current publication of two European cohorts, about 1.5% of cases of food-induced anaphylaxis were triggered by legumes not subject to mandatory allergen labeling, mainly peas and lentils, with severity comparable to reactions to legumes subject to mandatory labeling. For novel foods, EFSA's revised guidance adopts a source-oriented, weight-of-evidence approach to allergenicity risk assessment. A review of novel food approvals before the introduction of the revised EFSA guidance found that protein quantification was reported for 90%, but only 21% included bioinformatic analysis and 9.8% immunological testing. For novel food edible insects, EU authorizations require a warning about possible reactions in people allergic to crustaceans, molluscs or house dust mites. The speaker concluded that improved allergen risk assessment, continued clinical monitoring, and evidence-based decisions on allergen labeling are essential to protect consumers as alternative protein sources become increasingly common.

Development, Nutritional Evaluation and Safety Assessment of Synthetic Biology-Derived Foods

SUN Xiyan (Shanghai Institute of Nutrition and Health, Chinese Academy of Sciences)

Drawing on collaborative research, the presentation advanced an integrated framework for the rational design and development of synthetic biology-derived foods, embedding nutritional and safety endpoints from the outset. Assessment priorities reflected product identity and intended use: composition and digestibility for microbial biomass proteins, molecular identity, purity and allergenicity for recombinant functional proteins, and catalytic performance, reaction products and exposure for food and feed enzymes. Research on the food-grade Kluyveromyces marxianus chassis encompassed marker-free multigene integration, context-dependent promoter calibration and fermentation development. Selected strains yielded protein-rich biomass with crude protein levels approaching those of high-quality fish meal, supporting their potential as alternative protein sources. AI-assisted screening guided the discovery and experimental validation of

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mycotoxin-degrading enzymes. Independent mechanistic studies identified key steps in deoxynivalenol catabolism, with isotope tracing supporting microbial mineralization. Genomic screening of production strains examined secondary-metabolite gene clusters, antimicrobial resistance and virulence determinants, and allergen homology. A tiered assessment strategy using cellular, intestinal organoid and animal models was outlined to investigate nutritional functionality, gut health effects and toxicological mechanisms. Translational progress included international regulatory milestones for three products, two under review in China, and intermediate-trial filings for enzyme products within China's agricultural biosafety certification pathway. Regulatory case studies underscored the need for evidence specific to strain identity, manufacturing process, product specifications and intended use. By integrating synthetic biomanufacturing with nutritional and safety assessment, this framework supports the rational development and translation of novel foods and alternative proteins.



Development and Application of Vegetarian Meat Series Standards

LI Jiapeng (Deputy Chief Engineer, China Meat Research Center)

The speaker described China's new series of standards for plant-based ("vegetarian") meat. The market had grown rapidly, with more than 20,000 companies in the sector, but inconsistent naming, improper claims and the absence of dedicated standards had disrupted market order. Drawing on international references (including Codex, ISO, U.S. and European texts), the series comprises a basic standard on terms and classification, product standards and technical specifications. The standards recognize three names for the category and define it as foods using plant or microbial protein as the main protein source, with little or no animal-derived ingredients, a protein content of at least 10%, and meat-like appearance, texture, color and flavor. Products are classified by protein source and by process (for example, seasoned, braised, smoked or roasted, and fried). The general standard sets basic limits for protein, fat, moisture and salt, while product standards set graded protein requirements (for example, at least 15% for top grade and 10% for first grade in seasoned products). The speaker noted that animal-derived content is capped at 5% but that detection methods for this limit are not yet fully established, and that standard implementation and market development are not yet fully aligned.









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Day 2 Morning — Breakout Sessions

Breakout Session B

Risk Communication

Session chairs: XU Jiao, Research Fellow, CFSA; LUO Yunbo, Distinguished Professor, Beijing Technology and Business University

Session overview. The session explored how food-risk communication is changing as information moves from traditional media to social platforms and AI-driven search and dialogue. The morning's eight presentations covered the communication characteristics of the large-model era, gamified science communication, culturally responsive outreach, AI-era public-opinion risk, university teaching of risk communication, competency-based training and digital food education. A shared theme was that facts alone are not enough: communication has to be credible, participatory, culturally aware and designed around real behavior, while organizations must monitor and correct AI-amplified misinformation.

Communication Characteristics of Food Risk Information in the Era of Large AI Models

ZHANG Hongzhong (Professor, School of Journalism and Communication, Beijing Normal University)

The speaker traced food-risk communication through three information environments: centralized traditional media, decentralized social media and the emerging large-language-model environment. In the AI era, people increasingly ask an AI system directly for recommendations or explanations, creating very large numbers of personalized, interactive exchanges. The speaker highlighted risks from low-cost AI-generated content, fabricated endorsements and deliberate "poisoning" of AI models through mass placement of false or misleading information online (so-called generative engine optimization), citing the industry chain exposed in China Central Television's 2026 "3.15" consumer-rights program. Such content can shape model-generated answers about specific products and damage consumer trust in food brands. The presentation emphasized active monitoring, credible source material, rapid verification and science communication suited to AI-mediated channels.

Gamified Approaches to Precision Science Communication on Food Safety and Nutrition

CHEN Si (Associate Research Fellow, CFSA)

The speaker argued that food-risk communication must adapt to a digital environment in which audiences expect participation, interaction and emotional relevance rather than one-way delivery of facts. Gamification was presented as a way to embed evidence-based food safety and nutrition content in engaging scenarios. CFSA's examples included short, light-hearted question-and-answer content and a wild-mushroom identification game, developed because eating wild mushrooms is the leading cause of deaths from food poisoning in China; the game lets players discover the limits of their own identification skills and takes into account that, for many foragers, mushrooms carry economic and cultural value. The "Health on the Tip of the Tongue" card-based board game, co-developed with several universities, translates nutrition and food-safety concepts into familiar choices such as school meals, snacks, hydration and exercise, and is updated regularly through partnerships with schools. Its design was informed by audience research and behavior-change considerations, with evaluation built in.

Culturally Responsive Outreach: Applying COM-B and TDF Frameworks to Avoidable Food Waste in Canada and China

LI Zhenyi (Professor, Royal Roads University, Canada)

The presentation applied the COM-B behavior model and the Theoretical Domains Framework to compare avoidable food waste in Canada and China, arguing that risk communication must be adapted to cultural context. The chair highlighted the example of "face" culture in Chinese dining, in which leaving food on the table can be seen as a sign of generosity, and noted that the topic links communication to food security and the reduction of waste.

Managing Health-Related Public Opinion in the AI Era: Monitoring, Risk Assessment and Crisis Response

YUAN Shengyu (Vice General Manager, Data Center Director and Senior Public Opinion Analyst, CYYUN Co., Ltd.)

The speaker described four shifts in health-related public-opinion risk in the AI era. First, AI makes it easy to generate realistic but fabricated content, including face-swapped "experts", mass-produced pseudo-science and invented press conferences or interviews. Second, coordinated accounts can amplify a small kernel of truth across platforms almost instantly, creating the impression that "everyone is saying it". Third, authority is decentralizing, as AI assistants become a source of perceived authority and can present promotional content as advice. Fourth, distrust persists after official responses, a "Tacitus trap" in which truth becomes cheap and audiences respond with defensive skepticism. The speaker recommended monitoring four areas: brand and product issues, the supply chain, industry and competitors, and associated public figures or business leaders. Risk assessment should distinguish genuine incidents from fabricated claims, company-specific issues from wider industry problems, and factual concern from emotional escalation. AI can assist monitoring, case comparison and crisis exercises, but people must retain responsibility for final judgments, and organizations should build reliable, accessible source material so that AI systems retrieve authoritative information.

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The Role of Core Food Safety Courses in Higher Education in Supporting Risk Communication

CHENG Nan (Professor, China Agricultural University)

The speaker argued that food safety graduates need more than technical competence in hazard detection, laboratory analysis and regulatory interpretation; they also need to explain evidence, understand public concerns and communicate uncertainty. Drawing on China Agricultural University's curriculum, the speaker described core undergraduate and postgraduate courses that connect food hygiene, safety control and risk analysis with risk communication. Teaching methods include real-case analysis, simulated press conferences held in classrooms, and multi-stakeholder debates in which students represent regulators, companies, experts, consumers and media. The presentation also described AI-supported teaching tools and course-specific knowledge assistants. The goal is to develop professionals who can both analyze risks and explain them responsibly to society.

From "Teaching Communication Skills" to "Developing Risk Communication Competencies"

CHENG Jingmin (Director, Center for Health Management and Policy Research, Shanxi Medical University)

The speaker made the case for moving from teaching communication techniques to developing broader risk-communication competence, framed in terms of knowledge, skills and attitudes. Professionals must be able to interpret scientific evidence, distinguish hazard from risk, identify different audiences and their concerns, communicate uncertainty in accessible language, listen and respond rather than simply deliver messages, collaborate across organizations and evaluate whether communication has worked. Drawing on experience in health-communication education and public-facing projects, including joint supervision with communication scholars, the speaker argued that competence must be practiced in realistic situations and assessed by more than output volume or media reach.



Food Education in the Digital Age: From Information Delivery to Behavior Change

CHEN Yuhang (Professor, Shandong Agriculture and Engineering University)

The speaker examined digital food education as a means of moving beyond information delivery toward sustained behavior change. It described the gap between what people know and what they eat: in school surveys, more than 90% of students agreed that eating plenty of vegetables is healthy, yet vegetables, especially leafy greens, were the most wasted items in school meals. Drawing on social cognitive theory and its model of reciprocal interaction between person, behavior and environment, the speaker discussed digital approaches such as apps, social platforms and gamified learning, and noted evidence (including a review of 25 studies in children aged 4–15) that immersive and gamified approaches improve motivation and short-term behavior, especially when embedded in real settings. Limitations included declining engagement, a lack of long-term follow-up, digital-equity concerns, reliance on devices and immature methodology. Digital tools should therefore be designed around the target group and linked to family, school and community environments.

New Propositions in Digital Risk Communication: Research on Quality Thresholds for Food Safety Science Popularization Adopted by Large Language Models

WANG Yu (Professor, Communication University of China)

(Summary derived from submitted Abstract)

Generative AI is emerging as a primary gateway for food-safety information. The audience of science-popularization content has expanded from the general public to LLMs: content is “adopted” by models after corpus ingestion, retrieval-augmented processing and generative paraphrasing, and serves as the basis for model responses to end-user queries. During adoption, source attribution and contextual applicability conditions may be discarded amid content deconstruction and reassembly. Moreover, as models tend to favor content with definitive conclusions and fluent phrasing, low-quality materials and even rumors can acquire an aura of credibility and result in misinformation. This study proposes that food-safety science-popularization content must pass four checkpoints — before entering the adoption pipeline. It yields three classification outcomes too. A workflow of “initial machine screening plus expert review” is recommended. Implementation should follow three sequential steps: status-quo assessment, indicator annotation, and access validation.





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Day 2 Morning — Breakout Sessions

Breakout Session C

AI for Food Safety: Realizing Predictive and Pre-emptive Risk Management

Session chair: WANG Yeru, Associate Researcher, Risk Assessment Division I, CFSA.
Co-chair: Peter WANG, Technical Director & Co-Founder, IQC Consulting Co., Ltd.

Session overview. Eight presentations moved from practical AI use by food safety professionals to modeling methods (microsimulation of disease burden, ranking of food–pathogen combinations, quantitative risk assessment of manure-amended produce and estimation of norovirus below detection limits) and to industry applications at Mars, Yili and in incident management. In opening remarks, the co-chairs noted that AI depends on reliable data, that laboratory and company data are confidential and cannot simply be pooled, and that professionals need curiosity, logical and strategic thinking, the ability to keep learning and soft skills. Speakers consistently concluded that the main barrier to predictive management is no longer the algorithm but data quality, standardized processes and organizational readiness, and that AI supports rather than replaces human judgment and accountability.

Walking with AI: Practical Paths to AI-Empowered Food Safety

Steven ZHU (General Manager, Together Food Safety Co., Ltd.)

The speaker argued that AI has made knowledge far easier to obtain, a form of "knowledge equality", which makes human connection and judgment more, not less, important. The speaker described four stages of AI, from perception AI (image and speech recognition) through generative AI and large language models to agents that can act on tasks, and suggested that small teams, even a "one-person quality department", may become feasible. Industry applications from farm to table included pest and soil analysis, OCR-based checking of supplier certificates with expiry alerts, X-ray and seal inspection in processing, and store-level food safety agents in retail and catering. For individuals, the speaker summarized common uses as searching regulations and standards, drafting reports, reviewing suppliers and labels, analyzing data, leading teams and personal learning. Examples included compiling export regulations, turning scattered personal files into shared knowledge bases, and producing work instructions. The recommended path was to build the habit of using AI, identify a repetitive task such as label review, turn it into a reusable "skill" for the team, and eventually share it with the wider industry.

Application of Microsimulation Models in the Burden of Foodborne Diseases

WEI Sheng (Professor, School of Public Health & Emergency Management, Southern University of Science and Technology)

The speaker introduced microsimulation models, which build a virtual population from individual-level decision units and project how policies change health outcomes over time. Examples included a U.S. model of school-based childhood obesity interventions built from national survey data. The speaker presented a Chinese model that assigned added-sugar intake to a synthetic population based on national population projections and simulated six scenarios combining intake limits of 50 g and 25 g per day with different levels of population compliance. Without intervention, added-sugar intake was projected to keep rising to 2050; the largest reductions in all-cause, type 2 diabetes, heart disease and stroke mortality, and the largest environmental benefits, occurred only if the whole population met the 25 g limit. The presentation also described an agent-based model with 68 agents along a Listeria contamination chain linking farm, animals, milk and cheese batches, and the emerging use of large-language-model "social simulation" to represent food-safety behavior, while noting that such simulations depend heavily on good behavioral survey data.

Intelligent Judgment and Priority Identification of Food Hazards Based on Health Risk

WANG Yibaina (Associate Researcher, CFSA)

The speaker addressed how to prioritize food–pathogen combinations for microbiological surveillance when data are sparse. In a demonstration dataset, 34 food categories and 29 pathogens produced nearly 1,000 combinations, of which only about 12.8% had direct monitoring data. The team combined two methods. A semi-supervised neural collaborative filtering model, constrained by reference samples, ranked the roughly 100 combinations with incomplete monitoring data and the 860 combinations with no direct data, by learning relationships between categories. A multi-criteria decision analysis then integrated five health-risk indicators covering the pathogen (inherent hazard potential and disease burden), the food–pathogen combination and food consumption, using large language models and structured expert elicitation to fill evidence gaps. Because the results drew on surveillance data, they were shown in anonymized form; the speaker presented the combined approach as a way to support supplementary sampling and regulatory prioritization under incomplete evidence.

Risk Assessment of Pathogen-Related Foodborne Illness from Produce Grown in Fields Amended with Untreated BSAAO

Hao PANG (Staff Fellow, U.S. FDA) and David T. INGRAM (Regulatory Scientific Reviewer, U.S. FDA)

The speakers explained the context in the FDA Produce Safety Rule (21 CFR Part 112), including the provisions on untreated biological soil amendments of animal origin (BSAAO) such as raw manure, for which FDA has deferred a minimum application-to-harvest interval while research and risk assessment were completed. In the meantime, FDA advises growers that waiting as long as possible between application and harvest reduces risk. The speakers described a quantitative risk assessment built mainly on FDA-commissioned field studies conducted over about a decade in different U.S. growing regions. The model predicts pathogen survival in soil and transfer to crops up to harvest, then extends to post-harvest handling, dose-response and the predicted number of illnesses. Results showed that extending the time interval between manure application and harvest reduces the potential level of human pathogens on produce at the time of harvest and lowers the predicted risk. The effectiveness of this application interval varied among pathogens, type of untreated BSAAO, and type of produce crops, as influenced by regional environmental conditions.

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Inferring Norovirus Distribution in Oysters by Intelligent Computing

WANG Jianxin (Professor, Beijing Forestry University)

The speaker addressed a long-standing problem in assessing norovirus risk in oysters: much of the true distribution lies below the analytical detection limit, and common approaches (discarding non-detects, setting them to zero or substituting a fixed value) bias risk estimates. Working with CFSA, the team used results from pooled samples to infer the distribution in individual oysters: they generated candidate distributions from many simple functions, calculated the pooled results each would produce, and minimized the difference from actual measurements. Tests with complex mixed and spliced distributions (including log-normal, gamma, uniform and normal) reproduced the true cumulative distributions closely. The method has been made available as an online tool that returns results in about two minutes with modest computing resources. Open questions include how best to handle larger pool sizes, such as the 10-sample pools favored internationally.

AI-Enabled End-to-End Quality Management

Lili YU (Quality & Food Safety Director, Mars Snacking China)

Today's quality landscape is increasingly challenged by geopolitical uncertainty, climate change, supply chain disruptions, evolving regulations, and rising customer and consumer expectations. These factors are making quality risks more complex, interconnected, and difficult to predict. Traditional quality management approaches, largely dependent on historical analysis and reactive problem-solving, are no longer sufficient in a rapidly changing environment.

Mars' AI-Enabled End-to-End Quality Management represents the next evolution of quality management. By integrating AI, advanced analytics, and diverse internal and external data sources, organizations can shift from detecting issues to predicting and preventing risks before they impact consumers or the business. Through real-time risk monitoring, predictive insights, and data-driven decision making, we can strengthen supply chain resilience, optimize resources, improve operational performance, and better protect consumers. Ultimately, Quality evolves from a compliance-focused function into a strategic risk intelligence capability that drives sustainable business value and competitive advantage.

Predict Risks. Prevent Failures. Protect Consumers.

AI + Big Data: A New Paradigm for Risk Assessment, Prevention and Control of Dairy Safety

PEI Xiaoyan (Director of Food Safety Risk Assessment, Inner Mongolia Yili Industrial Group Co., Ltd.)

The speaker explained that end-product testing and manual judgment alone can no longer assure safety across a dairy chain running from farms to consumers, and that AI's strengths in integrating data and continuous learning can help move from reactive testing to preventive control, provided strong professional expertise remains in place. The speaker outlined six foundations: core food safety knowledge, standardized and structured data, shareable datasets, models, an integrated platform and organizational processes adapted to digital work. Cases included a risk assessment platform for heat sterilization processes built on a database of more than 11,000 records of microbial contamination in raw materials and heat-resistance data; a system for screening farm and forage-base locations, built from about 470,000 literature records and more than 10,000 chemical-contaminant records, which cut screening of a site from about a month to under a minute; microbial prediction and assessment in ice-cream processing, and panoramic imaging-based AI technology for accurate quantitative detection of tank defects, cutting inspection time from about four hours to under one hour.

