AIFST21
FOOD SCIENCE
DELIVERING IN A CHANGING WORLD

Tuesday 19th October 2021

DAY 3: INNOVATION & FUTURE FOOD PRODUCTION & PROCESSING SYSTEMS

09:00 – 09:45 AM **K5 - KEYNOTE ADDRESS:** HOW CELLULAR AGRICULTURE CAN STRENGTHEN AUSTRALIA'S FOOD TECH SECTOR
Dr Bianca Le, Cellular Agriculture Australia

10:00 - 11:30 AM **3.1 - CELLULAR AGRICULTURE**
Presented by: Cellular Agriculture Australia

12:00 - 1:30 PM **3.2 - FOOD INDUSTRY INNOVATION IN DRIVING ECONOMIC RECOVERY**

2:00 – 3:30 PM **3.3 - AGRIFUTURES - EMERGING INDUSTRIES**
Presented by: Agrifutures Australia

4:00 - 5:30 PM **3.4 - FOOD ENGINEERING**
Presented by: Australian Food Engineering Association

PRESENTATION & SPEAKER BIOS

K5 | KEYNOTE SPEAKERS

Dr Bianca Le

Cellular Agriculture Australia

Topic: How Cellular Agriculture Can Strengthen Australia's Food Tech Sector

About:

Dr Bianca Le is a cell biologist and Honorary Fellow in Agriculture and Food at the University of Melbourne. Bianca completed her PhD at Monash University and is currently the Director of Cellular Agriculture Australia, a nonprofit dedicated to promoting and accelerating R&D in the cellular agriculture industry. Cellular agriculture is an emerging industry and research field working towards producing healthier sources of protein to our growing population without sacrificing the planet, by harnessing modern technology to farm meat, eggs, and dairy directly from cells, not animals. When Bianca's not doing science, she talks and writes about it. She is an experienced science communicator and has contributed to various national policy projects spanning women in STEM, waste management, and science diplomacy at the Academy of Technology and Engineering.

Presentation Overview:

As global demand for protein grows, our sources of animal protein must diversify to keep up. Australia is well-placed to become an international powerhouse for an emerging industry that could transform the way we produce meat: cellular agriculture.

Cellular agriculture is dedicated to producing meat, eggs and dairy directly from animals' cells, not whole animals. It can reduce the impact of food production on our environment, health, and animal welfare, whilst meeting growing consumer demands for sustainable proteins.

As a nascent industry, the foundations of the ecosystem laid today will determine the potential impact of the field on our world.

3.1 | CELLULAR AGRICULTURE

Brenna Duffy

Research Operations and Outreach Director, New Harvest

Topic: Cell-cultured meat and seafood - Insights from our safety initiative

About:

Breanna Duffy, Ph.D. is the research operations and outreach director at New Harvest, a global nonprofit focused on advancing cellular agriculture through supporting pre-commercial research and fostering collaboration across the field. Dr. Duffy works with the organization's network of researchers and diverse stakeholders to ensure future products will be safe and sustainable. She is an expert in tissue engineering and received a Ph.D. in Biomedical Engineering from Tufts University.

Kimberly Ong

Vireo

Topic: Cell-cultured meat and seafood - Insights from our safety initiative

About:

Someone who has done academic toxicology research, advanced materials safety consulting, and projects in environmental management and policy, I am well positioned to work on the multi-faceted and novel challenges associated with innovative produce development. I started by doing laboratory nanotoxicity research for my PhD, and then applied this knowledge to 'real-life', moving to nano and bio-based safety consulting for industry and government. This inspired me to advance my knowledge in corporate environmental management and policy-making, so completed an applied MSc in Environmental Management and Policy in Sweden, then returned to consulting with a wider set of skills.

James Petrie

Co-founder and CEO, Nourish Ingredients

Topic: Fats & fermentation for the new era in food production

About:

Dr. James Petrie is an experienced crop metabolic engineer, who spent 13 years working at CSIRO as a research scientist as part of the Plant Oils Engineering Group before co-founding Nourish Ingredients. During his time at CSIRO, James was a part of the team who spearheaded the creation of omega 3 canola – the world's first plant based and sustainable source of omega 3.

As CEO of Nourish, James is turning his expertise in synthetic biology to the plant-based meat and dairy space. He's passionate about making tastier and more sustainable animal-free fats accessible to the world.

