2025 Dairy Science and Technology Symposium

Dairy Biotechnology: Quality, Safety, and Nutrition

Co-funded by the European Union

Session 1. The role of milk and dairy in healthy and sustainable food systems

Monday 23 June 2025 at 15:00–17:30 CET

Introduction

The session examines the role of milk and dairy products to both nutritional health and environmental sustainability. Topics include improving milk quality through probiotic supplementation, enhancing microbial safety using UV-C processing, and assessing calcium bioavailability. The effect of dairy consumption to cardiovascular and metabolic health, as well as factors influencing milk composition at the farm level.

Chair: Serafim Bakalis (University of Copenhagen, Denmark)

15:00–15:05 – Welcome and introduction
Serafim Bakalis

15:05–15:30 – Keynote 1
Christos Apostolopoulos, FrieslandCampina Hellas, Greece
“The dairy products through the nutrition and sustainability lenses”

15:30–15:40 – Flash Presentation 1
Ilias Karaman-Lozos, Agricultural University of Athens, Greece “Improvement of the composition and quantity of sheep and goat milk through the administration of a dietary supplement containing the probiotic strain Lactiplantibacillus plantarum ACA-DC 201”

15:40–15:50 – Flash Presentation 2
Ioanna Neokleous, Cyprus University of Technology, Cyprus
“Efficiency of Ultraviolet-C (UV-C) processing for reducing microbial population in raw bovine”

15:50–16:15 – Keynote 2
Connie Weaver, San Diego State University, USA
"Assessing bioavailability with a focus on calcium"

16:15–16:30 – Coffee break

16:30–16:40 – Flash Presentation 3
Christos Pafilas, Agricultural University of Athens, Greece “Mapping the consumption of fermented dairy products and plant based substitutes and evaluating their relationship with self reported cardiovascular health in the context of a European multicenter study”

16:40–16:50 - Flash Presentation 4
Jonathan Magan, Teagasc Food Research Centre, Moorepark Ireland
“Farm-level factors and milk composition”

16:50-17:15 - Keynote 3
Sabita Soedamah-Muthu, Tilburg University, the Netherlands
"Dairy consumption in relation to prediabetes, type 2 diabetes, original cohort analyses and meta-analyses latest evidence"

17:15 – Final remarks & closing
Serafim Bakalis

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Session 2. Milk and Dairy Components – Designed to Deliver

Tuesday 24 June 2025 at 15:00–17:30 CET

Introduction

Milk and dairy products are not only central to global nutrition but are also evolving to meet the demands of sustainable and health-conscious food systems. This session explores the multifaceted roles of dairy components—from their nutritional value and bioavailability to their technological properties. Through a series of expert talks, we will examine how dairy can contribute to healthier diets while providing the right performance and taste.

Chair: Milena Corredig (University of Aarhus, Denmark)

15:00–15:05 – Welcome and introduction
Milena Corredig

15:05–15:30 – Keynote 1
Photis Papademas, Cyprus University of Technology, Cyprus "Non-bovine milk"

15:30–15:40 – Flash Presentation 1
Pernille Koch "Effect of Ultra-High Temperature Treatment on Whey Protein Nanogel Particle Dispersions with Nutritionally Relevant Minerals using an Optimized Approach for Phase Diagram Construction"

15:40–15:50 – Flash Presentation 2
Esra Karabulut
"Final Product Characteristics of Ice Cream Enriched with Fibrillated Milk Protein"

15:50–16:15 – Keynote 2
Lina Zhang, Jiangnan University, China "Bioactive proteins (Lactoferrin)"

16:15–16:30 – Coffee break

16:30–16:40 – Flash Presentation 3
Tiziana Racca "Characterization of Protease Activities at Gastric pH in Raw Bovine Milk"

16:40–16:50 - Flash Presentation 4
Katerina Papaioannou "Production of Hard Cheese Using Streptococcus macedonicus ACA-DC 198 as a Starter Culture to Prevent Late Blowing Defect"

16:50-17:15 - Keynote 3
Marie-Caroline Michalski, INREA Lyon, France "Saturated milk fat"

17:15 – Final remarks & closing
Milena Corredig

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Session 3. Biotechnology in the dairy sector

Wednesday 25 June 2025 at 15:00–17:30 CET

Introduction

Biotechnology and biosolutions are playing an important role in advancing the dairy sector by enhancing efficiency, sustainability, and innovation across the value chain. Through advanced microbial fermentation, enzyme engineering, and genetic tools, biotechnology enables the production of high-quality dairy products. The development of improved dairy cultures, enzymes, and probiotics that enhance texture, flavor, and nutritional value of dairy products or reduce waste by extending product shelf-life are examples of emerging innovations. Recombinant DNA technology allows the production of specific milk proteins or enzymes in microbial systems, reducing dependency on animal sources. In parallel, the integration of big data and artificial intelligence (AI) offers powerful tools to further transform the sector. Combined, biotechnology, AI, and big data provide a robust platform for developing next-generation dairy systems that are smarter, more efficient, and better aligned with consumer health and sustainability demands.