Rethinking Incident Management in the Era of Artificial Intelligence

Melody YU (Senior Food Safety and Quality Advisor, MarsMel LLC; President/Founder, Women in Food Safety)

The speaker argued that business continuity and incident management are decided long before a crisis occurs. Drawing on experience in manufacturing, retail and certification, the speaker described a nationwide 2024 U.S. recall of frozen waffles that began with a routine positive test for Listeria species, led to recall of all product within shelf life and cost the company about US$300 million, with no confirmed illnesses. The investigation found that every function had done its own job, but data from environmental monitoring, maintenance, sanitation and operations had not been connected: each result was individually acceptable but collectively concerning. The speaker introduced the SIGNAL framework (Spot the weak signal, Investigate the risk, Govern the response, Navigate with confidence, Adapt and recover, Learn), in which AI detects patterns and connects data while people decide what matters and take responsibility. AI does not make decisions and never takes responsibility. A resilient business culture was described as one that encourages people to speak up early, values speed over perfection in a crisis and empowers every team.

Panel discussion and Q&A

The discussion covered how far companies can share food safety data. Industry speakers said technical knowledge can be shared but company-specific safety data cannot be made public, while noting that industry-wide prediction benefits large and small producers alike, since a recall can damage a whole category. Participants stressed that in the United States a positive pathogen result on a food-contact surface or in finished product leads to product being held or recalled without waiting for regulators. On careers, speakers advised building curiosity and foundational thinking first, then personal efficiency, then team efficiency, and noted the importance of soft skills because most food safety work is done by operations, sanitation and maintenance staff rather than quality staff. On return on investment, speakers agreed that the value of AI is still hard to quantify and that companies must balance near-term business cases against strategic choices.



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Day 2 Morning — Breakout Sessions

Breakout Session D

Food Safety Culture 2.0

Session chair: Cindy JIANG, Global Food Safety Ambassador, former Global Food Safety Senior Director, McDonald's Corporation.
Co-chair: YUE Jin, Professor, Shanghai Jiao Tong University; Director, SJTU-Bor S. Luh Food Safety Research Center

Session overview. The session examined how food safety culture is defined, required and embedded in daily operations. It began with GFSI's updated position paper and the food safety culture requirements of FSSC 22000 and SQF, followed by the consumer perspective of the Alliance to Stop Foodborne Illness, a Q&A panel, and company practice at Ferrero, Mingkanghui, PepsiCo and Wallace. A recurring point was that culture exists in every food business and should not be just focused on posters, slogans or audit scores: it connects with leadership commitment, employee empowerment, consistent behavior when no one is watching, and evidence that concerns lead to action.

Overview of the GFSI Food Safety Culture 2.0

ZHOU Lingling (Greater China GFSI Lead, The Consumer Goods Forum)

Elizabeth Andoh-Kesson, GFSI Director, recorded a video tracing GFSI's food safety culture journey. Lingling, the speaker, then provided a detailed introduction to the content of GFSI's food safety culture position paper.
The speaker traced GFSI's work on food safety culture from its first position paper in 2018, through its inclusion in GFSI benchmarking requirements (strengthened in the 2024 version), to the Food Safety Culture 2.0 position paper, which was launched at the 2026 GFSI Conference in Vancouver and published in Chinese, Spanish and other language versions in July 2026. Version 2.0 clarifies that GFSI's role is to define what food safety culture is, leaving maturity-assessment tools to certification program owners, companies and professionals. It redefines food safety culture as present in every food business, large or small, so the question is its level of maturity rather than its presence or absence, and emphasizes behavior and the real effect of culture on food safety performance. The new two-layer model has five dimensions: organizational Culture Foundations (company values, vision and mission; and people, including commitment, empowerment and accountability) and Manifested Cultural Essentials (consistency; hazard and risk awareness; and adaptability, change and continuous improvement). The speaker emphasized the importance of empowerment and stressed that without a solid organizational foundation, even well-designed procedures will not be sustained.

FSSC 22000 Requirements for Food Safety and Quality Culture: Audit Findings of Version 6 and Changes in Version 7

LI Yu (CTO, CNFIA; FSSC Liaison in China)

The speaker reviewed FSSC 22000 Version 7's food safety and quality culture requirements in light of audit findings under Version 6. Common weaknesses included culture plans without clear objectives, defined activities, schedules or measurable indicators, and communication treated as an activity in itself without evaluating whether it changed behavior or led to corrective action. Version 7 reinforces leadership commitment and the expectation of a positive food safety culture, and treats culture as part of the management system, supported by senior management, adequate resources, clear responsibilities and evidence of implementation. In discussion, it was confirmed that audits against Version 7 begin on 1 May 2027, with a transition period to the end of April 2028; audits before 1 May 2027 may continue against Version 6.

Food Safety Culture with SQF

Sarah WU (SQF Representative, China, SQFI)

The speaker explained how SQF, operated under the U.S. food industry association FMI and benchmarked by GFSI, embeds food safety culture and food quality culture in its certification framework in a comprehensive method. It described SQF's wide range of food safety codes across global food supply chain, including new codes for Food Safety Service Providers to food industry, and a remote-audit option for Agent & Brokers Code. SQF Edition 10 commits food safety and food quality culture at the start of the management commitment requirements (clause 2.1), strengthens role-specific training and competence, and requires designated food safety and food quality plan practitioners. SQF also offers an exclusive quality certification with "quality shield" mark that companies can use to communicate with retailers and consumers. SQF Edition 10 takes effect in January 2027 to support global food companies to manage food safety and quality plans to mitigate risks to consumers.

Protect Consumer is the Mission

Vanessa COFFMAN (Director, Alliance to Stop Foodborne Illness)

The presentation connected food safety culture to the human consequences of foodborne illness. The speaker introduced the Alliance to Stop Foodborne Illness, which brings together companies and families affected by foodborne illness and traces its roots to the 1993 Jack in the Box E. coli outbreak, and shared a family's account of a child seriously ill with E. coli infection shortly before her second birthday. The presentation emphasized that food safety culture is not only a business or compliance issue but about preventing serious harm, and introduced stories and resources that help employees see the impact of their decisions. The speaker invited participants to share with a colleague the moment they realized why food safety matters.

Q&A and panel discussion

Questions covered measurable indicators of culture beyond overall maturity assessments; speakers responded that culture is built through the cumulative daily work of employees and management over years, starting from management commitment, and cannot be reduced to a single KPI. Participants also asked about transition dates for FSSC 22000 Version 7 and SQF Edition 10, how U.S. companies rebuild consumer confidence after recalls, why reported foodborne illness figures differ between countries, and whether the Alliance's work extends beyond E. coli to other pathogens.

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Food Safety Culture – from Leadership Commitment to Continuous Improvement

Pauline HAN (Head of Food Safety and Quality, Ferrero China)

The speaker described Ferrero's approach to food safety culture through leadership commitment, cultural continuity, governance, proactive risk management and digital tools. Ferrero combines headquarters governance with local execution and independent assessment, and uses cross-site exchanges to share practices. Examples included employee suggestion and improvement platforms, recognition of useful ideas, training and visible communication of company values. Risk prevention runs throughout the value chain, from product design and supplier selection to manufacturing and checks on product freshness on retail shelves by a dedicated team of about 30 people in China. Digital applications support real-time recording of critical control points, AI-assisted problem solving and visual inspection. Ferrero began introducing digital labels in 2026 and sees them as a future channel for more transparent consumer communication.

Practices and Reflections on Food Safety Culture at Mingkanghui

HUANG Jianjun (Vice President of Food Safety, Mingkanghui Ecological Agriculture Group Co., Ltd.)

The speaker described Mingkanghui's food safety culture practices in a fresh-food supply chain serving community stores and institutional catering. The speaker argued that formal systems and testing cannot substitute for consistent human behavior, and that culture closes the gap between rules and execution. The company uses a food safety committee to secure leadership alignment and implementation of new requirements; daily, weekly and monthly learning formats, including a monthly bulletin, to reinforce knowledge and share cases; and a risk-based approach to sourcing and supplier management, including annual supplier engagement. Its "安心" (peace-of-mind) product lines were developed through tighter controls on higher-risk agricultural products, such as pesticide residues, and training at farm and cooperative level, at the cost of some sales volume in the early stages. The speaker emphasized that source improvement must also create sustainable value for farmers and suppliers.

Food Safety Culture 2.0: Science, Data & Action

Sanjeev SHARMA (R&D FSQA Senior Director, APAC, PepsiCo)

The speaker described PepsiCo's approach to food safety culture through four interconnected levers: capability building, including all voices, leadership tone from the top, and rewards and recognition, aligned with the GFSI position. It emphasized creating an environment in which employees can raise concerns and see that action follows. Culture surveys can identify strengths and gaps, but their value lies in what management does with the results. The speaker described near-miss reporting and an integrated "single source of truth" for quality and food safety data as ways to identify weak signals, connect information, and move from compliance toward ownership and from prediction toward prevention. The closing message was that a strong food safety culture is shown by what people do when no one is watching.

Complexity Science of Food Safety Management in Large-Scale Chain Enterprises

SHAN Di (Vice President, Fujian Wallace Food Co., Ltd.; Shanghai Rongying Brand Management Co., Ltd.)

The presentation applied complexity-science concepts to food safety management in a large restaurant chain. It argued that a network with many sites, employees and local conditions cannot be fully controlled through linear assumptions that clear objectives, detailed rules and supervision will produce uniform behavior: organizational behavior is not the simple sum of individual performance but the emergent result of many interacting agents and variables. Rigid rules and supervision constrain only superficial behavior, and small deviations can interact and accumulate into larger failures. The speaker presented food safety culture as an organizing force that can align decentralized decisions, support shared norms and reduce the emergence of risk across a complex system, combining formal controls with culture-building, feedback, learning and local adaptation.





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Day 2 Morning — Breakout Sessions

Breakout Session E

Safety of Food Contact Materials

Session chair: ZHANG Hong, Associate Researcher, CFSA
Co-chair: ZHONG Huaining (Marco), Director, National Reference Laboratory for Food Contact Materials (Guangdong), Guangzhou Customs Technology Center

Session overview. The session reviewed China's food-contact-material standards and the U.S. framework for food contact substances, then focused on recycled plastics (European and international regulation, novel decontamination technologies and draft Codex guidance) and on non-intentionally added substances (NIAS) in natural materials, packaging portfolios and adhesives. A central message was that compliance has to be managed across the whole supply chain, from raw materials to the finished article, through standards, migration testing, screening and information transfer, and that NIAS assessment needs practical, risk-based approaches rather than ever-lower limits that cannot be measured or controlled.

Food Contact Materials Standard System Construction and Latest Development

ZHANG Hong (Associate Researcher, CFSA)

The speaker described China's food-contact-material standards as a system of general standards, material-specific product standards, test methods and good manufacturing practice requirements. Compliance should be assessed from raw materials and auxiliary materials through manufacturing to the finished article. For plastics, this includes checking permitted resins and additives, applicable overall and specific migration limits, and requirements arising from starting materials; screening by calculation, for example of overall migration or residues, is permitted under the relevant test-method standards. Information transfer through labels and declarations of compliance is essential, and compliance verification may involve testing, screening or review of supply-chain documentation. For printed and multi-layer materials, the food-contact layer is central, but migration from other layers, such as inks, must be considered. The presentation also reviewed standards under revision, including GB 9685 and GB 4806.1, and emerging materials such as degradable plastics that require further safety research.

Overview of U.S. FDA Regulation of Food Contact Substances

Sean FISCHER (Regulatory Review Scientist, U.S. FDA)

The speaker outlined the U.S. regulatory framework for food contact substances. The 1958 Food Additives Amendment requires authorization of food additives, including components of food packaging, and the Food and Drug Administration Modernization Act established the Food Contact Substance Notification program, now the main authorization route. Regulatory status depends on the substance and its intended use, and submissions must address the substance itself and its expected impurities, residual starting materials and degradation products. The presentation also covered categorical exclusions from environmental review and FDA's approach to recycled plastics: FDA considers incidental contaminants from prior use of input materials and the ability of the recycling process to remove them. A "no objection letter" is a favorable outcome to a voluntary submission on a recycling process and represents FDA's opinion based on the information submitted; it is not a general authorization for every possible use.

Food-grade Recycled Plastic Regulations: An Update

Thomas GUDE (President, AOAC Europe Section; Founder, THOMAS GUDE GMBH)

The speaker examined the regulatory and technical challenges of recycling plastics for food contact. Input streams must be sorted and cleaned, and the recycled material must be shown to achieve a level of safety comparable to virgin material. The speaker reviewed European rules and the challenge of setting extremely low contaminant limits when analytical methods cannot reliably measure those levels in the relevant material or food. He argued for risk-based decisions that consider actual exposure, technical feasibility and process controls, while continuing to improve analytical and decontamination methods, and highlighted traceability and declarations of compliance for recycled materials.

Exploring Novel Decontamination Technologies for Food-contact Recycled Plastics

ZHONG Huaining (Marco) (Director, National Reference Laboratory for Food Contact Materials (Guangdong), Guangzhou Customs Technology Center)

The presentation set the work in the context of China's large consumption of PET packaging and its transition toward a circular economy. The team studied two decontamination approaches for recycled PET, supercritical carbon dioxide and supramolecular solvents, using representative surrogate contaminants covering different chemical classes. Removal depended on contaminant properties, molecular structure, pressure, temperature and treatment time. Supercritical CO_2, particularly with co-solvents, outperformed vacuum treatment for most contaminants studied, while vacuum treatment remained more effective for some highly polar substances such as phenols. In solvent comparisons, the supramolecular solvent achieved removal efficiencies above 95% for typical contaminants. The speaker presented these as promising complementary technologies for producing food-grade recycled PET.

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The Development of Codex Guidelines on the Safe Use of Recycled Plastic in Food Packaging

Sue O'HAGAN (Director Scientific Affairs, PepsiCo)

The speaker outlined work toward Codex guidance on the safe use of recycled plastics in food packaging. International guidance is needed because countries are taking very different regulatory approaches, from restrictions to detailed authorization systems. The proposed guidance is organized around the collection and control of input materials, the recycling process and its safety assessment, and the handling of recycled material after processing. The speaker emphasized preventing recontamination, good manufacturing practice and a common framework to help countries develop consistent approaches. Approval of the new work by the Codex Alimentarius Commission was expected next year, with an initial draft to be discussed at the Codex Committee on Contaminants in Foods in 2027 and finalization of the guidelines currently anticipated around 2030.

Natural Food Contact Material Contaminant Analysis and Risk Assessment

Sander KOSTER (Department Manager / Expert Packaging Food Safety, Nestlé)

The speaker discussed the safety assessment of natural and bio-based food-contact materials and the analytical challenges of their complex composition. It focused on the German Federal Institute for Risk Assessment (BfR) guideline on assessing substances and NIAS in food-contact materials, released this year, which the speaker welcomed as pragmatic because it recognizes that not every substance can be identified. Complementary analytical techniques (GC and LC methods) are needed to cover substances with different properties. The presentation discussed identifying and grouping related compounds and using molecular networking of LC-MS/MS fragmentation patterns to interpret complex profiles. A case study on polylactic acid (PLA) showed how cyclic and linear oligomers, end-group modifications and degradation during storage, especially under tropical conditions, affect what is detected. The speaker emphasized combining chemical analysis with bioassays, such as the Ames test, and predicted that digitalization and AI will transform packaging risk assessment.



A Practical Approach to the Assessment and Management of Recurrent NIAS

Leo MEUNIER (Chemical Safety Director, Danone)

The speaker described Danone's practical approach to managing recurrent NIAS across a broad packaging portfolio and diverse consumer groups, including infants. The company built "NIAS indicative values" into a tool embedded in its quality management system. The values are derived from a comprehensive review of toxicological data, using the lowest relevant reference points and appropriate uncertainty factors, combined with exposure scenarios for each food category and target consumer group. Users select the food category and consumer group to obtain the limit to apply when screening packaging. The database is updated annually. Substances exceeding the indicative value receive more detailed assessment, allowing triage that directs resources to the cases that need further investigation and significantly reduces assessment time. The speaker also described training and implementation across the packaging approval process, from supplier discussions and sourcing to the finished article.

Best Practice Sharing on Food Safety Management by Henkel

DAI Mian (PSRA, Henkel)

The speaker described Henkel's three-part approach to food safety management for adhesives, coatings and sealants: assuring raw-material safety, analytical evaluation and toxicological assessment. Supplier documentation must be checked rather than accepted uncritically, and analytical testing is used where information is incomplete or needs confirmation, including to identify non-intentionally added substances (NIAS). The toxicological assessment covers the formulation as a whole and the relevant migration and exposure scenarios, including intended applications and potentially sensitive populations. Where a competent authority has evaluated a substance and set a safety threshold or toxicological reference value, Henkel uses that value directly or converts it as needed. Where no threshold exists but toxicological data are available, the company gathers the evidence, applies internationally recognized approaches and derives the most conservative value.

Panel discussion and Q&A

Discussion focused on the lack of a harmonized approach to NIAS analysis and risk assessment. Speakers agreed that, at a high level, risk assessors already align on tools such as the threshold of toxicological concern and read-across, but that shared databases on NIAS occurrence and benchmark reference data would help. Industry speakers urged authorities not to rely on extremely low toxicological values that cannot be measured or controlled, arguing that such values do not improve food safety.

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Day 2 Morning — Breakout Sessions

Breakout Session F

NAMs Scientific Foundations & Methodologies

Session chair: CHEN Junshi, CIFSQ Conference Advisor; Academician, Chinese Academy of Engineering
Co-chair: Geoffry SMITH, President, International Life Sciences Institute (ILSI) Southeast Asia Region

Session overview. The session addressed the scientific foundations and regulatory use of New Approach Methodologies (NAMs) for food chemical safety. It covered CFSA's institutional framework and resource platform, FDA's qualification framework and ENTRÉE pilot, FDA's Expanded Decision Tree and in vitro models, Chinese work on organ-on-a-chip, AI toxicity prediction and titanium dioxide, the food industry's use of NAMs, read-across for steviol glycosides, and the UK approach to authorizing alternative proteins. The shared message was that NAMs must be qualified for a defined purpose and context of use and integrated into a weight-of-evidence assessment, rather than treated as universal replacements for existing methods; regulators also noted that capacity varies widely, with some agencies in Southeast Asia having no full-time toxicologist.

Advancing Food Chemical Safety Assessment: CFSA's NAMs Framework and Institutional Approach

YANG Hui (Professor; Deputy Director, NHC Key Laboratory of Food Safety Risk Assessment, CFSA)

The speaker introduced CFSA and China's national framework of toxicological testing guidelines and standards for food safety, which comprises six procedural guidelines and 23 test methods, including 12 for genotoxicity. The threshold of toxicological concern (TTC) approach is also being considered. Alternative animal models and human cell-based in vitro models have been established, some already incorporated into national standards, and the adverse outcome pathway (AOP) framework is used to guide their design. Examples included an AI-assisted hazard identification approach, a working group applying physiologically based kinetic (PBK) modeling to extrapolate in vitro results to human exposure, high-content three-dimensional human liver and adipose organoid models to identify metabolism-disrupting chemicals, and assessment of combined exposure to pesticides and mycotoxins using relative potency factors. CFSA has built a NAMs resource platform for regulators, method developers, industry and the public, to be released as a website, with an English version planned within about two months. The speaker recommended a practical, step-by-step approach focused on areas where NAMs add most value, supported by validation, standardization, clear regulatory criteria, training and international alignment.