3.1 | CELLULAR AGRICULTURE

Paul Bevan
Magic Valley

Topic: Starting a cultured meat business with no food or science background

About:

Paul Bevan, a former Senate candidate in Queensland for the Animal Justice Party, hopes to have cultured lamb products including mince, strips, steaks and chops on the shelves in the next few years.

Lisa Musgrove
University of the Sunshine Coast

Topic: Cultivated crustacean meat - addressing a shortfall in the cell ag space

About:

Lisa graduated in 2020 from the University of the Sunshine Coast with a Bachelor of Science majoring in Biotechnology. She is now undertaking her Honours year, working in the Ventura Lab which specialises in genomics and biotech innovations for sustainable crustacean aquaculture. Lisa is passionate about cellular agriculture and the potential it has to transform our food system, with cultivated meat being her particular area of interest. She was awarded a New Harvest Seed Grant to develop a research project centred on cultivated crustacean meat and this has enabled her to apply the resources and expertise of the Ventura Lab to the advancement of this exciting new field.

Brodie Peace
University of Melbourne

Topic: Optimizing cell culture media for cultivated meat – safe and affordable ingredients

About:

Brodie is a graduate of the University of Melbourne's Bachelor of Science, where he majored in medicinal chemistry. Inspired by the incredible potential of cellular agriculture to revolutionise the world’s food systems, he has directed his career to Food Science. Working under the supervision of meat scientists at the Faculty of Veterinary and Agricultural Science, Brodie is conducting cultivated meat research as part of the Future Food Hallmark Research Initiative. A critical step in cultivated meat production is the differentiation of premature muscle cells into fully formed muscle fibres that can be linked together. Brodie's research project is focusing on identifying affordable and safe reagents that can enhance this step.

3.2 | FOOD INDUSTRY INNOVATION IN DRIVING ECONOMIC RECOVERY

Jo Davey

Managing Director, *Pirrama Consulting Pty Ltd*

Topic: Chair of session

About:

Jo is a company director and consultant experienced in general management, innovation, food safety, regulatory affairs and product development in the dairy and food manufacturing sectors. She is Managing Director of Pirrama Consulting Pty Ltd, which provides management and technical consulting services to the food and beverage industries.

Jo is a Board Member of Food Standards Australia New Zealand and a member of its Finance, Audit and Risk Management Committee, and a non-Executive Director of PPB Pty Ltd, a start-up diagnostics company. She recently completed her term as a Director of the Subtropical Dairy Programme, which is a Regional Development Programme of Dairy Australia, and has also served on the boards of a commercial JV dairy ingredients company and dairy ingredient research organisations.

Jo has held senior commercial and technical roles in the Dairy Farmers Group and was the Managing Director of Diabetes Smart, a start-up company established to develop and market foods designed for people living with diabetes.

Jo was the President of AIFST Inc in 2012 and a Director on the inaugural board of AIFST Ltd.

She is committed to innovation in the food industry and has led the commercialisation of several new food ingredient technologies.

Session overview:

The potential for the food industry to play a major role in driving Australia's economy has been increasingly recognised. At the same time external shocks, changing technologies and shifts in consumer behaviour have presented challenges that require structural changes to support innovation. This session will discuss how adjustments to policy, regulatory and industry landscapes can underpin continued growth.

3.2 | FOOD INDUSTRY INNOVATION IN DRIVING ECONOMIC RECOVERY

John Hart

Executive Chair, *Australian Chamber - Tourism*

Topic: Foodservice - adjusting to the changing landscape

About:

John Hart OAM is Executive Chair of Australian Chamber – Tourism and on the Board of Tourism Australia, Tourism Training Australia, the Australian Business Register, the Angus Knight Group and Food Standards Australia and New Zealand.

He was Chief Executive Officer of Restaurant & Catering Australia, the peak industry body representing restaurants, cafes and caterers for 18 years. John has spent over 30 years working in the hospitality industry in operational, HR and IR roles, trained in food and beverage management at the Ecole hoteliere de Lausanne, in Switzerland, and holds a Bachelor of Commerce majoring in Business Law and a Master of Business Law.

John currently also served as Chair of the Commonwealth Vocational Education and Training Advisory Board between 2013 and 2017 and was previously on the Prime Ministers Business Advisory Council.

Mirjana Prica

Managing Director, *Food Innovation Australia Limited*

Topic: What Australian Food & Agribusiness innovations will be on our future plate?