Chair: Lilia Ahrné (University of Copenhagen, Denmark)

15:00- 15:05 - Welcome and introduction
Lilia Ahrné

15:05- 15:30 - Keynote 1
Konstantinos Papadimitriou, Agricultural University of Athens, Greece
“Multi-omics of artisanal cheeses: Big data meets tradition”

15:30- 15:40 – Flash Presentation 1
Aleksandra Slavko, University of Peloponnese, Greece
“Multi-omics characterization of the microbial and volatile profiles of PDO Sfela cheese”

15:40-15:50 – Flash Presentation 2
Violeta Pemaj, University of Peloponnese, Greece
“Development of a Miniature Cheese System to Monitor Fermentation and Assess Quality in White Brine Cheese”

15:50- 16:15 - Keynote 2
Morten Holm Christensen, GEA, Denmark “Overview of fermentation process”

16:15-16:30 - Coffee Break

16:30-16:40 - Flash Presentation 3
Sigrid Nørgaard Beldring, Novonesis and Aarhus University
“Exploring the Role of Exocellular Polysaccharides in Yogurt Texture Formation with AI”

16:40-16:50 - Flash Presentation 4
Aritra Sinha, University College Cork
“A Novel Fluorometric Assay for Rapid and Sensitive Detection of AprX Protease Activity in Bovine Milk”

16:50-17:15 - Keynote 3
José Arnau, 21st BIO, Denmark “Precision Fermentation: The Future of Healthy and Sustainable Nutrition”

17:15 - Final Remarks and closing
Lilia Ahrné

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Session 4. Production of safe, stable and Nutritious Milk and Dairy Products

Thursday 26 June 2025 at 15:00–17:30 CET

Introduction

Within the dairy chain, processing of milk plays an extremely important role. First and foremost, it is required to improve the safety and extent the shelf-life of products, thereby ensuring that products can be safely distributed all over the world. This shelf-life extension can be achieved through heat treatment, but also through fermentation, drying or salting. In addition, processing is also important to ensure the creation of product functionalities which are preferable by consumers. Such processing can be optimized by new tools such as machine learning and advanced processing analytics.

Chair: Ulf Andersen (Arla Foods, Denmark)

15:00-15:05 - Welcome and introduction
Ulf Andersen

15:05-15:30 - Keynote 1
Stathis Giaouris, University of the Aegean, Greece "Biofilm formation by foodborne Campylobacter strains and effectiveness of lactic acid as biofilm-inhibitor and eradicator"

15:30-15:40 - Flash presentation 1
Beate Bjørgan, Norwegian University of Life Sciences, Norway
"Use of mountain pasture resources: Coagulation properties of goat milk and yield of a hard goat milk cheese"

15:40-15:50 - Flash presentation 2
Gaurav Kr Deshwal, University College Cork & Wageningen University
"Effect of fat content and ripening of Cagliata cheese on the properties of processed cheese"

15:50-16:15 - Keynote 2
Matthias Eisner, Yili Innovation Center Europe, The Netherlands
"Optimizing Dairy Product Formulation with Machine Learning"

16:15-16:30 - Coffee Break

16:30-16:40 - Flash presentation 3
Viraj Weerasingha, University College Cork & TEAGASC
"Diffusion of Salty Whey in a Rennet Coagulated Model Cheese System"

16:40-16:50 - Flash Presentation 4
Monika Małkowska-Kowalczyk, University of Warmia and Mazury in Olsztyn, Poland "Changes in Dutch-type cheeses as affected by brine system monitored by Nuclear Magnetic Resonance Relaxometry"

16:50-17:15 - Keynote 3
Stefan Heinrich, Hamburg University of Technology, Germany
"Structuration of plant-based milk powder for improved reconstitution"

17:15 - Final Remarks and closing
Ulf Andersen