Qualifying New Approach Methodologies for Food Chemical Safety Assessment: FDA's Regulatory Framework and the ENTRÉE Pilot Program

Omari BANDELE (Senior Science Advisor, Human Foods Program, U.S. FDA)

The presentation began with the question of when a result from a new scientific method can be relied on to support a food chemical safety decision. FDA's Human Foods Program considers study quality, biological relevance, exposure evidence, uncertainty, and the overall weight of evidence, rather than interpreting an individual result in isolation. Food-specific considerations matter: dietary exposure to many food chemicals is typically repeated, long-term, and low level, and may involve complex food matrices and mixtures. Detecting an in vitro biological response does not, by itself, establish that an exposure is unsafe; responses must be interpreted in relation to dietary and internal exposure, their magnitude and duration, and susceptible populations. Qualification establishes that a method is fit for a specific context of use, described as the method's "job description"; qualification for one context does not extend automatically to others. The type and amount of evidence needed to qualify a method depend on its intended use and significance of the regulatory decision. The ENTRÉE pilot program seeks to advance the qualification of NAMs for food chemical safety assessment. It provides a pathway from early discussion with FDA, through submission of a letter of intent and a qualification package, to scientific review and a qualification decision by FDA, along with support for developing reviewer training materials and online posting of information for qualified methods. During the discussion, FDA noted that the ENTRÉE pilot program website had been published the previous day.

The Expanded Decision Tree: Advancing Structure-Based Chemical Classification

Szabina STICE (Senior Toxicologist, Human Foods Program, U.S. FDA)

The speaker introduced FDA's Expanded Decision Tree (EDT), a structure-based computational tool that estimates the relative chronic oral toxic potential of chemicals and identifies exposure levels not expected to raise a safety concern, supporting the 3Rs. The EDT assigns substances to six classes, from very low to highest toxic potential, each linked to its own TTC value; the values were derived for oral exposure and should not be applied directly to other routes. The tool uses a large set of structural questions and sub-questions, including new ones for groups such as certain alkaloids and specific chemical classes, and was externally validated on chemicals not used in its development and independently peer reviewed; the documentation is on FDA's website. FDA is developing free, open-source software implementing the EDT as a rule-based evaluation layer, aiming to complete development by the end of 2026 and, if testing proceeds as planned, release it free of charge in March or April 2027.

Development and Evaluation of in Vitro New Approach Methods for Potential Regulatory Applications

Megan CULBRETH (Supervisory Toxicologist, U.S. FDA)

The speaker described in vitro NAMs developed by the Division of Toxicology in FDA's Human Foods Program. For liver toxicity, the division uses a three-dimensional human liver spheroid model of primary human hepatocytes and non-parenchymal cells, and a liver-chip microphysiological system on a commercial organ-chip platform that can evaluate 24 chips at once; both allow repeated, non-terminal measurement of endpoints such as cell health and liver function in the culture medium. For developmental neurotoxicity, the division has established four assays from the OECD in vitro battery of 17 assays, developed a multiplex proliferation and apoptosis assay intended for submission as an amendment to the battery, and is developing a blood–brain barrier formation and integrity assay to fill a gap in the existing battery. The models are intended to support chronic exposure hepatotoxicity and developmental neurotoxicity evaluations and to contribute to weight-of-evidence assessments. The speaker noted that no single model captures every biological process, so selection must be driven by the question and context of use.

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Day 2 Morning — Breakout Sessions

Organ-on-a-Chip and Next Generation Risk Assessment

GU Zhongze (Chief Professor, Southeast University; Dean, Institute of Organ-on-a-Chip; Director, State Key Laboratory of Digital Medical Engineering)

The speaker explained why organ-on-a-chip models are a key tool for next-generation risk assessment, noting that about 85% of drug candidates fail in clinical trials, with hepatotoxicity accounting for about 30% of toxicity failures, and that published organ-chip results for some endpoints show high concordance with human outcomes. The speaker described two decades of work by his team, including liver spheroids, conductive extracellular matrices for neural culture, high-precision 3D printing of microstructures and biomechanical measurement methods that can detect cardiac-cell beating or viral damage earlier than conventional microscopy. In a regulator-organized evaluation, the team's heart, kidney, intestine and liver models all exceeded 70% accuracy, which the speaker described as better than most animal tests, and an organ-chip-supported drug screen has progressed to later-stage clinical trials. The team is working with partners, including CFSA, on China's first organ-chip standards; a liver-chip standard was expected to be published by the end of the year, and a four-layer epidermis model is available for irritation and sensitization testing.

AOP Network and Integration of NAMs: Dietary Titanium Dioxide's Toxicity in the Intestine

MU Wei (Professor, School of Public Health, Shanghai Jiao Tong University School of Medicine)

The presentation used titanium dioxide (TiO_2) as a case study in integrating NAMs through an adverse outcome pathway network. The speaker noted that, following EFSA's 2021 conclusion, TiO_2 may no longer be used as a food additive in the EU (with some easing of the restriction discussed in 2025), while China and the U.S. FDA permit its use except in certain products such as infant and special medical foods. Although regarded as an inert particle, TiO_2 may break down into smaller particles in the gut, increasing its potential effects. The team's cell studies showed that macrophages that had taken up TiO_2 lost much of their innate immune capacity against later infection with E. coli or Salmonella, even after a recovery period, with sequencing pointing to Toll-like receptor 4. Animal studies, including a "two-hit" model of early-life and adult exposure, and computational toxicology were used to explore whether TiO_2 could influence the progression from intestinal inflammation toward cancer. The speaker emphasized that TiO_2 is consumed with sugary and high-fat foods, so exposure should be assessed for high-consuming groups such as adolescents rather than average intake alone.

AI Methods and Database for Toxicity Prediction of Small Molecule Compounds

HE Song (Professor, Academy of Military Medical Sciences)

The speaker argued that AI is needed for toxicity prediction because testing is slow and costly, the 3Rs principle limits animal use, and the chemical space of small molecules (about 10^{60}) far exceeds what can be tested. The team built a toxicity database, with version 2.0 planned for December 2026 to add substantially more data and separate human-health and environmental endpoints, as well as pesticides and toxins. They developed models that learn general molecular representations, predict acute toxicity across species and extend to multiple organ and tissue endpoints, incorporating adverse outcome pathway knowledge so predictions can be explained chemically and biologically. Because performance on human-relevant endpoints remained limited, the team used an active "dry–wet" loop in which the model selects the most informative compounds for experimental labeling, such as compounds near the classification boundary and "toxicity cliffs" where similar structures have opposite toxicity, reducing the data needed by about 57% compared with random selection. The tools are available online.

New Approach Methodologies (NAMs) in the Food Industry

Tessa VAN TONGEREN (Chemical Safety Specialist, Danone)

The speaker described the food industry's use of NAMs, beginning with Danone's commitment not to conduct animal testing unless strictly required, and to follow the 3Rs. A survey of food companies worldwide found that the industry mainly uses established NAMs, such as in vitro genotoxicity and mutagenicity assays, in silico QSAR models and the TTC approach. More advanced NAMs, such as other in vitro cell-based assays and PBK modeling, were used less often. Use of NAMs varied across food applications, and they were used most for novel food ingredients, proteins and food contact materials. The industry has strong interest in cell-based NAMs for the gut, genotoxicity and the liver. The key barrier is uncertainty about whether regulators will accept NAMs data, so regulatory clarity will be essential before companies can rely on such data in submissions. The speaker called for clear regulatory frameworks, practical implementation guidance and case studies, and coordination among industry, regulators and scientists, while continuing to protect consumer safety.







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The Use of the Read-Across Approach for Food Ingredient Safety Assessments: A Case Study on Steviol Glycosides

George PUGH, Jr. (President, GeTox Consulting; Calorie Control Council Scientific Advisor)

The speaker described read-across as an evidence-based, systematic, and endpoint-specific approach that uses data from well-characterized source substances to predict the properties of data-poor target substances. Source and target substances should be structurally and mechanistically related, recognizing that similarity for one endpoint does not necessarily establish similarity for another.

The case study focused on steviol glycosides, for which the toxicological database is largely based on the most abundant compounds, Rebaudioside A (Reb A) and stevioside. Newer glycosides, such as Reb D and Reb M, offer improved sensory profiles but occur at very low levels in stevia leaves. Fermentation, glucosylation, and bioconversion technologies now enable their commercial production. Comparisons with leaf-derived glycosides demonstrated comparable chemical structures, no evidence of mutagenicity or DNA damage, and similar metabolism. Gut microbiota rapidly hydrolyze all steviol glycosides to steviol, which is subsequently absorbed. These findings supported JECFA and EFSA acceptance of read-across, avoiding unnecessary animal studies. The primary challenge was generating the pivotal comparative metabolism data.

Regulatory and Toxicological Considerations for Alternative Proteins: A UK and European Perspective

Amie ADKIN (Deputy Director Analytics and Risk Assessment, Food Standards Agency UK)

The speaker described how the UK Food Standards Agency authorizes alternative proteins through its market authorization service, which covers England, Wales and Scotland. Novel foods, defined as foods without a significant history of consumption before 1997, require a safety assessment before being placed on the market. Some products are well understood, such as milk sugars produced by precision fermentation, while others are very new, and the challenge is to keep assessment appropriate without making regulation so detailed that it cannot adapt. The FSA has used a regulatory sandbox and business support services to work with companies on cell-cultivated products, identifying common hazards, minimum testing levels and common evidence requirements, and has published guidance, including on growth media, on its innovation hub web pages. Current challenges include scale-up, the definition of a production batch, traceability and import and export requirements.

Panel discussion and Q&A

Discussion covered the main challenge in gaining acceptance of read-across for steviol glycosides (generating comparative metabolism data), how dose and lifetime exposure should be considered when interpreting early-life effects, and whether established NAMs such as read-across and TTC are sufficient or whether newer in vitro and modeling approaches can be adopted more widely. Speakers noted that many NAMs already exist but uptake depends on regulatory capacity, and that several regulators in Southeast Asia lack dedicated toxicologists, so regional leadership and capacity building, including from China, are important.







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Day 2 Morning — Breakout Sessions

Breakout Session G

G Environmental Monitoring Programs (EMP)

Session chair: Zoe WANG, Head of China Region, Commercial Food Sanitation L.L.C. (CFS)

Session overview. The session presented environmental monitoring as an active, risk-based system for finding and eliminating pathogens before they reach food, not a routine swabbing exercise. Speakers covered program design under Chinese requirements and Codex guidance, the revised Codex recommendations for Listeria monocytogenes, hygienic design to remove harborage sites, rapid molecular detection, investigation of positive results, and a hands-on exercise in selecting and swabbing sampling sites. A consistent message was that finding positives shows that a program is working, and that each positive should trigger structured investigation and lasting correction rather than repeated surface cleaning alone.

Opening

Darin ZEHR (General Manager, Commercial Food Sanitation L.L.C.)

The opening introduced Commercial Food Sanitation (CFS), whose mission is to make the world's food supply safer through training and support on sanitation and pathogen control, with training centers in Shanghai, the United States, the Netherlands, Brazil and elsewhere. The speaker stressed the growing importance of environmental pathogen control worldwide, including in China, and challenged participants not to treat training as an end in itself: the goal is not to set up a program but to implement what is learned, adapt and keep improving, so that consumers receive safe food.

Turning Global Guidance into a Risk-Based EMP in China

Joy ZHENG (Technical Development Manager, Commercial Food Sanitation L.L.C.)

The presentation translated China's regulatory requirements, including the updated GB 14881 hygiene standard, and Codex guidance into a risk-based environmental monitoring program, noting that different frameworks share the same logic. No single sampling plan fits every facility: target organisms and sampling frequency should reflect the product, water activity, storage conditions, process, facility layout and traffic patterns. Examples included Salmonella for low-moisture products, Listeria for refrigerated ready-to-eat foods such as ready-to-eat meats and fresh-cut produce, and Cronobacter for infant formula, with indicator organisms such as Enterobacteriaceae used to detect deteriorating hygiene trends. Sampling sites should include places where moisture, nutrients and harborage coincide, and sampling times should vary across shifts and days so that they cannot be predicted. The speaker recommended sampling at least four hours after production starts, explaining that microorganisms pass through a lag phase before exponential growth and showing hourly in-plant data in which counts rose sharply after about four hours. Positive findings require thorough investigation before corrective action by a cross-functional team, and events such as construction, equipment installation or removal, leaks and drain backflow call for additional monitoring.

Revised Codex Recommendations for Environmental Monitoring Programs for Listeria monocytogenes

Benjamin WARREN (Senior Science Advisor for Food Safety, U.S. FDA)

The speaker reviewed the Codex guidance on environmental monitoring programs for Listeria monocytogenes, originally adopted in 2007 and significantly revised earlier in 2026. The revised guideline has two parts and helps food businesses design programs according to product risk, processing conditions, facility layout, traffic patterns, sampling locations, frequency, collection methods and analytical procedures. Environmental monitoring should be an active intelligence-gathering approach designed to find the organism in the environment and eliminate it before it reaches ready-to-eat food. All sampling locations should be documented on a detailed facility map with enough precision for full traceability to results, together with the operational context and timing of sampling. Validated methods should be used, with sponges for large flat surfaces and swabs for smaller or harder-to-reach sites, and time to confirm presumptive positives should be minimized because Listeria may spread in the meantime. An annex recommends structured processes such as root-cause analysis, follow-up sampling and trend review, and intensified corrective action for positives on food-contact surfaces or in higher-risk areas. The speaker noted that construction and unplanned events such as roof leaks can disturb harborage sites and spread contamination.

Hidden in Plain Sight: Engineering Out Pathogen Harborage

Lina ASHMORE (Senior Food Safety Specialist, Commercial Food Sanitation L.L.C.)

The presentation treated environmental monitoring as a source of clues to hidden harborage and facility-design weaknesses, using the analogy of noticing a moving branch and working out its cause. Examples included cracked floors (for instance where materials expand and contract at different rates), poorly sealed wall penetrations, hollow equipment components, pooling water, trench drains, condensation and inaccessible equipment structures. Recurring positive results suggest that contamination is persisting, and an expanding pattern of positives suggests that it is spreading; both, along with persistent shelf-life or sanitation problems, should prompt investigation of underlying design and infrastructure rather than repeated surface cleaning. Hygienic design should allow effective cleaning, maintenance and inspection, with attention to hygienic zoning, people and equipment movement, water management, air flow, temperature and humidity. Condensation is not merely a housekeeping issue: water droplets that move can carry bacteria and pathogens through a facility.

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Beyond Enrichment: Fast Molecular Detection for Environmental Listeria Mitigation

ZHAO Xianming (Greater China Technical Service Manager, Neogen)

The presentation opened with a 2024 case in which whole-genome sequencing linked outbreaks a decade apart (2014 and 2024) to the same Listeria monocytogenes strain persisting in a well-run plant with an established monitoring program, showing how pathogens can hide in places routine sampling misses. The speaker noted a new U.S. FSIS inspection practice of collecting four environmental samples, two from food-contact and two from non-food-contact surfaces, and observed that many plants in China avoid sampling Zone 1 (food-contact surfaces) for fear of the implications of a positive. The presentation described a molecular test that detects Listeria species directly from environmental samples within about two hours without enrichment, because it amplifies ribosomal RNA, which is naturally present in about 10^4 copies per cell, rather than DNA. The reported detection limit was about 2–5 CFU per swab. Faster results allow positives to be traced quickly, for example after equipment installation or repair, and in one sauce company helped break through a plateau in positive rates. The speaker cautioned that the test is a supplementary tool for routine environmental Listeria monitoring rather than a replacement for standard methods.

When You Find It: Positive-Result Investigation and Corrective Action

David LE MEUR (Food Safety Manager for EMEA, Commercial Food Sanitation L.L.C.)

The presentation distinguished three levels of signal in an environmental monitoring program, from a presumptive positive (typically by PCR, which detects genetic material but cannot show whether the organism is alive) to a confirmed positive and further characterization. The speaker argued that a positive result should not trigger panic but indicates that the program is working: a program that finds no positives for years usually signals problems with how, where or how often samples are taken. A structured response follows phases: notification of a cross-functional team; immediate actions and investigation, including vector sampling around the positive site and consideration of mobile equipment, such as floor scrubbers, that may have spread contamination; corrective actions such as intensified cleaning, repairs or hygienic redesign, with temporary measures such as segregation where equipment cannot be changed immediately; verification, including finished-product testing where product safety is in doubt; and a post-incident phase to identify preventive measures and anticipate the same risk on similar lines. Companies should define in advance how and when they will react.

EMP Challenge: Design, Investigate, and Defend Your Program (EMP Intro & Practice)

JIA Yongsheng (Senior Food Safety Specialist, Commercial Food Sanitation L.L.C.)

The interactive session emphasized that the purpose of environmental monitoring is to find positives and eliminate harborage, protecting products, consumers and brands. The speaker explained hygienic zoning, from Zone 1 (food-contact surfaces, including workers' hands and tools) outwards, and how to select sampling points by examining the environment (transitions between raw and cooked areas, personnel and material corridors, drains, overhead pipes and structures), equipment features such as "sandwich" joints, exposed threads and fasteners, people and material flows including footwear and forklifts, and, in dry areas, accumulated dust and any traces of water or condensation. Swabbing guidance included sampling large areas (around 30 cm × 30 cm) with firm pressure to disrupt biofilm, using S- or M-shaped strokes and all sides of the swab, and keeping samples chilled but not frozen, since freezing can kill the target organisms, and testing them promptly. Participants then worked in teams to identify and swab at least ten sampling points on two pieces of equipment. In this training exercise, a fluorescent surrogate and ultraviolet light were used to make surrogate "contamination" and swabbing coverage visible; this was a hands-on training aid, not a routine pathogen-test method.





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PRESENTATION SUMMARY

Day 2 — Afternoon Breakout Sessions

Session H – N



Day 2 Afternoon — Breakout Sessions

Breakout Session H

H Emerging Chemical Contaminants Across the Food Supply Chain: PFAS, Microplastics & Beyond

Session chair: LI Jingguang, Professor; Director, Chinese Academy of Medical Sciences Research Unit for Food Safety (2019RU014), CFSA. Co-chair: ZHANG Lei, Research Professor, CFSA

Session overview. Part 1 asked what is being found and how its risk can be assessed; Part 2 moved from exposure to regulation, measurement and emerging risks. The session covered China's new national standard method for PFAS in food, microplastic analysis and exposure in seafood, next-generation and mixture risk assessment of PFAS, PFAS in Singapore's drinking water, effects of gestational exposure, U.S. FDA monitoring of PFAS in packaging and food, packaging chemicals in fast-food diets, emerging pollutants in agricultural environments and the analytical challenges of microplastics. Speakers agreed that progress depends on standardized, fit-for-purpose methods and reliable occurrence data; for microplastics, current evidence is not yet sufficient for a formal risk assessment.