About:

Dr Mirjana Prica is an enthusiastic visionary who focuses on entrepreneurship and innovation to deliver commercial value. Mirjana sits on boards and advisory groups for cooperative research centres, universities, research and industry organisations and businesses, where she leverages her 20+ years of research and commercial experience in food and agribusiness, including advanced materials and minerals. Currently, Mirjana is leading FIAL, a national and industry-led organisation, established by the Department of Industry to drive innovation and business growth for the ~180,000 firms in the food and agribusiness sector.

Presentation overview:

Mirjana will touch on a foundational piece of work FIAL launched: Project 2030 – doubling Australian food and agribusiness by 2030. Capturing the prize shows that if we work collaboratively, and strive towards a shared vision, our sector has potential to be much bigger than what we are today of $59B and be a sector $200B.

3.2 | FOOD INDUSTRY INNOVATION IN DRIVING ECONOMIC RECOVERY

Tom Lewis
RDS Partners

Topic: Exploring the growth potential of the food manufacturing sector

About:

Tom's experience in the food and aquaculture sectors, adaptive approach and broad skill set make him a valuable driver of, and contributor to, collaborative projects and programs amongst private, not-for-profit and government organisations.

Tom is a graduate of the Tasmanian Leaders Program and is affiliated with the UTAS Centre for Food Innovation, which he helped establish in 2013.

Sandra Cuthbert
Interim CEO, *FSANZ*

Topic: Gearing up FSANZ for the future

About:

Sandra has recently been appointed to the role of FSANZ's interim CEO. She has extensive leadership, policy, corporate governance and stakeholder engagement experience across the public and private sectors. She has held senior roles with the Australian Government departments of Prime Minister and Cabinet, Finance, Agriculture, Water and the Environment, as well as Food Standards Australia New Zealand (FSANZ).

Sandra brings a practical understanding of the complex environment that FSANZ operates within, drawing on her experience managing the agency's stakeholder engagement, corporate and food safety functions between 2018 and 2021. She has a reputation for delivering outcomes on complex and time critical projects, most recently as the Assistant Secretary, Commonwealth-State Relations at PM&C.

Sandra has post graduate qualifications in science and law and is a graduate of the Australian Institute of Company Directors.

3.3 | AGRIFUTURES - EMERGING INDUSTRIES

Laura Skipworth

Manager, Emerging Industries, AgriFutures Australia

Topic: AgriFutures Emerging Industries Program

About:

Laura Skipworth joined AgriFutures Australia in 2019 as a member of the research team coordinating the rice, ginger and export fodder programs. In 2021, Laura took on the Manager, Emerging Industries role where she manages over 30 projects across a wide range of industries, including sesame, trues and tropical fruits. Laura looks forward to continuing to support the future development and success of emerging industries and communities across rural and regional Australia.

Presentation Overview:

The AgriFutures Emerging Industries Program helps grow up-and-coming rural industries for which there is a clear interest in their products but whose pathway for growth is unchartered. We do this through research that explores opportunities for growth and through skills development for industry leaders. Our goal is to sustainably grow developing rural industries and help them reach new markets.

Dr Olivia Reynolds

Senior Manager, Emerging Industries, Agrifutures Australia

Topic: Australian Sesame - Strategic R&D plan

About:

Dr Olivia Reynolds is the Senior Manager, Emerging Industries with AgriFutures Australia. Olivia is also a Director, Australian Plant Biosecurity Science Foundation, an Adjunct Associate Research Professor, Charles Sturt University and a Jinshan Scholar, Fujian Agricultural and Forestry University. Olivia has a background in science leadership and management, plant biosecurity and entomology and has worked with a range of industries including horticulture, cotton, sugarcane, grains, moringa, sunn hemp and sesame. Olivia is passionate about working with rural industries, helping them to realise their full potential.

Presentation Overview:

An overview of the Australian Sesame Strategic RD&E Plan will be provided for this high potential emerging industry, including a current situation analysis, the Vision, Mission, Goals, Strategies and Priorities.