Interpretation of the National Food Safety Standard for the Determination of Perfluoroalkyl and Polyfluoroalkyl Substances in Foods

WANG Yuxin (Associate Professor, CFSA)

The speaker explained China's new national food safety standard method for PFAS in foods, initiated in June 2023, published on 18 August 2026 after method validation, public consultation and expert review, and scheduled to take effect on 18 February 2027. The speaker reviewed the toxicity of PFAS and their listing under the Stockholm Convention, EFSA's 2020 tolerable weekly intake of 4.4 ng/kg body weight for the sum of PFOA, PFNA, PFHxS and PFOS, and a CFSA priority assessment that derived a health-based guidance value of 10 ng/kg body weight per week for the sum of PFOA and PFOS, which has been submitted to the National Health Commission. The previous standard covered only animal-derived foods; the new method extends to animal- and plant-derived matrices and uses solid-phase extraction clean-up with LC-MS/MS. Key technical points included controlling background contamination from reagents, cartridges and filters, optional use of a delay column to separate instrument interferences, and use of retention time to confirm certain ions. The method was validated in 11 matrices within the laboratory and in five matrices across five laboratories, and is intended to support exposure assessment and the setting of limits.

Microplastic Testing Solution for Food Matrix with Agilent 8700 LDIR Laser Infrared Imaging Spectrometer

WANG Jingjing (Molecular Technique Solution Specialist, Agilent)

The speaker described microplastic analysis in food using laser direct infrared (LDIR) imaging. Microplastics are generally defined as particles from 1 µm to 5 mm, and the main questions are abundance, polymer composition, size distribution, color and shape. Sample preparation was emphasized as critical: avoiding contamination by working in fume hoods, filtering all reagents and using glassware; digesting biological tissues with oxidative, enzymatic, alkaline or acidic methods; and separating particles by density using salts such as sodium chloride, calcium chloride, zinc chloride or sodium iodide, each with trade-offs in effectiveness, safety and cost. The instrument scans samples on filters or reflective slides, locates particles, measures their size and identifies polymers automatically against a spectral library. Application examples included fish tissue, carbonated drinks and apple juice.

The Occurrence Characteristics and Exposure Assessment of Microplastics in Typical Marine Food Products

YANG Daoyuan (Associate Researcher, CFSA)

The presentation reported a national priority risk-assessment project completed by CFSA in 2026 on microplastics in bivalves and marine fish. The team reviewed hazard-related literature, building on the WHO's 2022 report and including 225 studies, but noted that the evidence does not yet meet the quality needed for formal hazard characterization: particles larger than 150 µm are unlikely to be absorbed, intestinal uptake of particles is limited to very small sizes, and reported adverse effects are hard to attribute to the particles themselves. Two analytical methods (micro-FTIR and confocal laser Raman spectroscopy) were established and samples were collected from wild and farmed sources. Microplastic content and characteristics differed clearly between bivalves and fish. Estimated mean and 95th-percentile exposures from these foods were about 2.8 and 19.9 particles per kg body weight per day, or 2.7 and 18.8 for particles of 20–150 µm, though results cannot be compared directly with other studies because methods differ. The speaker concluded that a full risk assessment is not yet possible and requires standardized methods and coordinated work across government departments.

Next-Generation Risk Assessment of PFAS and Emerging Contaminants in Food: Advances in Risk Identification and Evaluation

LIU Xin (Deputy Dean, College of Food Science and Engineering, Wuhan Polytechnic University)

The speaker set out PFAS risk in a next-generation risk assessment framework. Diet, especially meat and aquatic products, is a major source of exposure, and China's total diet studies from the fourth to seventh rounds show changing PFAS profiles. The team studied thyroid disruption in pregnant women and infants, using partial least squares models to relate multiple thyroid hormone outcomes to mixtures of contaminants, and identified key mixture components including newer PFAS alternatives. Database mining, cell experiments and multi-omics were combined to build adverse outcome pathway frameworks for combined exposure to three classes of contaminants, highlighting oxidative stress and genes involved in thyroid hormone synthesis, transport and degradation. Benchmark dose modeling of human data gave dose–response ranges of roughly 1–10 ng/mL, and the speaker argued that such human-data approaches can support the derivation of health-based guidance values.

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Assessing PFAS Levels and Exposure in Singapore's Drinking Water: Tap vs Bottled

TAN Ke Tian (Scientist, Singapore Food Agency)

The presentation assessed PFAS in Singapore's drinking water, which comes from diverse sources including local catchments, imported water, desalinated seawater and NEWater (recycled wastewater). Regulation of PFAS in drinking water varies widely between jurisdictions. The study measured PFAS in tap and bottled water and estimated exposure from daily water use. PFPeA, PFHxA and PFBS were the most prevalent compounds, and differences between water types were examined. Estimated exposure from drinking water was low relative to food, consistent with international findings, and the main conclusion was that drinking water is not a major contributor to PFAS exposure in Singapore and is not of highest concern.

Gestational Exposure to Food-Borne Chemical Contaminants Disrupts Maternal-Fetal Metabolic Homeostasis

Chris K.C. WONG (Chair Professor of Environmental Science, Associate Dean, Hong Kong Baptist University)

The presentation focused on the maternal–fetal interface as a highly susceptible window for toxic effects, with PFAS as the main example. Because the fetus "learns" from its environment during developmental programming, exposures during pregnancy can have lasting effects. In animal studies, imaging showed PFAS distributed in the fetal body, and exposure reduced fetal body weight, impaired placental vascular development (angiogenesis) and nutrient transfer, and accumulated in the fetal liver, where it disrupted glycolysis and related metabolism, consistent with literature on insulin resistance. Effects on hematopoietic stem cells in the fetal liver were also examined. The speaker noted that people are exposed to mixtures rather than single compounds, which should be reflected in assessment.

PFAS in Food and Packaging: Developing Fit-for-Purpose Analytical Methods to Characterize Dietary Exposure

Luke K. ACKERMAN (Research Analytical Chemist, Human Foods Program, U.S. FDA)

The speaker described FDA's development of fit-for-purpose methods to verify the market phase-out of grease-proofing substances containing 6:2 fluorotelomer chemistry in paper and fiber food packaging, after manufacturers agreed with FDA to stop selling those coatings to packagers. Because validated methods for as-applied fluoro-coatings in packaging were scarce, the team adapted controlled base hydrolysis of the polymers and analyzed the released 6:2 fluorotelomer alcohol in the headspace by ID-DART-MS and other techniques, confirming status with fluorine NMR and assessing accuracy, selectivity, ruggedness and minimum detectable concentration. FDA analyzed hundreds of samples representing 474 unique articles, stratified by application, to establish baseline incidence of 18%, and repeatedly sampled targeted articles between 2023 and 2025. Among targeted articles the initial positivity rate was 46%, and positives generally switched to negatives over time, with occasional reversals consistent with diverse stockpiles being used up, which was interpreted as evidence of the phase-out.

Exposure Risks Introduced by Food Packaging Chemicals under Fast-Food Consumption Patterns

LI Xiaomin (Researcher, Institute of Quality Standards and Testing Technology for Agro-Products, CAAS)

The speaker argued that assessment of packaging chemicals should start from actual dietary exposure rather than only from substances listed in standards. Chinese eating habits, especially hot soupy dishes in takeaway containers, may extract more chemicals than conventional food simulants predict; plastic coffee capsules used at high temperature were cited as a similar under-studied case. The team reviewed global data on packaging chemicals (e.g. per- and polyfluoroalkyl substances (PFAS), organophosphate esters (OPEs)) in food and studied takeaway meals, packaged foods and instant foods. Heating in packaging increased levels of chemicals such as OPEs, and processed foods contained significantly higher levels than fresh foods. Liquid, soup-based foods had significantly higher PFAS levels than solid foods. A global analysis of milk found higher PFAS levels in long-shelf-life milk than in short-shelf-life milk, prompting ongoing work comparing levels in dairy products with their packaging.

US FDA Activities Involving Per- and Polyfluoroalkyl Substances (PFAS) in Food

Paul SOUTH (Senior Adviser, Human Foods Program, U.S. FDA)

The speaker summarized FDA's PFAS monitoring. FDA has analyzed foods from its Total Diet Study, which has run since 1961 and tests foods in table-ready form, for PFAS since 2019, and has posted results from 13 regional collections and one national collection. Across the dataset, 95% of foods (1,290 of 1,352 samples) had no detectable PFAS, but one or more PFAS were detected in 69% of seafood samples (46 of 67). A targeted survey of 81 samples of eight commonly consumed seafood types found detectable PFAS in at least one sample of every type, with the highest concentrations in canned clams and the second highest in crab. FDA described this as a tiered approach in which broad surveillance identifies signals and targeted surveys support regulatory action, including use of an import alert. Ongoing work includes expanded sampling, method development, technical support and method transfer to state laboratories, interagency collaboration and public posting of methods and data.

Detection and Pollution Characteristics of Typical New Pollutants in Agricultural Products and Environment

QIU Jing (Director General/Professor, Institute of Quality Standard and Testing Technology, Beijing Academy of Agriculture and Forestry Sciences)

The speaker described research on emerging pollutants moving from agricultural inputs, such as plastic mulch film and manure, through the production environment into agricultural products and people. The institute's work covers four classes: endocrine disruptors, microplastics, antibiotics and resistance genes, and pesticides and their metabolites. The team developed rapid screening methods and an agricultural industry standard for

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microplastics in soil using Fourier-transform infrared spectroscopy, published on 1 June, and is applying AI to spectral identification. Studies found that biodegradable mulch film releases more UV absorbers than conventional film, but it does eventually degrade; that greenhouse and film-covered soils carry higher levels of organophosphate esters and microplastics than open fields, with warm greenhouses higher than cold ones; and that some contaminants disrupt gut microbiota in zebrafish models. Machine-learning models were used to predict PFAS effects. The speaker called for AI-assisted identification and source tracing, research on food-chain transfer and standardized databases and methods to support regulation.



Microplastics in Food: Overcoming Analytical Challenges to Produce Reproducible, High Quality Data

Taylor D. PAYNE (Chemist, Human Foods Program, U.S. FDA)

The speaker reviewed the analytical challenges of measuring microplastics in food and presented approaches for generating reliable data. The talk compared techniques, noting that microscopy describes particle size and shape, vibrational microscopy (such as Raman and optical photothermal infrared) adds polymer identity, and mass-based methods give bulk identities and quantities but not individual particle information. Rigorous contamination control and blanks are essential to avoid false positives, and tracking spike recovery is critical for quantification. Because few characterized reference materials exist, the FDA team used polystyrene microspheres to track recovery through sample preparation, and compared filters for recovery, background signal, and cost, finding that some filters lose particles. The speaker recommended choosing fit-for-purpose methods for the question being asked and validating each step of the analytical workflow to produce reproducible, high-quality data.









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Day 2 Afternoon — Breakout Sessions

Breakout Session I

Food Authenticity, Integrity & Fraud

Session chair: WU Di, Lecturer, Institute for Global Food Security, Queen's University Belfast
Co-chair: Andrew CANNAVAN, Honorary Professor, Institute for Global Food Security, Queen's University Belfast

Session overview. The session examined the challenges of controlling food fraud internationally and in the United States, the technological evolution of authenticity testing, and stable-isotope and multi-element methods for verifying geographical origin, with case studies on chicken, yak milk, coconut water, baijiu and tea. The final talks turned to integrity in a broader sense: analytical challenges for micro- and nanoplastics, and the health effects of food-related chemical hazards. Speakers agreed that analytical methods are most effective when validated, matched to the question and embedded in a system of traceability, risk-based targeting and enforcement.

Challenges to Global Food Fraud Control

Andrew CANNAVAN (Honorary Professor, The Institute for Global Food Security, Queen's University Belfast)

The speaker drew on his years at the Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture, where many capacity-building projects focused on food fraud and authenticity testing. Food fraud harms consumers' confidence, honest producers' markets and brand reputations, can reduce nutritional value through dilution, and can create direct safety risks, as in the 2008 melamine incident. Criminals continually try to stay ahead of analytical methods, and global trade is so complex that a "system of systems" is needed: traceability systems, analytical methods to verify them, risk assessment to target limited resources, and enforcement, because penalties that do not deter simply lead to repeat offences. Challenges encountered in projects included inadequate or unverifiable traceability systems, a lack of validated methods and reference databases, and limited uptake of methods. The speaker highlighted rapid, portable screening tools that can be used on-site, while stressing that methods used for regulatory purposes must be validated.

US FDA Regulatory Landscape to Combat Food Fraud

Girdhari M. SHARMA (Consumer Safety Officer, U.S. FDA)

The speaker explained how economically motivated adulteration is addressed under the U.S. Federal Food, Drug, and Cosmetic Act, mainly through the adulteration provisions of section 402(b) (for example, omitting or substituting a valuable constituent, concealing damage or inferiority, or adding substances to increase bulk or weight) and the misbranding provisions of section 403. FDA has issued industry guidance relevant to honey and seafood and invests in methods, such as DNA-based seafood species identification, to support compliance. FDA uses multiple factors to prioritize signals of fraud (e.g., signal strength, potential public-health impact, economic harm to consumers). Various tools, including import alert, are available to take enforcement action on fraudulent products. Products on the relevant import alert can be detained without physical examination; as of 7 October 2026, 52 firms from 23 countries were listed on Import Alert 99-47 for economically adulterated foods such as saffron, honey, seafood and juices. FDA routinely conducts sampling for economically motivated adulteration. Recent sampling assignments found a 3-10% violation rate in honey, and frozen seafood from several countries that was 2–10% short in weight because of excess glazing; violative imported products were refused entry and firms placed on import alert.

Technological Evolution and Innovative Development of Food Authenticity Research

CHEN Ying
(Professor, Chinese Academy of Quality and Inspection & Testing)
XING Ranran (Associate Researcher,
Chinese Academy of Inspection and Quarantine)

The presentation noted that as traditional food safety problems decline, authenticity problems are becoming more prominent and diverse, from the 2008 melamine incident and 2013 European horsemeat scandal to recent cases in China involving flavored rice, vermicelli and meat adulteration, counterfeit geographical-indication products and false functional claims. Technology trends were summarized as intelligent (from passive to active detection), integrated (AI combined with multi-omics and multimodal data) and on-site (from laboratory to rapid field testing). Examples included spectroscopy combined with machine learning, metabolomic models that distinguished not-from-concentrate from reconstituted orange juice with 100% accuracy, isothermal amplification with CRISPR for rapid species identification, and integration of smart packaging, AI and blockchain. The team's work on edible bird's nest covers species identification, grading, traceability (with most legitimately imported products in China now carrying a traceability label) and nutritional and functional evaluation.

Progress in Origin Traceability Technologies for Geographical Indication Agricultural Products

ZHAO Yan (Professor, Institute of Quality Standards & Testing Technology for Agro-products, CAAS)

The speaker reviewed technologies for verifying the origin of geographical indication products, including stable isotopes, mineral elements, flavor profiling and spectroscopy, applied to fruits and vegetables, tea, animal products and alcoholic drinks. In one case, the team's isotope test report was accepted by a court, leading to seizure of 18 tonnes of falsely labeled chicken worth ¥5.2 million, which SAMR listed among its ten typical cases of 2024. The speaker stressed that methods should be chosen according to the scenario and question, and showed that weighting more discriminating data types, such as mineral elements, improves classification compared with simply combining data equally. Other work included characteristic compounds for Hongyuan yak milk, multi-omics explaining the umami of a local beef breed, and handheld devices. The team also participates in an IAEA coordinated research project launched in Vienna in June.

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Stable Isotope Mass Spectrometry for Food Authenticity: Applications and Emerging Technologies

MA Xiao (Application Engineer, Thermo Fisher Scientific (China))

The speaker explained isotope-ratio mass spectrometry, which measures the stable isotope ratios of carbon, nitrogen, hydrogen, oxygen and sulfur after converting samples to simple gases, using peripheral systems for solids, gas chromatography and liquid chromatography. Many Chinese standards use isotopes for authenticity, including for honey, wine, juice, meat, baijiu, vinegar and soy sauce. Examples included detecting added sugar in honey, distinguishing grain-fermented baijiu from products blended with corn-derived ethanol, and detecting added water in coconut water by comparing its hydrogen and oxygen isotopes with local water. Emerging techniques included position-specific isotope analysis and Orbitrap-based isotope analysis, which is beginning to be used for source tracing of contaminants such as PFAS.

Tea Isotopic Characteristics and Influence on Geographical Origin Traceability in China

YUAN Yuwei (Director, Institute of Plant Protection and Microbiology, Zhejiang Academy of Agricultural Sciences)

The speaker explained why origin verification matters for tea, citing a Longjing tea counterfeiting case in Hangzhou worth more than ¥100 million. Information-based traceability needs analytical confirmation of origin. The team's studies showed that tea isotopes vary with region and fertilizer (nitrogen isotopes differed markedly between adjacent cities and with organic fertilizer), with year, with harvest time (before and after the Qingming festival) and with temperature, light and altitude, as shown in controlled sampling at different altitudes on Lushan; in contrast, different cultivars grown in the same place showed little difference. The speaker proposed criteria for usable traceability markers, including regular and bounded variation, and described sampling ten hills in the West Lake Longjing area. Combining isotopes with multi-element fingerprints improves discrimination. The speaker noted that the real obstacle is adoption, since some producers want both to protect and to exploit the reputation of famous origins.

Analytical Challenges in the Safety Assessment of Emerging Micro- and Nanoplastic Contaminants

Cuong CAO (Reader, Institute for Global Food Security, Queen's University Belfast)

The speaker explained that micro- and nanoplastics are found in water, soil, air, sewage and food, yet no single analytical technique can detect all sizes and types. Different methods report particle number, mass or concentration, so results are not always directly comparable. Nanoplastics are particularly hard to detect reliably in complex food matrices. The speaker described work on techniques combining nanomaterials and spectroscopy to improve detection, and noted that international bodies, including through the OECD, are working on method development and standardization. However, no safe exposure levels have yet been set, so harmonized methods and better data are needed before reliable risk assessment is possible.

Health Effects and Underlying Mechanisms of Food-Related Chemical Hazards

LI Guoliang (Dean, School of Food Science and Engineering, Shaanxi University of Science and Technology)

WANG Panpan (Lecturer, School of Food Science and Engineering, Shaanxi University of Science and Technology)

The speaker described three studies of food-related chemical hazards. First, chronic exposure to the heterocyclic amine PhIP, usually studied for carcinogenicity, caused neurotoxic effects in zebrafish, with distinct molecular responses across doses, including changes in protein processing, oxidative phosphorylation and, at high dose, circadian clock-related regulation, with reduced melatonin. Second, in zebrafish, combined exposure to polystyrene nanoplastics and a co-contaminant that adsorbs onto them reduced movement and affected survival and body indicators more than single exposures. Third, carbon quantum dots formed during thermal food processing damaged the intestinal barrier, reducing tight-junction proteins, and caused liver inflammation, oxidative stress, and disturbances in bile acid homeostasis in animals, effects partly alleviated by lactic acid bacteria. The speaker called for further work on circadian effects of chronic exposure and on mixtures.





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Breakout Session J

Omics-Enabled Risk Assessment: Advancing Food Safety Science and Practice

Session chair: BAI Li, Director, Microbiology Lab, CFSA. Co-chair: ZHOU Zhemin, Professor, Soochow University

Session overview. The session explored how genomic and other omics approaches support surveillance and risk assessment of foodborne pathogens and antimicrobial resistance under a One Health approach. In opening remarks, the chair traced the growing use of whole-genome sequencing (WGS) in China's foodborne disease surveillance and its inclusion in national food safety standards, including GB 31615 (2025) on safety evaluation of food microbial strains. Speakers emphasized that sequence data are most useful for risk assessment when interpreted in context, with standardized methods, shared nomenclature and data-sharing arrangements that protect confidentiality.

From AMR Acquisition to Risk: Multi-Omics Insights into Biological Changes in Foodborne Pathogens

WANG Xiang (Associate Professor, University of Shanghai for Science and Technology)

The speaker explored how antimicrobial resistance (AMR) acquisition and environmental adaptation reshape the biological characteristics of foodborne pathogens, particularly Salmonella and Listeria monocytogenes, and their implications for microbial risk assessment. Studies showed that antibiotic-induced resistance could alter bacterial stress tolerance, biofilm formation, and virulence, with effects varying across strains and antibiotics. Food-processing stresses, including heat, cold, acidic and alkaline conditions, also induced changes in antimicrobial susceptibility. Whole-genome sequencing, bulk transcriptomics, and single-cell transcriptomics revealed potential mechanisms involving stress responses, efflux systems, metabolic adaptation, and population heterogeneity. Notably, dry-surface biofilms increased antibiotic tolerance by up to 66-fold and exhibited enhanced virulence compared with wet biofilms. These findings highlight that AMR-associated changes in bacterial fitness, environmental adaptability, and pathogenic potential should be considered in quantitative microbial risk assessment.

Declining Antimicrobial Resistance Coincides with Host-specific Persistence of Mobile Resistance in Food-Animal Escherichia coli

ZHU Yongzhang (Associate Professor, Shanghai Jiao Tong University School of Medicine)

The presentation analyzed E. coli from Shanghai's food-animal surveillance program, which began in 2008, spanning about 15 years (2008–2023). Noting that most antibiotics globally are used in food animals and that China is a leading producer and consumer, the speaker reported that overall resistance declined, especially after 2017, and that multidrug-resistance profiles fell from 164 to 84 combinations in chickens and from 116 to 87 in pigs, while mcr-1-positive isolates were no longer found after about 2017–2018. The changes were host-specific: in chickens resistance profiles kept recombining, with some resistance such as to third-generation cephalosporins rising, whereas in pigs the decline was more stable and structural. Rising and falling sequence types carried similar numbers of resistance genes, and two dominant plasmid types showed opposite trends in chickens and pigs. Clonal-transmission events across areas decreased after 2017. The team has extended monitoring to about 7,400 samples from healthy people and hopes to study food handlers.

From Farm to Fork: Assessing the Risk of Antimicrobial Resistance

QIAN Xun (Key Laboratory of Plant Nutrition and Agro-Environment in Northwest China, Ministry of Agriculture and Rural Affairs; Northwest A&F University)

The presentation focused on resistance genes in farming environments and their spread through water, soil and air. Resistance genes occur naturally in every environment, but those in livestock environments overlap more with the genes humans carry, suggesting closer connectivity. Using long-read sequencing, the team showed that resistance genes differ greatly in mobility, host range and host pathogenicity, so ranking risk by abundance alone (the common pre-2021 approach) is misleading. They built a framework that scores each gene by mobility, clinical importance (drawing on the WHO priority list and estimates of associated deaths) and the phylogenetic closeness of its hosts to lethal human pathogens. Applied to aquaculture, where antibiotic use can be very heavy, the framework showed its contribution to resistance-gene risk had risen over the past decade, in work accepted by Nature Microbiology. The speaker concluded that resistance risk must be assessed with an environment-specific framework rather than one standard for all settings.

Are There Outbreaks of Helicobacter pylori?

Daniel FALUSH (Professor, Shanghai Institute of Materia Medica, Chinese Academy of Sciences)

The presentation used evolutionary genomics to explain "ecological species" in bacteria: lineages differentiated at a small set of genes adapted to a particular niche while the rest of the genome mixes freely, analogous to killer-whale ecotypes. In Vibrio parahaemolyticus, one type has lateral-flagella genes enabling fast swimming in viscous conditions, a laboratory phenotype the team is now tracing in environmental samples through amplicon sequencing. In Helicobacter pylori, work published in 2024 identified a "Hardy" type differentiated at about 100 genes whose split is very old (on the order of 200,000 years). It is found in people in Siberia and the Americas and in some animals, and the speaker suggested it may be associated with meat-rich diets and may be more harmful, although it has disappeared from most of the world. Parallel evolution in the same gene families was described in oral streptococci. The speaker closed by reflecting on AI as a research partner.

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Decoding Foodborne Salmonella: Omics-Driven Insights from Detection and Typing to Antimicrobial Resistance and Pathogenesis

HU Yujie (Associate Professor, CFSA)

The speaker reviewed how omics is changing Salmonella work. Salmonella is classified into 2 species, 6 subspecies and more than 2,600 serotypes, and serotyping remains a key node for clinical diagnosis and outbreak tracing, illustrated by the historic "Typhoid Mary" case of an asymptomatic carrier. Genomic tools now provide high-throughput, accurate serotype prediction and typing well beyond the resolution of older molecular methods, with protein markers as a further option. Genomes also reveal resistance genes, although different databases can give different predictions and genotype does not always match phenotype. The speaker highlighted WHO attention to high-risk clones, including invasive non-typhoidal multidrug-resistant lineages, and noted that in China and parts of Asia the clone of concern is an invasive non-typhoidal Salmonella enteritidis type rather than the typhimurium type seen elsewhere. Integrating genomic, transcriptomic, proteomic and metabolomic data helps reveal host–pathogen interaction and the co-evolution of resistance and virulence.

Application and Practice of One Health Driven by Sequencing-based Omics and AI

TANG Yue (MGI Tech Co., Ltd.)

The speaker described how MGI supports One Health surveillance. It set out China's move, especially since COVID-19 and the 2021 Biosecurity Law, toward a multi-point, intelligent surveillance and early-warning system, with One Health now written into the infectious-disease prevention law and expected to feature in future five-year plans. Sequencing was presented as the universal identification layer for omics-based surveillance across regional, farm and island studies. The company has contributed to national pathogen-surveillance network building since the 13th Five-Year Plan, including workflows for 28 priority pathogens, and has developed, with academic partners, a farm-oriented AMR gene panel covering 14 drug classes and 162 resistance genes to inform antibiotic use on farms. Future directions included AI-assisted, automated "self-driving" laboratories, with processors meeting domestic information-technology requirements, and portable or in-situ platforms for farms.

Toward decentralized Genomic Surveillance of Foodborne Pathogens

LI Menghan (Assistant Researcher, Laboratory of Microbiology, CFSA)

The speaker addressed how to scale genomic surveillance as data grow (global genome data had exceeded about 31.4 petabytes, with accumulation accelerating). It compared two WGS typing routes: gene-by-gene allele comparison (cgMLST/wgMLST), which produces an exchangeable, continually updatable naming scheme suited to long-term multi-center surveillance, and SNP-based methods (cgSNP), which give higher resolution for a single outbreak but depend on the chosen reference and filtering rules, making cross-center comparison harder. The speaker set out a decentralized strategy in which local nodes analyze their own data and share limited results, addressing problems of analytical standardization, limited bioinformatics staff at grassroots centers, data privacy and storage (a cgMLST hash is far smaller than a full genome). Several existing tools were discussed as candidates, and the speaker argued that future planning should leave structured, source-tracing interfaces for AI-assisted analysis.

Surveillance and Computational Infrastructure for WGS in Food Safety and Pathogen Risk

James PETTENGILL (Director, Division of Surveillance and Data Integration, U.S. FDA) and Ruth TIMME (Acting Director, GenomeTrakr & Computational Science Staff, U.S. FDA)

The speaker described how FDA uses genomic data for food safety, from the laboratory network (GenomeTrakr) that generates sequence data through to action. Pathogen sequences come from routine import and domestic sampling and from targeted investigations in response to events or outbreaks, and are compared with clinical sequences to detect links. An example traced a Salmonella signal from border sampling of imported product about a year earlier, with isolates sequenced routinely, named and followed to detect recurring, emerging and new trends, so that historical data inform where surveillance is focused. The speakers also described the computational infrastructure, including high-performance computing run in parallel, genome assembly and standardized internal analysis reports, that supports this work.





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Day 2 Afternoon — Breakout Sessions

Breakout Session K

Food Safety Culture 2.0 (Part 2)

Session chairs: Cindy JIANG, Global Food Safety Ambassador, former Global Food Safety Senior Director, McDonald's Corporation; YUE Jin, Professor, Shanghai Jiao Tong University; Director, SJTU-Bor S. Luh Food Safety Research Center

Session overview. The afternoon session continued the food safety culture discussion, moving from frameworks to implementation, assessment and organizational change. It covered psychological safety and listening, data and analytics in laboratory networks, AI-assisted culture assessment, the Alliance to Stop Foodborne Illness toolkit, the move from audit compliance to daily habit, and leadership and employee empowerment in food production and retail organizations. In a closing interactive workshop, participants used a worksheet to reflect on their own organizations and draft 30- to 90-day plans to strengthen food safety culture back at work. A clear message emerged: culture is what happens when no one is watching, and assessment matters only if leaders act on what it reveals.

Beyond Speak Up: Can You Hear Your Food Safety Culture?

Melody YU (Senior Food Safety and Quality Advisor, MarsMel LLC; President/Founder, Women in Food Safety)

The speaker explored why employees stay silent even when organizations tell them to speak up. The speaker argued that most people today understand how important food safety is; what holds them back is fear of being seen as difficult or not a team player, and uncertainty about whether anything will change. Leaders should make it easy to raise a first signal without requiring employees to gather all the evidence first, make people feel their voice matters, and visibly act and show results when someone speaks up. A case was described in which observing repeated hygiene and fish-cleaning violations on a line of about 1,000 workers prompted retraining rather than blame. The central message was that a speak-up culture must not only be seen but also heard, built through everyday leadership reactions, trust and follow-through rather than slogans or a reporting channel alone.

Driving Performance and Governance in Routine Labs through Data & Analytics

Johnny ZHANG (APAC Regional Laboratory Manager, Mars Global Services)

At Mars, ensuring product safety across a global network of 230+ routine laboratories requires robust operational governance. This presentation showcases a scalable Data & Analytics transformation program launched in 2021 to establish a single source of truth and end-to-end operational visibility. Developed through user-centric design thinking and agile delivery, the platform empowers teams with actionable insights and automated reporting. Key achievements include a significant improvement in chemistry testing on-time delivery, substantial savings in manual hours, and shifting laboratory management from reactive troubleshooting to proactive, data-led decision-making.

Development and Validation of an AI-driven Workflow for Food Safety Culture Assessment Using Interview Transcripts

WANG Ke (Department of Food Science, University of Otago, Dunedin, New Zealand)

The speaker described an exploratory AI-assisted workflow for assessing food safety culture from interview transcripts, since manual qualitative coding is slow and varies between analysts. The team built a coding guide ("coding book") from a food safety culture framework and used a large language model to classify transcript passages, assign maturity scores per dimension and give traceable explanations. In validation, the workflow processed 20 interview texts in about three hours, compared with an estimated three weeks for two researchers, at a cost of roughly a few hundred RMB. Measured against human coding (precision, recall and F1), coverage was high at the broader dimension level, while the AI and human analysts interpreted context differently, so the two are complementary. The speaker concluded that AI can improve consistency and efficiency in initial analysis but does not replace human review, and that more data could further refine the model.

Toolkit for Building Positive Food Safety Culture

Vanessa COFFMAN (Director, Alliance to Stop Foodborne Illness)

The speaker introduced the Alliance to Stop Foodborne Illness food safety culture toolkit, built with contributions from food companies. The toolkit includes videos, games, educational materials, discussion guides, recognition ideas and assessment resources, with materials tailored to about ten different audiences, from the shop floor to leadership. The speaker emphasized that culture-building is a never-ending journey: organizations should understand their current position, choose actions suited to their maturity, check whether those actions are making a difference, and repeat, recognizing that progress can move up and down. Examples included inviting an affected family member into a facility to help employees understand why the work matters, and simple engagement activities such as allergy-themed games. The speaker encouraged companies to explore the Alliance and adapt and contribute resources rather than treat the toolkit as a fixed checklist.

Beyond the Checklist: Transforming Food Safety Culture from Audit Compliance to Daily Operational Habit

HUANG Min (Founder & CEO, TMG International LLC; Founding President, Northeastern Wisconsin Chapter of the Association of Chinese-American Scientists and Engineers)

The presentation focused on moving from audit compliance to daily operational habit, arguing that food safety culture is what happens when no one is watching and should become "muscle memory" rather than a matter of pleasing auditors. The speaker challenged the assumption that a high audit score equals a strong culture, and highlighted the often-overlooked role auditors themselves play in shaping culture. Drawing on supplier work in China, the presentation stressed that suppliers and other functions need to understand and share the organization's food safety expectations, that companies should allow a gradual, step-by-step improvement process, and that partners should be helped to raise challenges and questions early so problems can be solved together.

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Engaging Leaders, Empowering People: Building a Strong Food Safety Culture

Joan MENKE-SCHAENZER (Chief Quality Officer, Van Drunen Farms)

The presentation shared food safety culture practice at Van Drunen Farms, a six-generation family-owned company headquartered in Momence, Illinois, with sites worldwide and long-standing partnerships in China. The speaker described visible commitment from the owners, investment in equipment and facilities, and efforts to make food safety expectations understandable across a diverse workforce. Examples included involving employees in identifying hard-to-clean areas, a "catch card" recognition program for employees who stop a line or raise a concern, and encouraging employees to sign facility food safety banners as a visible demonstration of their commitment to food safety. This is intended to be a ceremonial moment of commitment that reinforces personal ownership and accountability for food safety across the organization. The presentation emphasized supplier transparency and partnership, helping suppliers raise challenges early and improve together, and adapting engagement to local culture. The central message was that culture is built through leadership behavior, employee empowerment and practical improvements that make safe work easier.





Interactive discussion — Reflection from the participants: Key Elements in Developing Strategy and Plans to Advance Food Safety Culture

Facilitated by Cindy JIANG and YUE Jin, with session speakers

The closing interactive discussion invited participants to reflect on the challenges of building food safety culture in their own companies, their root causes, effective practices and where leadership support is needed. Points raised included recognition and reward as ways to reinforce behavior, allowing suppliers and retailers a gradual improvement process, and company examples of growing employee voice and participation year on year, with contributions from attendees including a representative of Bunge.







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Day 2 Afternoon — Breakout Sessions

Breakout Session L

Biotoxin: From Single-Toxin Control to Systemic Risk Management

Session chair: YANG Dajin, Director of Risk Surveillance Division 1, CFSA

Session overview. The session examined mycotoxin and other biotoxin risks in the context of climate change, grain production, analytical capability and regulatory monitoring. Presentations covered a proactive prevention-and-control system for mycotoxins in grain, climate-related research, the emetic toxin of Bacillus cereus, U.S. FDA monitoring of ochratoxin A, standardization of multi-mycotoxin methods, an optimized extraction method for maize gluten meal, precision detection and screening of biotoxins, mycotoxin safety assessment, and national standards versus actual contamination. A shared message was the shift from controlling single toxins toward systemic risk management, interpreting contamination data in a broader exposure and combined-toxicity context.

Proactive "Three Tests and One Standard" Prevention and Control Technology System for Mycotoxins in Grain

YE Jin (Deputy Director, Institute of Grain and Oil Quality and Safety, Academy of National Food and Strategic Reserves Administration)

The speaker described about ten years of work on a proactive "three tests and one standard" system for controlling mycotoxins in grain, set against increasingly extreme weather. The speaker cited recent weather-related grain-quality problems, including sprouting and mold in Henan wheat and continuous rain affecting more than 70 million mu of maize in north China, which threaten quality safety as well as yield. The system combines pre-harvest prediction, monitoring at harvest and rapid, accurate post-harvest testing, supported by reference materials and standards. Technical advances included superparamagnetic immunomagnetic beads as a faster alternative to immunoaffinity columns while keeping antibody specificity; an automated, "embodied-intelligence" smart testing laboratory linking sample preparation, extraction, nitrogen blow-down and instrumental analysis with mobile robots; wide-area monitoring using satellite remote sensing and geographic information; and a dual prediction-plus-mass-spectrometry approach to screen novel toxins and reduce false positives, which first identified new deoxynivalenol metabolites in wheat. Early-warning models identified 16–23°C as a critical temperature range and the flowering period and the two to three weeks after as critical windows for intervention.

Research Progress on Mycotoxin Prevention and Control Technologies in the Context of Climate Change

SUN Jiadi (Associate Research Fellow, School of Food Science and Technology, Jiangnan University)

The speaker examined how climate change affects fungal growth and mycotoxin contamination. The speaker noted that about 31 million tonnes of grain are contaminated along the chain in China each year, with high contamination rates for aflatoxin and deoxynivalenol in peanuts and wheat, and that warming is accelerating fungal growth and toxin production, with projections of large mid-century wheat losses. Challenges were summarized as a shift from known to unknown toxins, the lack of real-time field and storage monitoring, and accuracy problems with animal-derived antibodies. The team combined meta-analysis with bibliometrics to identify temperature and water activity as the key environmental drivers, built an interpretable XGBoost machine-learning model, studied toxin genes linked to environmental adaptation and the formation of bound/masked toxins during food processing, and developed a scaffold-free co-cultured liver-microsphere model and microRNA work to study low-dose toxicity.

(…continued from Sun Jiadi's presentation summary)

To improve detection, the team produced recombinant and phage-display antibodies (reaching about 0.25 g/L, enough for about 100,000 test strips) and explored co-fermentation with food-grade degrading strains to valorize contaminated maize by-products into single-cell protein.

Domestic and International Regulation of Bacillus cereus Emetic Toxin in Food

ZHAO Rong (Deputy Director and Chief Technician, Institute of Nutrition and Food Hygiene, Beijing Center for Disease Control and Prevention)

The speaker addressed Bacillus cereus emetic toxin (cereulide), prompted by a wave of international infant-formula recalls in early 2026. In January 2026, Nestlé began a global precautionary recall across more than 50 countries after its own testing found cereulide in arachidonic acid (ARA) oil used as an ingredient. Lactalis recalled infant formula brands in 18 countries for the same risk. In China, customs and market regulators required affected batches to be recalled, and no confirmed poisoning cases linked to the formula were identified on the mainland. Testing was based on ISO 18465. The speaker explained that the formula itself was only the carrier: the contamination entered through the ARA ingredient. The team has developed and refined analytical methods for cereulide and proposed them as a national standard method covering infant formula, follow-on formula and foods for special medical purposes.