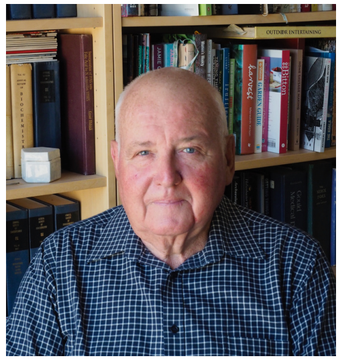
3.3 | AGRIFUTURES - EMERGING INDUSTRIES

Lauren Brisbane
QCamel

Topic: Camel milk industry

About:

Australian Camel Industry member since 2007. Wrote 'Camels in Queensland' Opportunities for Diversification 2009. Chair of Australian Camel Industry Association from 2010 -2017. Industry member on Australian Feral Camel Management Project 2010 - 2014. Director of QCamel which began operations in 2014 and produced Australia's first pasteurised camel milk. Achieved Organic status in 2018 and is the only producer of commercial organic camel milk in the world. Board Member of Food & Agribusiness Network (FAN).



Dick Groot Obbink
CEO, Eat Truffle Co-operative

Topic: Truffles: Still exotic or mainstream?

About:

Dick Groot Obbink is CEO of the NSW/ACT Truffle Marketing Cooperative trading as EAT Truffle and president of the Truffle Festival Canberra Region. Dick and wife, Virginia, also a microbiologist and have worked in the public health sector in Sydney for 30 years at Royal North Shore Hospital until 2005 when they bought a 40 hectare farm just outside Braidwood NSW and became truffle farmers. Dick is a past president and honorary life member of the Australian Society for Microbiology. He has chaired national ASM/NZMS scientific meeting in Sydney in 1992 and co-chaired IUMS bacteriology held in Sydney in 1999. He has served on a number of key scientific and medical committees including RIRDC (now Agrifutures), NATA and NPAAC. He is passionate about regenerative agriculture letting microbes do their jobs and fostering agritourism.

Presentation overview:

The truffle industry is relatively new in Australia beginning in the 1990s. Truffles have a very long history going far back to Roman times with documented mysterious attractions to both humans and other animals. Today Australia is the 4th largest producer of black truffle internationally and public awareness, demand and consumption for truffle is increasing rapidly. What are its attributes as a food product, food enhancer, and affordable commodity.

3.3 | AGRIFUTURES - EMERGING INDUSTRIES

Edward Attenborough

Research Officer, Monash University

Topic: Processing jackfruit into ready-to-eat products and ingredients

About:

Mr Edward Attenborough is a Research Officer from the Monash University Department of Chemical and Biological Engineering. An AIFST Graduate member with Science and Chemical Engineering degrees, Edward works in the areas of food and bioprocess engineering. He is passionate about waste reuse, food innovation, bioprocessing to produce new products and polymer/food extrusion. When he is not busy in the lab or writing reports, you can find him hiking mountains, fixing old cars or brewing a weird homebrew beer!

Presentation overview:

The jackfruit industry has been largely stagnant for the last decade. Yet on a per hectare basis, jackfruit produces eight times more edible food than traditional beef products. There are two key impediments to growth: (1) the availability of high-quality clonal planting material, and (2) how the fruit is currently being offered to the market and the effect this has on consumer purchasing behaviours. This Agrifutures, Northern Territory Government and Monash University combined project addressed the second impediment by developing and assessing processed value-added products which are convenient, appropriately portioned and remove the knowledge barrier for consumers.

Leonie van 't Hag

Lecturer & Group Leader, Monash University

Topic: Processing jackfruit into ready-to-eat products and ingredients

About:

Dr Leonie van ‘t Hag obtained her MSc degree in Physical Chemistry from Wageningen University & Research (NL) and PhD from the Department of Chemical Engineering at The University of Melbourne. She received the 2017 ANSTO, Australian Synchrotron Stephen Wilkins Medal for her PhD thesis. Leonie was a Postdoctoral Research Fellow at the Institute of Food, Nutrition and Health at ETH Zurich (Switzerland) for three years before starting as a Lecturer at Monash University in October 2019. The Hybrid Assembly Group focuses on the sustainable production and processing of soft materials. We do this by investigating the structure – property relationships for food, biological and biomedical applications using advanced scattering and microscopy techniques.

3.4 | FOOD ENGINEERING

Filip Janakievski

Team Leader – Food Engineering, CSIRO

Chair of Session

About:

Filip Janakievski is the team leader for Food Engineering at CSIRO's Food Innovation Centre. Through his various roles at CSIRO he has developed knowledge and expertise in the design and operation of food and beverage processes with a focus on biomass conversion into value added foods and ingredients that will enhance consumer health and well-being. He leads the Industry 4.0 program at CSIRO and he also coordinates research efforts in the development of regional food processing hubs with a focus on advanced manufacturing. Filip is actively involved in the Australian Food Engineering Association (AFEA) and is a member of the advisory committee.