U.S. FDA Regulatory Monitoring of Ochratoxin A in Human Foods: 2008–2022

Tabitha MILLER (Chemist, U.S. Food and Drug Administration)

The speaker described FDA monitoring of ochratoxin A (OTA), a mycotoxin produced by Aspergillus and Penicillium fungi that occurs in foods such as cereal grains, coffee, spices, cocoa, pistachios and dried fruit, with fungal growth and OTA production influenced by temperature, pH, moisture and water activity. The speaker reviewed the range of regulatory limits across foods and countries and presented FDA data collected over FDA fiscal years (from 1 October 2007 to 30 September 2022). Coffee sampling focused on green rather than roasted beans, noting that roasting may reduce OTA levels, and dried fruit and baby foods were highlighted because of dietary importance and vulnerable groups. In the nuts category, pistachios made up 42 of 56 samples, and only one pistachio sample exceeded the limit of quantification, at 9.5 µg/kg, with a highest category finding of 25.2 µg/kg. The data showed that most foods had no quantifiable OTA while continued monitoring remained warranted.

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Innovation in Multi-Mycotoxin Detection Systems for Food and Their Conversion into Standards

XU Jiaojiao (Associate Chief Technician, Zhejiang Provincial Center for Disease Control and Prevention)

The speaker reviewed China's mycotoxin limit standard GB 2761 and the new series of mycotoxin methods published in 2026. GB 2761, first set in 1981 for aflatoxin B1, was revised over the years to add metabolites, deoxynivalenol, patulin, ochratoxin A and zearalenone, with the framework of priority toxins essentially fixed by the 2017 version and later work expanding food categories. The 2026 series newly includes multi-toxin methods, reflecting concern about co-exposure, and the first national standard methods for Alternaria toxins (a four-compound method). The speaker's team contributed method development, including a multi-component method for 21 mycotoxins in grains and products covering the 16 conventional analytes plus new Alternaria toxins, and an immunoaffinity-column clean-up method. Key challenges were the compatibility of sample preparation across toxins spanning a wide range of molecular weights and water/fat solubility, matrix interference and reliable quantitation, including verification that immunoaffinity columns bind targets such as acetylated deoxynivalenol.

Optimized Extraction Method for Multi-Mycotoxin Analysis in Maize Gluten Meal

YANG Yuzheng (Scientist, Mars Global Food Safety Center)

Maize gluten meal is a complex protein-rich matrix that presents challenges for rapid and reliable multi-mycotoxin analysis due to strong toxin-matrix interactions and inconsistent extraction efficiency. In this study, the Mars Global Food Safety Center (GFSC) developed and validated a PEG 20K-assisted extraction method as a rapid and simplified screening approach. Following optimization, the method was evaluated using naturally contaminated samples and demonstrated good performance for most major mycotoxins with satisfactory analytical precision. The findings highlight the potential of PEG-assisted extraction to simplify sample preparation and support rapid multi-mycotoxin testing in complex food and feed matrices.

Precision Detection and Screening Technologies for Biotoxins

ZHOU Shuang (Deputy Director, Chemistry Laboratory, CFSA)

The speaker reviewed precision detection and screening for biotoxins, which include marine, plant, mushroom, fungal, bacterial and animal toxins. It covered targeted quantitative methods (for example for high-sensitivity measurement of toxins and metabolites in infant formula and breast milk using immunoaffinity and immunomagnetic approaches) and non-targeted screening, including a characteristic-fragment strategy applied to amanita mushroom toxins and a toxicity-based screen using half-maximal effect values. The speaker emphasized work on toxin metabolites and internal exposure: because measuring food levels and multiplying by consumption (external exposure) has limitations, measuring toxins and metabolites in biological samples such as urine and blood gives a more realistic picture of what has actually been absorbed, while external exposure still shows the main dietary sources. Targeted analysis and broad screening were presented as complementary.

Safety Assessment and Contamination Control of Mycotoxins

JIA Bingxuan (Researcher, Shanghai Institute of Nutrition & Health, Chinese Academy of Sciences)

The presentation covered mycotoxin safety assessment and contamination control, divided into risk monitoring and mechanistic research. Monitoring included internal-exposure assessment of mycotoxins in urine from Shanghai schoolchildren, surveys of whole grains, and a new survey of mycotoxins and heavy metals in aquatic products sold in Shanghai, where mycotoxin contamination was lower than in grains but still detectable. Mechanistic work studied combined exposure to Alternaria toxins, finding different combination effects among toxin types, and identified an enzyme able to degrade the Alternaria toxin AOH and weaken its toxicity; combined exposure of Alternaria toxins with deoxynivalenol was shown to aggravate effects on intestinal differentiation. The team also studied genes regulating deoxynivalenol biosynthesis, finding that the Tri8 gene and several transcription factors play key roles, and built a multi-model, multimodal enzyme-screening platform.

National Standard Control and Actual Contamination Monitoring of Biotoxins

YANG Dajin (Director of Risk Surveillance Division 1, CFSA)

The speaker discussed the relationship between national standards and actual contamination monitoring for biotoxins, emphasizing the need to understand real contamination patterns rather than relying on standards alone. The speaker outlined the layered standards system, from basic standards such as GB 2761 and GB 2762 that set contaminant limits, through product standards and good manufacturing practice. Monitoring can reveal patterns that standards do not capture, such as toxins with low detection frequency but comparatively high concentrations, and toxins with significant contamination but no limit, as well as gaps in methods and toxicological information. Citing a 2025 staphylococcal food-poisoning case in Taizhou, Zhejiang, the speaker noted that standard methods can miss certain toxins without a key step such as sample dissolution for extraction, and called for stronger integration of monitoring data, safety assessment and control measures.



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Day 2 Afternoon — Breakout Sessions

Breakout Session M

NAMs International Regulatory Case Studies & Practical Applications

Session chair: YANG Hui, Professor; Deputy Director, NHC Key Laboratory of Food Safety Risk Assessment, CFSA
Co-chair: LI Guojun, Chief Expert, Beijing Center for Disease Prevention and Control; Chair, Committee of Toxicological Alternative and Translational Toxicology (TATT), Chinese Society of Toxicology

Session overview. The session examined how New Approach Methodologies (NAMs) are being developed and considered for regulatory use across Japan, Singapore, Europe, the United States and industry. Topics included method qualification, read-across, physiologically based kinetic (PBK) modeling, weight-of-evidence approaches and the challenges of applying NAMs to contaminants and mixtures. A consistent message was that a NAM should answer a defined risk-assessment question and be integrated with other evidence, and that international collaboration and shared data are needed to build confidence.

Regulatory Use of NAMs for Food Safety

Hajime KOJIMA (Professor, Sanyo-Onoda City University; Visiting Researcher & Former Secretary General, NIHS (JaCVAM))

The speaker addressed the qualification of NAMs for regulatory use and noted that there is no single international definition; for example, FDA defines NAMs as innovative approaches that improve efficiency and human relevance while reducing reliance on animal models, covering in vitro methods, microphysiological systems, organoids, high-throughput screening, in silico models, QSAR, and AI and PBPK modeling. The speaker discussed structure-based classification of chemicals by toxic potential to assign thresholds of toxicological concern, and described international roadmaps and documents on reducing animal testing, including a weight-of-evidence approach as an alternative to some reproductive and developmental toxicity studies in non-human primates and for biotechnology-derived pharmaceuticals, and procedures for using in vitro approaches to evaluate mutagenicity. The speaker outlined how NAMs can enter food safety assessment and described collaborative governance research.

Progressing NAMs for Food Safety Assessment: SFA's Roadmap and Initiatives

ONG Zhan Yuin (Branch Head, Singapore Food Agency)

The speaker introduced SFA's National Centre for Food Science (NCFS) as the scientific foundation of the country's food safety system. The speaker framed Singapore's regulatory adoption of NAMs not as a question of whether, but how and when, reflecting a significant global shift away from animal testing. With many chemicals and emerging substances lacking adequate toxicological data, relying solely on animal testing to address these gaps is neither practical nor scientifically robust. The speaker described SFA's approach as flexible, pragmatic and science-based, drawing on a weight-of-evidence framework across computational, in vitro and in vivo methods. Internationally validated NAMs are already considered in regulatory decisions today, and tools such as QSAR and the threshold of toxicological concern are valued for screening and prioritization. NAMs are seen as especially valuable where animal studies do not adequately address the regulatory question, including for novel foods such as complex mixtures and botanicals. On regulatory pathways for NAMs, the speaker noted these are still evolving and welcomed qualification frameworks being developed by EFSA and the US FDA. The speaker also shared some of the NAMs-related research activities SFA is actively undertaking across computational and in vitro approaches, reflecting the agency's efforts to build capability and work on regulatorily relevant questions.

Building Robust Safety Decisions: Integrating New Approach Methodologies into Weight-of-Evidence Approach and Regulatory Decision Making

Maresha CHARLES (Director, Toxicology, The Coca-Cola Company)

The speaker described how NAMs can help inform weight-of-evidence safety decisions as the food landscape evolves with new ingredients and production methods. The speaker noted that animal studies, long treated as the gold standard, have limitations, including metabolic differences between animals and humans and inherent uncertainty. In a case study on a plant-based protein, the speaker outlined an integrated allergy assessment that combined, a literature review, bioinformatic comparison of protein sequence to known allergens and a simulated gastric-fluid digestion assay. The bioinformatic analysis showed similarity to ingredients already in the food supply, with no allergen concerns, while the digestion assay assessed how rapidly the protein breaks down under conditions representative of digestion. Together, these lines of evidence suggest a low risk of allergenicity. The speaker concluded that NAMs show strong potential for assessing novel ingredients within a fit-for-purpose, weight-of-evidence framework that integrates multiple data sources rather than relying on a single study.

EFSA Guidance on the Use of Read-Across for Chemical Safety Assessment in Food and Feed

Lucian FARCAL (Scientific Officer, European Food Safety Authority (EFSA))

The speaker explained EFSA guidance on read-across, in which information from one or more data-rich source substances that are structurally and mechanistically similar is used to predict a defined, endpoint-specific property of a data-poor target substance. The speaker set out the steps involved, explained the importance of establishing sufficient chemical similarity, and described how uncertainties are collected and documented for each line of evidence. Examples illustrated how to organize evidence in a data matrix and formulate a read-across hypothesis. The speaker also highlighted the use of NAMs data within the read-across approach to strengthen the similarity hypothesis, refine source-substance selection and reduce uncertainties through relevant mechanistic, toxicokinetic and toxicodynamic evidence.

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NAMs in Contaminant Risk Assessment

Maria ANASTASSIADOU
(Scientific Officer, European Food Safety Authority (EFSA))

The presentation illustrated how NAMs can support the risk assessment of data-poor chemical contaminants, using Alternaria toxins as a case study. As the available in vivo studies did not allow the derivation of reference points for these toxins, NAMs, including in vitro and in silico approaches, PBK modeling, QIVIVE and BMD modeling, were explored to address key data gaps and better characterize genotoxicity and other effects. Where reference points could not be established, the TTC approach was applied for risk characterization. Overall, the presentation showed how NAMs can contribute to next-generation risk assessments, while emphasizing that collaboration, cooperation and exchange of knowledge are key drivers for progress and for aligning scientific innovation with regulatory needs.

Best Practices in Physiologically Based Kinetic (PBK) Modeling for Next Generation Risk Assessment (NGRA)

TANG Dawei (Research Scientist, Unilever)

The speaker introduced physiologically based kinetic (PBK) modeling as a critical tool for next-generation risk assessment, describing how it represents a chemical's distribution, metabolism and clearance in the body. The speaker distinguished a "level one" model, built largely from predicted input parameters, from a "level two" model incorporating experimentally measured parameters, and showed with examples including the UV-filter BP-4 how these can materially affect predicted internal exposure. The presentation emphasized that confidence in PBK predictions depends on the quality of input parameters and transparent model development and evaluation. Where human in vivo kinetic data are unavailable, confidence can be strengthened through approaches such as evaluating the general predictive performance of PBK models, cross-platform model comparison, mechanistic read-across and relevant case studies.

New Approach Methodologies for the Risk Assessment of Chemicals in Food and Feed

Denise BLOCH (Head of Junior Research Group / ILMERAC Co-Chair, German Federal Institute for Risk Assessment, BfR)

Progress in chemical safety testing and risk assessment is driving a paradigm shift from whole-animal, black-box approaches towards human-relevant, mechanistically informed and high-throughput testing systems with quantifiable uncertainty. The International Liaison Group on Methods for Risk Assessment of Chemicals in Food (ILMERAC) facilitates global dialogue and harmonization across more than 30 regulatory, academic, and intergovernmental partners. A key initiative is an international regulatory ring trial for microphysiological systems (MPS), which hold great promise for recapitulating complex human physiology. However, their regulatory acceptance requires rigorous standardization. ILMERAC also advances the assessment of chemical mixtures, addressing the limitations of single-compound testing. The speaker also introduced a New Approach Method (NAM)-based framework for agricultural operator risk assessment, showing that plant protection products may be more toxic than their isolated active substances and underscoring the need for whole-mixture evaluation.

Weight of Evidence (WoE) Frameworks: Industry Application

Adam WOOD (Scientist – Human Safety, Unilever)

(Summary derived from submitted Abstract)

It is increasingly recognised that reproducing all information generated by animal tests using individual new approach methods (NAMs) is neither realistic nor necessary. Public health protection can instead be achieved through modern animal-free safety assessment frameworks that integrate complementary NAMs with other evidence streams, including existing toxicological knowledge and physiologically based kinetic (PBK) modelling, within a weight of evidence (WoE) approach. NAM toolboxes may include high-throughput transcriptomics (HTTr), cellular stress panels (CSPs), and panels of pharmacological targets such as receptors, ion channels, and enzymes. These approaches monitor perturbations of biological pathways linked to cellular adaptation and toxicity and, when combined within NGRA frameworks, can support protective decision-making by distinguishing low- and higher-concern exposure scenarios. This presentation will review recent evaluations of NGRA frameworks and present case studies demonstrating how diverse evidence streams can be integrated to reach robust WoE-based safety conclusions..





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Day 2 Afternoon — Breakout Sessions

Breakout Session N

Food Safety Hot Topics

Session chair: Minghua WANG, Food Safety, Quality, and Regulatory Affairs Leader, Conagra Brands

Session overview. Part 1 (Food Chemistry, Bio-Valorization & Analytical Methods) covered nanozyme-based detection, standardization of nutrient methods, reactive carbonyl chemistry in processing, valorization of apple pomace, and mechanism-driven risk assessment of combined contaminant exposure. Part 2 (Hot Topics: Global Regulations & Risk Management) covered highly pathogenic avian influenza, overseas compliance for Chinese food companies, FDA's Food Traceability Final Rule and food innovation and regulation in the United States. The session ranged widely across emerging analytical, processing, regulatory and market-access issues.

Microstructural Modulation of Nanozymes for Rapid Detection of Small-Molecule Substances in Food

ZHANG Yuhuan (Associate Professor, Shaanxi Normal University)

The speaker described tuning the micro- and nanostructure of nanozymes to control their catalytic activity and selectivity for food detection. Compared with natural enzymes, nanozymes are more stable, cheaper and easier to scale up, though most have relatively low activity. The team has developed nanozyme-based methods in five areas: a polyphenol-oxidase mimic to detect bisphenol compounds, an NADPH mimic for flavor substances, a peroxidase mimic for freshness testing, and applications in sterilization and degradation. Bisphenols are endocrine-active additives in plastics and face tightening limits in the EU and China. China has lowered the specific migration limit for bisphenol A from 0.6 mg/kg to 0.05 mg/kg. For these compounds, the team built electrode materials with enzyme-like selectivity, using iron/gold systems for bisphenol A and a cobalt pyrophosphate structure for bisphenol S. They then extended the approach to ractopamine ("lean meat powder"). Later work used a gallic acid–copper metal–polyphenol network, which reduces Cu(II) to highly active, better-dispersed Cu(I). The team also developed a copper-doped iron–manganese oxide whose structure is controlled by cation coordination. High-entropy oxides from this work were able to kill Staphylococcus aureus, E. coli and methicillin-resistant strains.

Method Development and Standardization of Key Food Nutrients: Chinese Practices and AOAC Progress

BAO Lei (Head, Nestlé Food Safety Institute of China; Chair, Committee on Sections, AOAC International)

The speaker described Nestlé's food safety research (targeted and non-targeted analytical methods, product-innovation methods, prevention-by-design and digital tools) and the standardization of nutrient methods. The speaker explained the AOAC process of first agreeing Standard Method Performance Requirements (SMPRs) and then developing a validated method, illustrated by a method for seven human milk oligosaccharides (HMOs) and by a method for 1-deoxynojirimycin (DNJ) in mulberry-leaf extract, a strongly polar imino-sugar that is hard to retain and detect, resolved using enzymatic clean-up, derivatization and LC with fluorescence detection. Methods were validated at low, medium and high levels, with recoveries of 84–107% and low between-sample variation, followed by multi-laboratory validation as required for Chinese national standards (per GB 5009.295). The speaker described active work to align Chinese and international (AOAC and ISO) standards through joint seminars and early exchange of technical detail.

Interaction Between Reactive Carbonyl Compounds and Food Components During Food Processing

ZHENG Jie (Professor, Jinan University)

The speaker summarized a decade of work on reactive carbonyl compounds, highly reactive small molecules (dicarbonyls and α,β-unsaturated aldehydes) that form unavoidably during processing from lipid oxidation, sugar pyrolysis, the Maillard reaction and vitamin C degradation. In the body they can attack proteins, DNA and RNA and are linked to chronic diseases, and in food they are precursors of hazards such as acrylamide, heterocyclic amines and advanced glycation end-products. The team studied how amino acids and polyphenols (for example rutin, reacting at the carbonyl positions via nucleophilic addition) scavenge these aldehydes, isolated and identified the resulting interaction products, developed methods to measure them, and found them widespread in processed foods. Animal work showed a rutin–methylglyoxal product appeared quickly in blood and accumulated in kidney, heart and brain. Working with baking companies, the team addressed the two key difficulties of controlling multiple co-occurring hazards (reducing one can raise another) and preserving flavor, and recently obtained a patent.

Optimization of Lactic Fermentation for the Circular Valorization of Apple Pomace into a Probiotic Beverage

Teodora Emilia COLDEA (Associate Professor, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania)

The speaker described turning apple pomace, which accounts for 20–35% of the processing flow and is normally treated as waste, into a probiotic beverage through optimized lactic fermentation, as an example of circular valorization. Using Golden Delicious apples, the team prepared seven samples inoculated with lactic acid bacteria and monitored fermentation dynamics and the volatile profile. They found that the complexity of the volatile profile was higher in the apple-based beverages than in the control. The speaker linked the work to student activities and a food festival aimed at bringing students into the market, and noted parallels with valorizing other by-products such as pumpkin.



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Mechanism-Driven Risk Assessment of Combined Exposure to Legacy and Emerging Food Contaminants: From Mixture Toxicity Analysis to NAMs Integration

CHEN Chen (Professor, State Key Laboratory for Quality and Safety of Agro-Products, Ningbo University)

The speaker examined the extent to which the known components of a mixture explain the biological activity of the whole sample. Traditionally, known components are identified and quantified and their combined effect predicted using concentration-addition or independent-action models. Using New Approach Methodologies, the focus shifts to the whole biological sample (the food or extract), whose measured biological effects, from in vitro cells, receptor-gene assays and integration of toxicological evidence, are compared against the component-based prediction for the same endpoint. Adverse outcome pathways help organize the toxicity evidence by linking upstream perturbations (such as receptor binding and effects on transcription, cell-state stability or redox balance) to shared key events. A case using polylactic acid (PLA) film, particles and packaging showed that different extracts and preparation methods gave different effects on cell viability, inflammatory markers and reactive oxygen species. The speaker noted that European food safety bodies increasingly apply a "mixture assessment factor" to the hazard-index approach, so that a hazard index previously considered safe at a value of one is multiplied by this factor.

An Update on Highly Pathogenic Avian Influenza (HPAI) in Multiple Species Across the United States

Wendy WHITE (Industry Manager for Food and Beverage, Georgia Institute of Technology, GaMEP)

The presentation provided an update on the spread of highly pathogenic avian influenza (HPAI) in the United States and explained why it concerns food safety practitioners. Beyond poultry, the virus has spread to a wide variety of mammals, including wild, domesticated and aquatic mammals such as dolphins, sea lions and whales, and into dairy cattle. In dairy cattle, mortality is low and infection can be hard to recognize, but virus particles survive in raw milk, and there is risk to farm handlers and others working directly with sick animals, especially on dairy farms. Research involving several universities, including the University of Georgia, is examining how the virus presents in different species and the effectiveness of different food-preparation methods against highly pathogenic strains.

Food Safety Compliance for Companies Expanding Overseas: Challenges, Risks, and Responses

YAN Zhinong (President, ZN Food Safety Collaboration and Consulting LLC)

The speaker examined food safety compliance for Chinese companies, especially restaurant chains, expanding into the United States. Citing a 2025 white paper on North American Asian dining released at the National Restaurant Association show in Chicago, the speaker noted rapid growth in the sector, including about 38% growth in chain restaurants, and distinguished full-service from limited-service formats. Practical challenges included finding local supply chains, including FDA- and USDA-covered meat suppliers, and adapting products to local tastes. U.S. oversight is largely at state level, for example California's agriculture/food and health departments, with restaurants receiving inspection scores (roughly, above 90 is good; 71–85 requires improvement; lower scores can lead to closure for rectification), with an "A" grade displayed. The speaker praised companies' digital self-inspection tools and recommended bringing a strong food safety culture into overseas operations, using third-party inspection to help them improve, and continuing improvement rather than stopping once a problem is avoided ahead of a listing.

FDA's Food Traceability Final Rule: Requirements for Additional Traceability Records for Certain Foods

Melinda HAYMAN (Division Director, Division of Compliance Implementation, U.S. FDA)

The speaker explained FDA's Food Traceability Rule (FTR), which applies to foods on the Food Traceability List (FTL) and to foods containing listed ingredients. The rule requires firms performing defined critical tracking events (CTEs), such as harvesting, cooling, initial packing, first land-based receiving of seafood, shipping, receiving and transforming, to keep and, where applicable, share the associated key data elements, and to maintain a traceability plan with a traceability lot code that follows the product through the supply chain. The speaker noted that the original compliance date for all covered entities was January 2026, and that Congress has since directed FDA not to enforce the rule before 20 July 2028. The speaker described FDA's implementation support, including an industry training launched in April 2026 delivered through FSPCA via a train-the-trainer model, and resources such as a small-entity compliance guide and an at-a-glance handout, and encouraged firms to use the current versions on FDA's website and to submit questions through FDA's online TAN.

Food Innovation in America: Regulatory Trends, Market Access, and the Future of Food Technology

Brian SYLVESTER (Partner, Morrison Foerster)

The speaker examined the evolving U.S. food regulatory landscape and its implications for food innovation and Chinese companies entering the U.S. market. Emerging technologies, including precision fermentation, molecular farming and cultivated meat, are creating opportunities for new ingredients and products, while the Make America Healthy Again (MAHA) initiative is driving increased scrutiny of food additives, ultra-processed foods, nutrition and labeling. The presentation addressed recent FDA developments, including enhanced oversight of food chemicals and proposed reforms to the Generally Recognized as Safe (GRAS) framework. The speaker emphasized that GRAS ingredients must satisfy the same fundamental safety standard as approved food additives—reasonable certainty of no harm under their intended conditions of use—and explained FDA's August 2026 proposal to require notification of certain independently determined GRAS uses. The presentation also examined federal and state regulatory requirements, labeling and advertising claims, and the roles of FDA, USDA and other agencies. The speaker encouraged Chinese companies to integrate regulatory strategy early into product development, maintain rigorous scientific and manufacturing documentation, and anticipate U.S. customer and market-access requirements to support successful commercialization and growth.





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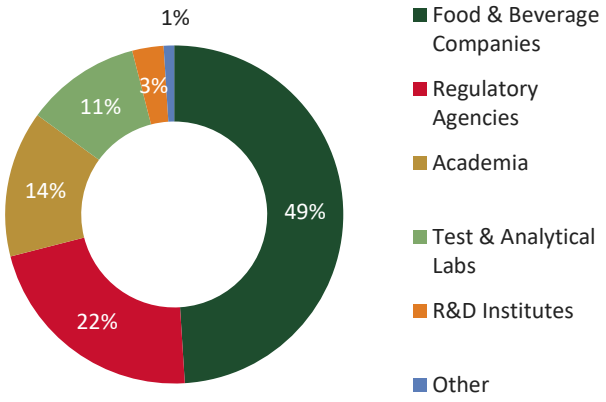
ATTENDEE PROFILE

Who Attended CIFSQ 2026

Nature of Business



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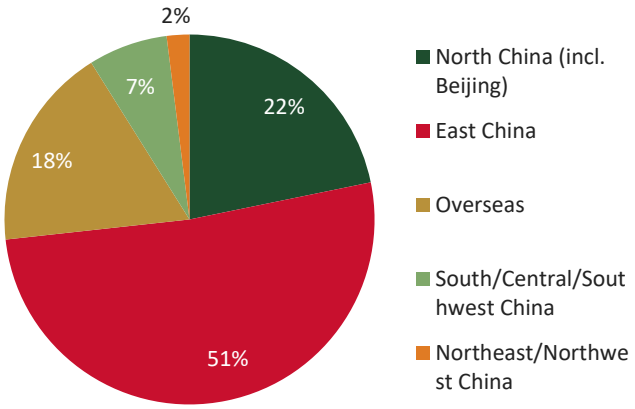
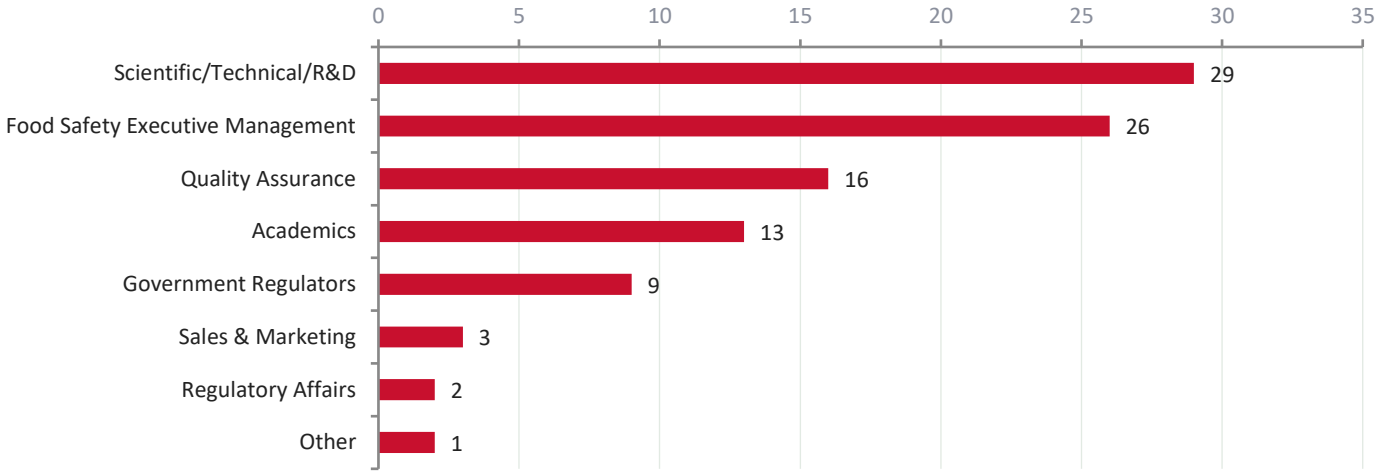
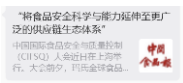


Job Function (%)



MEDIA COVERAGE

CIFSQ 2026 was reported by industry, trade and mainstream media. Selected coverage:



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CONFERENCE PROGRAM

Day 1: Keynotes — 28 October

OPENING SESSION · Emcee: Kenny SUN, CIFSQ Conference Secretariat		
08:45	**Welcome Address**	Lisa GARCIA (IAFP); GE Zhirong (CIFSQ Honorary Chairman); WANG Lin (Shanghai AMR); CHEN Junshi (CIFSQ Advisor)
OPENING KEYNOTE & REGULATORY UPDATES · Moderator: CHEN Junshi		
09:10	**Food Safety Risk Assessment and Management in China**	FAN Yongxiang, CFSA
09:30	**U.S. Regulatory Updates and Priorities**	Donald A. PRATER (video); Sarah McMULLEN, U.S. FDA
09:50	**Quo Vadis? Food in a Globalized World – European Perspectives**	Andreas HENSEL, BfR
10:10	**Safeguarding Meat, Poultry, and Egg Products: An Overview of FSIS**	Jeremy 'Todd' REED, FSIS, USDA
REGULATORY UPDATES & INDUSTRY PERSPECTIVES · Moderator: Geoffry SMITH, ILSI SEA Region		
10:40	**Prevention, Control and Response to Non-traditional Food Safety Risks**	HAN Bing, SAMR
10:55	**Advancing Cross-Border Food Safety Through Mutual Recognition of Standards**	XIE Qiuhui, Shanghai Customs College
11:10	**GB 7718 / GB 28050 Labeling Transition — Countdown to March 2027**	YU Hangyu, CFSA
11:25	**From Detecting Hazards to Understanding Risk**	Zoltan SYPOSS, Danone
11:45	**Panel: Food Safety Culture — From Compliance Checkbox to Measurable Organizational Behavior**	Moderator: Cindy JIANG; ZHAO Yueju (Mars), Kitty WANG (PepsiCo), LI Li (Qingmei), ZHANG Yingchun (Mengniu), Joan MENKE-SCHAENZER (Van Drunen Farms)
12:30	**20th Anniversary Awards Ceremony, followed by Networking Luncheon**	
BIOMANUFACTURING & BEYOND · Moderator: WU Yongning, CFSA		
14:30	**Biomanufactured Food in China's 15th Five-Year Plan: Alternative Protein and the Big Food Concept**	WU Yongning, CFSA
14:40	**Modernizing Food Safety Assessment for Biomanufactured Foods: A WHO Perspective**	Simone Moraes RASZL, WHO
15:00	**The Next Generation of Food Safety Assessment: From AI-Powered Prediction to NAMs**	Masami TAKEUCHI, FAO
15:20	**Portable Traceable Non-Invasive Testing Technology for Fruit and Chinese Medicinal Materials**	ZHU Furong, Hong Kong Baptist University
NAMs PLENARY SESSION · Moderator: CHEN Junshi		
15:50	**NAMs for China's Food Safety — From Science to Regulation: Welcome and Framing**	CHEN Junshi, CIFSQ Advisor
15:55	**China's NAMs Landscape: Food Safety Evaluation and Development of NAMs in China**	WU Yongning, CFSA
16:10	**Modernizing Chemical Safety Assessment for Food: The NAMs Landscape at FDA's Human Foods Program**	Kirk ARVIDSON, U.S. FDA
16:30	**Panel: Shared Priorities for NAMs — What Industry, Regulators, and Academia Each Need**	Moderator: LI Guojun (Beijing CDC); Kirk ARVIDSON (FDA), Jean Lou DORNE (EFSA), ONG Zhan Yuin (SFA), Maresha CHARLES (Coca-Cola), Sue O'HAGAN (PepsiCo), YANG Hui (CFSA), George PUGH, Jr. (GeTox)
18:00	**End of Day 1**	







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CONFERENCE PROGRAM

Day 2: Breakout Sessions — 29 October

MORNING · 09:00 – 12:30

	Breakout session	Session chair(s)	Talks
A	**Novel Foods & Alternative Proteins**	WU Yongning (CFSA); Masami TAKEUCHI (FAO)	9
B	**Risk Communication**	XU Jiao (CFSA); LUO Yunbo (Beijing Technology and Business University)	7
C	**AI for Food Safety: Predictive & Pre-emptive Risk Management**	WANG Yeru (CFSA); Peter WANG (IQC Consulting)	8
D	**Food Safety Culture 2.0**	Cindy JIANG; YUE Jin (Shanghai Jiao Tong University)	8
E	**Safety of Food Contact Materials**	ZHANG Hong (CFSA); ZHONG Huaining (Guangzhou Customs Technology Center)	8
F	**NAMs Scientific Foundations & Methodologies**	CHEN Junshi; Geoffry SMITH (ILSI Southeast Asia Region)	10
G	**Environmental Monitoring Programs (EMP)**	Zoe WANG (Commercial Food Sanitation)	7

AFTERNOON · 14:00 – 18:00

	Breakout session	Session chair(s)	Talks
H	**Emerging Chemical Contaminants: PFAS, Microplastics & Beyond**	LI Jingguang (CFSA); ZHANG Lei (CFSA)	11
I	**Food Authenticity, Integrity & Fraud**	WU Di; Andrew CANNAVAN (Queen's University Belfast)	8
J	**Omics-Enabled Risk Assessment**	BAI Li (CFSA); ZHOU Zhemin (Soochow University)	8
K	**Food Safety Culture 2.0 (Part 2)**	Cindy JIANG; YUE Jin (Shanghai Jiao Tong University)	6
L	**Biotoxin: From Single-Toxin Control to Systemic Risk Management**	YANG Dajin (CFSA)	9
M	**NAMs International Regulatory Case Studies**	YANG Hui (CFSA); LI Guojun (Beijing CDC)	9
N	**Food Safety Hot Topics**	Minghua WANG (Conagra Brands)	9





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Speakers, Chairs & Panelists

DAY 1 · PLENARY SESSIONS



Lisa GARCIA
Executive Director,
International Association for Food Protection



GE Zhirong
Honorary Chairman, CIFSQ Conference; Former Counsellor of the State Council, PR China; Member of the 11th CPPCC National Committee; Former Deputy Director of AQSIQ; Director of the Expert Committee of China Council for Brand Development



WANG Lin
Deputy Director
Shanghai Municipal Administration for Market Regulation



CHEN Junshi
CIFSQ Conference Advisor; Academician, Chinese Academy of Engineering; Researcher & Chief Advisor, China National Center for Food Safety Risk Assessment; Founding President, Shanghai JS Life Sciences Institute



FAN Yongxiang
Deputy Director,
China National Center for Food Safety Risk Assessment (CFSA)



Donald A. PRATER
Acting Deputy Commissioner for Food,
U.S. Food and Drug Administration



Sarah McMULLEN
FDA China Office Director,
U.S. Health Attaché to China (Acting),
U.S. Food and Drug Administration



Andreas HENSEL
President,
German Federal Institute for Risk Assessment (BfR)



Jeremy 'Todd' REED
Deputy Administrator for Science and Policy, Food Safety & Inspection Service (FSIS), U.S. Department of Agriculture



Geoffry SMITH
President,
International Life Sciences Institute (ILSI) Southeast Asia



HAN Bing
Deputy Director,
Bureau of Law Enforcement and Inspection, State Administration for Market Regulation (SAMR)



XIE Qiuhui
Former Deputy Commissioner of Shanghai Customs; Former First-Level Inspector, Shanghai Customs Special Commissioner's Office;
Professor, Shanghai Customs College



YU Hangyu
Associate Researcher & Deputy Director, Division I, Center for Food Safety Standard, China National Center for Food Safety Risk Assessment (CFSA)



Zoltan SYPOSS
SVP, Quality & Food Safety, Danone



Cindy JIANG
Global Food Safety Ambassador, Former Global Food Safety Senior Director, McDonald's Corporation



ZHAO Yueju
Head of the Mars Global Food Safety Center

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Speakers, Chairs & Panelists (continued)



Kitty WANG
Senior Director of Scientific and Regulatory Affairs, APAC Region, PepsiCo



LI Li
Vice President,
Shanghai Qingmei Green Food Group



ZHANG Yingchun
Senior Director,
Safety Quality Management Department,
China Mengniu Dairy



Joan MENKE-SCHAENZER
Chief Quality Officer,
Van Drunen Farms and FutureCeuticals



WU Yongning
Chief Scientist,
China National Center for Food Safety Risk Assessment; Director,
NHC Key Lab of Food Safety Risk Assessment



Simone Moraes RASZL
Nutrition and Food Safety Department,
Standards and Scientific Advice,
World Health Organization



Masami TAKEUCHI
Food Safety Officer,
Food & Agriculture Organization of the United Nations



ZHU Furong
Head of Department and
Chair Professor in Physics,
Hong Kong Baptist University



Kirk ARVIDSON
Chief, Regulatory Management Branch,
Human Foods Program,
Office of Postmarket Assessment,
Division of Additives and Ingredients,
U.S. Food and Drug Administration



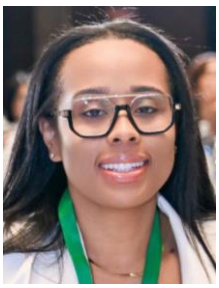
LI Guojun
Chief Expert, Beijing Center for Disease Prevention and Control; Chair,
Committee of Toxicological Alternative and Translational Toxicology (TATT) of
Chinese Society of Toxicology (CST)



Jean Lou DORNE
Lead Expert in NAMs,
Senior Scientific Officer,
European Food Safety Authority (EFSA)



ONG Zhan Yuin
Branch Head,
Singapore Food Agency



Maresha CHARLES
Director, Toxicology,
The Coca-Cola Company



Sue O'HAGAN
Director Scientific Affairs,
PepsiCo



YANG Hui
Professor, Deputy Director, NHC Key Laboratory of Food Safety Risk Assessment,
China National Center for Food Safety Risk Assessment



George PUGH, Jr.
President,
GeTox Consulting;
Calorie Control Council Scientific Advisor

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Speakers, Chairs & Panelists (continued)

DAY 2 · BREAKOUT SESSIONS



SONG Yan / OU Tong
Assistant Researcher, Division III Risk Assessment, China National Center for Food Safety Risk Assessment



WANG Hongping / JIN Fen
Chinese Academy of Agricultural Sciences (CAAS)



DING Shijie
CEO,
Nanjing Joes Future Food Technology Co., Ltd.



LI Demao
Researcher,
Tianjin Institute of Industrial Biotechnology, Chinese Academy of Sciences



ZHENG Hongwei
Associate Professor,
College of Food Science & Technology, Ocean University of China



LIM Xin Shan
Specialist Team Lead,
Singapore Food Agency



Valérie TRENDELENBURG
Scientific Officer,
German Federal Institute for Risk Assessment (BfR)



SUN Xiyan
Associate Researcher,
Shanghai Institute of Nutrition and Health, Chinese Academy of Sciences



LI Jiapeng
Deputy Chief Engineer,
China Meat Research Center



LUO Yunbo
Distinguished Professor,
Beijing Technology and Business University



ZHANG Hongzhong
Professor,
School of Journalism and Communication, Beijing Normal University



CHEN Si
Associate Research Fellow,
China National Center for Food Safety Risk Assessment



LI Zhenyi
Professor,
Royal Roads University



YUAN Shengyu
Vice General Manager, Data Center Director, Senior Public Opinion Analyst, CYYUN Co., Ltd.



CHENG Nan
Professor,
China Agricultural University



CHENG Jingmin
Director,
Center for Health Management and Policy Research, Shanxi Medical University



CHEN Yuhang
Professor,
Shandong Agriculture and Engineering University



WANG Yeru
Associate Researcher,
Risk Assessment Division I, China National Center for Food Safety Risk Assessment



Peter WANG
Technical Director & Co-Founder,
IQC Consulting Co., Ltd.



Steven ZHU
General Manager,
Together Food Safety Co., Ltd.

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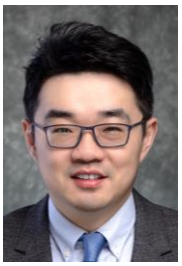
Speakers, Chairs & Panelists (continued)



WEI Sheng
Professor,
School of Public Health & Emergency Management, Southern University of Science and Technology



WANG Yibaina
Associate Researcher,
China National Center for Food Safety Risk Assessment (CFSA)



Hao PANG
Staff Fellow,
U.S. Food and Drug Administration



David T. INGRAM
Regulatory Scientific Reviewer,
U.S. Food and Drug Administration



WANG Jianxin
Professor,
Beijing Forestry University



Lili YU
Quality & Food Safety Director,
Mars Snacking China



PEI Xiaoyan
Director of Food Safety Risk Assessment,
Inner Mongolia Yili Industrial Group Co., Ltd.



Melody YU
Senior Food Safety and Quality Advisor,
MarsMel LLC; President/Founder,
Women in Food Safety



YUE Jin
Professor, School of Agriculture and Biology, Shanghai Jiao Tong University; Director, SJTU-Bor S. Luh Food Safety Research Center



ZHOU Lingling
Greater China GFSI Lead,
The Consumer Goods Forum



LI Yu
CTO of CNFIA /
FSSC Liaison in China



Sarah WU
SQF Representative, China,
SQFI



Vanessa COFFMAN
Director
Alliance to Stop Foodborne Illness



Pauline HAN
Head of Food Safety and Quality,
Ferrero China



HUANG Jianjun
Vice President of Food Safety,
Mingkanghui Ecological Agriculture Group Co., Ltd.



Sanjeev SHARMA
R&D FSQA Sr Director,
APAC, PepsiCo



SHAN Di
Vice President,
Fujian Wallace Food Co., Ltd.; Shanghai Rongying Brand Management Co., Ltd.



ZHANG Hong
Associate Researcher,
China National Center for Food Safety Risk Assessment



ZHONG Huaining (Marco)
Director of National Reference Laboratory for Food Contact Materials (Guangdong),
Guangzhou Customs Technology Center



Sean FISCHER
Regulatory Review Scientist,
U.S. Food and Drug Administration

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Speakers, Chairs & Panelists (continued)



Thomas GUDE
President, AOAC Europe Section,
Founder of THOMAS GUDE GMBH



Sander KOSTER
Department Manager /
Expert Packaging Food Safety, Nestlé



Leo MEUNIER
Chemical Safety Director,
Danone



DAI Mian
PSRA, Henkel



Omari BANDELE
Senior Science Advisor,
Human Foods Program,
U.S. Food and Drug Administration



Szabina STICE
Senior Toxicologist,
Human Foods Program,
U.S. Food and Drug Administration



Megan CULBRETH
Supervisory Toxicologist,
U.S. Food and Drug Administration



GU Zhongze
Chief Professor, Southeast University;
Dean, Institute of Organ-on-a-Chip;
Director, State Key Laboratory of
Digital Medical Engineering, Nanjing



HE Song
Professor,
Academy of Military Medical Sciences



MU Wei
Professor, School of Public Health,
Shanghai Jiao Tong University
School of Medicine



Tessa VAN TONGEREN
Chemical Safety Specialist,
Danone



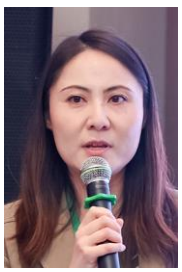
Amie ADKIN
Deputy Director
Analytics and Risk Assessment, Food
Standards Agency UK



Zoe WANG
Head of China Region,
Commercial Food Sanitation L.L.C.



Darin ZEHR
General Manager,
Commercial Food Sanitation L.L.C.



Joy ZHENG
Technical Development Manager,
Commercial Food Sanitation L.L.C.



Benjamin WARREN
Senior Science Advisor for Food Safety,
U.S. Food and Drug Administration



Lina ASHMORE
Senior Food Safety Specialist,
Commercial Food Sanitation L.L.C.



ZHAO Xianming
Greater China Technical Service Manager,
Neogen



David LE MEUR
Food Safety Manager for EMEA,
Commercial Food Sanitation L.L.C.



JIA Yongsheng
Senior Food Safety Specialist,
Commercial Food Sanitation L.L.C.

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Speakers, Chairs & Panelists (continued)



LI Jingguang
Professor and Director
Chinese Academy of Medical Sciences
Research Unit for Food Safety
(2019RU014), CFSA



ZHANG Lei
Research Professor,
China National Center for
Food Safety Risk Assessment



WANG Yuxin
Associate Professor,
China National Center for
Food Safety Risk Assessment



WANG Jingjing
Molecular Technique Solution Specialist,
Agilent



YANG Daoyuan
Associate Researcher,
China National Center for
Food Safety Risk Assessment



LIU Xin
Deputy Dean of the College of
Food Science and Engineering,
Wuhan Polytechnic University



TAN Ke Tian
Scientist,
Singapore Food Agency



Chris K.C. WONG
Chair Professor of Environmental Science
(Dept of Biology), Associate Dean
(Faculty of Science and Technology),
Hong Kong Baptist University



Luke K. ACKERMAN
Research Analytical Chemist,
Human Foods Program Division of
Analytical Chemistry,
U.S. Food and Drug Administration



LI Xiaomin
Researcher, Institute of Quality Standards
and Testing Technology for Agro-Products,
Chinese Academy of Agricultural Sciences



Paul SOUTH
Senior Adviser,
Human Foods Program,
U.S. Food and Drug Administration



QIU Jing
Director General/Professor,
Institute of Quality Standard and Testing
Technology, Beijing Academy of
Agriculture and Forestry Sciences



Taylor D. PAYNE
Chemist, Human Foods Program,
U.S. Food and Drug Administration



WU Di
Lecturer,
The Institute for Global Food Security,
Queen's University Belfast



Andrew CANNAVAN
Honorary Professor,
The Institute for Global Food Security,
Queen's University Belfast



Girdhari M. SHARMA
Consumer Safety Officer,
U.S. Food and Drug Administration



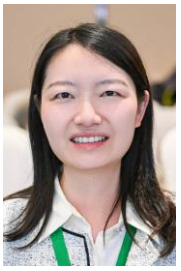
CHEN Ying
Professor,
Chinese Academy of Quality and
Inspection & Testing



XING Ranran
Associate Researcher,
Chinese Academy of
Inspection and Quarantine



ZHAO Yan
Professor,
Institute of Quality Standards & Testing
Technology for Agro-products,
Chinese Academy of Agricultural Sciences



MA Xiao
Application Engineer,
Thermo Fisher Scientific (China)

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Speakers, Chairs & Panelists (continued)



YUAN Yuwei
Director,
Institute of Plant Protection and Microbiology, Zhejiang Academy of Agricultural Sciences



Cuong CAO
Reader,
Institute for Global Food Security, School of Biological Sciences, Queen's University Belfast, UK



LI Guoliang
Dean,
School of Food Science and Engineering, Shaanxi University of Science and Technology



WANG Panpan
Lecturer,
School of Food Science and Engineering, Shaanxi University of Science and Technology



BAI Li
Director, Microbiology Lab,
China National Center for Food Safety Risk Assessment



ZHOU Zhemin
Professor,
Soochow University



WANG Xiang
Associate Professor,
University of Shanghai for Science and Technology



QIAN Xun
Key Laboratory of Plant Nutrition and Agro-Environment in Northwest China, Ministry of Agriculture and Rural Affairs, Northwest A&F University



ZHU Yongzhang
Associate Professor,
Shanghai Jiao Tong University School of Medicine



Daniel FALUSH
Professor,
Shanghai Institute of Materia Medica, Chinese Academy of Sciences



HU Yujie
Associate Professor,
China National Center for Food Safety Risk Assessment



LI Menghan
Assistant Researcher, Laboratory of Microbiology, China National Center for Food Safety Risk Assessment



TANG Yue
Director of the New Business Development Department, China Marketing Center, MGI Tech Co., Ltd.



James PETTENGILL
Director,
Division of Surveillance and Data Integration, U.S. Food and Drug Administration



Ruth TIMME
Acting Director,
GenomeTrakr & Computational Science Staff, U.S. Food and Drug Administration



Johnny ZHANG
APAC Regional Laboratory Manager,
Mars Global Services



WANG Ke
Department of Food Science,
University of Otago, Dunedin, New Zealand



HUANG Min
Founder & CEO, TMG International LLC;
Founding President, Northeastern Wisconsin Chapter of the Association of Chinese-American Scientists and Engineers



YANG Dajin
Director of Risk Surveillance Division 1,
China National Center for Food Safety Risk Assessment



YE Jin
Deputy Director, Institute of Grain and Oil Quality and Safety, Academy of National Food and Strategic Reserves Administration

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Speakers, Chairs & Panelists (continued)



SUN Jiadi
Associate Research Fellow,
School of Food Science and Technology,
Jiangnan University



ZHAO Rong
Deputy Director and Chief Technician,
Institute of Nutrition and Food Hygiene,
Beijing Center for
Disease Prevention and Control



Tabitha MILLER
Chemist,
U.S. Food and Drug Administration



XU Jiaojiao
Associate Chief Technician,
Zhejiang Provincial Center for
Disease Control and Prevention



YANG Yuzheng
Scientist,
Mars Global Food Safety Center



ZHOU Shuang
Deputy Director, Chemistry Laboratory,
China National Center for
Food Safety Risk Assessment



JIA Bingxuan
Researcher,
Shanghai Institute of Nutrition & Health,
Chinese Academy of Sciences



Hajime KOJIMA
Professor,
Sanyo-Onoda City University;
Visiting Researcher & Former Secretary
General, NIHS (JaCVAM)



Lucian FARCAL
Scientific Officer,
European Food Safety Authority (EFSA)



TANG Dawei
Research Scientist,
Unilever



Maria ANASTASSIADOU
Scientific Officer,
European Food Safety Authority (EFSA)



Denise BLOCH
Head of Junior Research Group /
ILMERAC Co-Chair, German Federal
Institute for Risk Assessment (BfR)



Adam WOOD
Scientist - Human Safety,
Unilever



Minghua WANG
Food Safety, Quality,
and Regulatory Affairs Leader,
Conagra Brands



ZHANG Yuhuan
Associate Professor,
Shaanxi Normal University



BAO Lei
Head of Nestlé Food Safety
Institute of China;
Chair, Committee on Sections,
AOAC International



ZHENG Jie
Professor,
Jinan University



Teodora Emilia COLDEA
Associate Professor,
University of Agricultural
Sciences and Veterinary
Medicine Cluj-Napoca Romania



CHEN Chen
Professor, State Key Laboratory for
Quality and Safety of Agro-Products,
Ningbo University



Wendy WHITE
Industry Manager for Food and Beverage,
Georgia Institute of Technology,
GaMEP

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Speakers, Chairs & Panelists (continued)



YAN Zhinong
President,
ZN Food Safety Collaboration and Consulting LLC



Melinda HAYMAN
Division Director,
Division of Compliance Implementation,
U.S. Food and Drug Administration



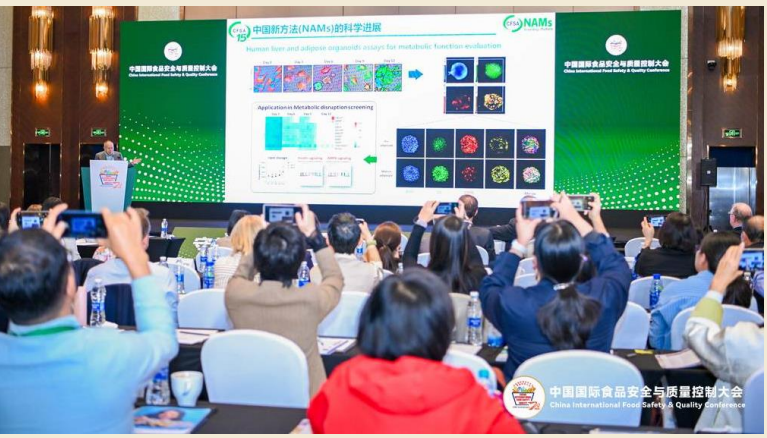
Brian SYLVESTER
Partner,
Morrison Foerster



























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TESTIMONIALS

What Delegates Said



Congratulations on the very successful conference. The organization was superb and the presentations were excellent.
It was great to be able to participate and I hope to be there next November in Beijing.

Geoffry SMITH
President,
International Life Sciences Institute (ILSI) Southeast Asia



Glad to see the improvement of CIFSQ and really enjoy the opportunity of meeting people.

Prof. CHEN Junshi
Academician, Chinese Academy of Engineering;
Researcher & Chief Advisor, China National Center for Food Safety Risk Assessment; Founding President, Shanghai JS Life Sciences Institute



It was a pleasure to participate in the 20th CIFSQ Conference. I found the presentations and discussions, and the science and policy issues they represented, to be of a very high standard.

Andrew CANNAVAN
Honorary Professor, The Institute for Global Food Security,
Queen's University Belfast



The conference was incredible. It was my honor to be able to share my presentation.

Maresha CHARLES
Director, Toxicology,
The Coca-Cola Company

The conference was informative and provided valuable insights into the latest trends, technologies and challenges in food safety management. It was an excellent platform to learn from industry experts, regulatory authorities, and food safety professionals from different sectors.

Rainy LEI
Executive Manager - Quality Assurance,
F&B Operations & Culinary,
Galaxy MacauTM

Thank you for organizing such a great event! CIFSQ is always the best food safety conference, and I found it very valuable. I'm especially interested in sessions on food labeling, new food safety standards and regulations, and application of new methodologies in food safety. I was also very impressed by how the conference brought in new technologies such as smart robots for performance and interactions!

ZHANG Nannan
U.S. Department of State

Food safety has long been a core value for Conagra Brands. We were pleased to join you in celebrating CIFSQ's 20th anniversary and hope the guests enjoyed our authentic U.S. cocoa products, Swiss Miss, following a productive event.

We appreciate your continued efforts to bring together food safety professionals to exchange the latest industry developments and advance food safety.

Jeremy YANG
Sr. Manager, International Business Development,
Greater China, Conagra Brands

I found the conference valuable and insightful, particularly the discussions on emerging technologies, the application of AI in food safety, and the shift towards predictive and pre-emptive risk management. The sessions provided useful perspectives and practical insights that could be considered in strengthening food safety management and regulatory practices.

Mohamad Zulhairen Abdul Wahab
Corporate Integrity Associate, Strategic Management Section,
Brunei Darussalam Food Authority

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ACKNOWLEDGEMENTS

Thank You

As we reflect on the success of the 20th CIFSQ, we extend our heartfelt gratitude to the speakers, chairs, moderators, sponsors, exhibitors and delegates who enriched the discussions and fostered a vibrant atmosphere of collaboration. We look forward to seeing the insights shared in Shanghai carried into practice around the world.

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GE Zhirong Honorary Chairman, CIFSQ Conference; Former Counsellor of the State Council, PR China; Member of the 11th CPPCC National Committee; Former Deputy Director of AQSIQ; Director of the Expert Committee of China Council for Brand Development

CONFERENCE ADVISOR

CHEN Junshi CIFSQ Conference Advisor; Academician, Chinese Academy of Engineering; Researcher & Chief Advisor, CFSA; Founding President, Shanghai JS Life Sciences Institute

GLOBAL HOST

Lisa GARCIA Executive Director, International Association for Food Protection (IAFP)

SESSION CONVENERS, CHAIRS & MODERATORS

BAI Li Director, Microbiology Lab, CFSA

Andrew CANNAVAN Honorary Professor, The Institute for Global Food Security, Queen's University Belfast

CHEN Junshi CIFSQ Conference Advisor

Cindy JIANG Global Food Safety Ambassador; Former Global Food Safety Senior Director, McDonald's

LI Guojun Chief Expert, Beijing CDC; Chair, TATT, Chinese Society of Toxicology

LI Jingguang Professor; Director, CAMS Research Unit for Food Safety, CFSA

LUO Yunbo Distinguished Professor, Beijing Technology and Business University

Geoffry SMITH President, ILSI Southeast Asia Region

Kenny SUN CIFSQ Conference Secretariat (Emcee)

Masami TAKEUCHI Food Safety Officer, FAO

Minghua WANG Food Safety, Quality & Regulatory Affairs Leader, Conagra Brands

Peter WANG Technical Director & Co-Founder, IQC Consulting

WANG Yeru Associate Researcher, CFSA

Zoe WANG Head of China Region, Commercial Food Sanitation

WU Di Lecturer, Queen's University Belfast

WU Yongning Chief Scientist, CFSA; Director, NHC Key Lab of Food Safety Risk Assessment

XU Jiao Research Fellow, CFSA

YANG Dajin Director, Risk Surveillance Division 1, CFSA

YANG Hui Professor; Deputy Director, NHC Key Lab of Food Safety Risk Assessment, CFSA

YUE Jin Professor, Shanghai Jiao Tong University; Director, SJTU-Bor S. Luh Food Safety Research Center

ZHANG Hong Associate Researcher, CFSA

ZHANG Lei Research Professor, CFSA

ZHONG Huaining (Marco) Director, National Reference Laboratory for Food Contact Materials (Guangdong)

ZHOU Zhemin Professor, Soochow University







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