Molly Coleman

Business Development Manager, Buhler

Topic: Closing the sustainable protein gap: the opportunity for Oceania

About:

Molly Coleman is a Business Development Manager at Buhler focusing on the protein supply chain in the Oceania region. With a passion for food and agriculture, she is focused on improving the sustainability of this industry. Previously, Molly worked as a process engineer in food and feed manufacturing. She graduated with honours from RMIT University in 2019 with degrees in Chemical Engineering, Food Technology and Nutrition.

Presentation Overview:

A global view of the sustainable protein challenge and where our region is positioned in comparison. Insights into Buhler's proposed solutions/focus areas and how these apply in our local market.

3.4 | FOOD ENGINEERING

Matthew Kronborg

Founder & CEO, *Grainstone*

Topic: Foodtech startups for the circular economy: Turning food byproducts into valuable ingredients

About:

Matthew is the founder & CEO of Grainstone, an Australian foodtech/biotech startup creating novel ingredients from traditional primary processing byproduct streams. Starting with brewers spent grain.

Matthew is a multidisciplinary expert with particular expertise in innovation, governance, clean technology and sustainable development.

His credentials include; a LLM (Energy and Resources) from the University of Melbourne; GAICD, B.Tech (Aviation/Aerospace Eng.), B.Business, Dip.Sus. and Cert Emerging Energy Tech (Stanford).

He was previously founder of Symbiopro biotech, National CEO of the United Nations Associations of Australia and the top clean tech innovation advisor to Qantas. He has been an advisor and board member to numerous businesses, NGOs and related bodies.

Presentation overview:

With 10 billion people on this planet by 2050, this presentation will discuss some of the exciting ingredients that startup Grainstone is bringing to market manufactured from spent grain and other traditional food processing byproducts.

Troy Hudgson

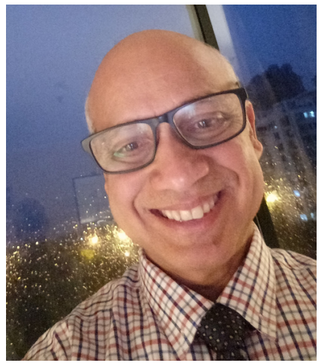
Kagome Australia

Topic: Valorisation of carrot powder

About:

Troy has more than 20 years senior marketing and business development experience in the agricultural and biotechnology industries. Troy is currently the Marketing and Business Development manager for Kagome Australia, Australia's largest tomato processor. Troy holds a MBA (Marketing) and a Bachelor of Applied Science (Biochemistry). It Troy's role at Kagome to explore value add opportunities from tomato, carrot and beetroot waste streams. Which equates to approximately 15,000t of waste products. Troy has worked closely with Monash University and CSIRO to valorise Kagome's waste products and will be presenting Kagome's carrot journey.

3.4 | FOOD ENGINEERING



Benu Adhikari

Professor, *RMIT*

Topic: Starch-(non-isocyanate) polyurethane hybrids as new materials for food packaging applications

About:

Benu Adhikari is Professor of Food Technology/Engineering at Royal Melbourne Institute of Technology (RMIT) University. He teaches and undertakes research in broad themes of food engineering including material science, processing and engineering including food packaging. He is also Manager of Higher Degree by Research (HDR) of Food Technology stream at RMIT. He has strong record of industry engagement in Australia and academic collaboration internationally. He has authored (co-authored) >340 scholarly publications and has H-index of 64 (Google Scholar).

Presentation overview:

Food packaging consumes about two thirds of packaging materials of which about 42% is synthetic plastics. To date, the post-consumer-recycling of plastics stands 16% (Australia) which is not sustainable and also causes severe environmental issues. Increased application of natural biodegradable materials for food packaging is also constrained due to their sensitivity to water, environmental moisture and underwhelming mechanical properties. They are currently unsuitable to be used as primary packaging in liquid and semi-solids foods. Thus, hybridising natural biopolymers with synthetic (yet biodegradable) materials can be suitable pathway in developing newer class of packaging materials for food packaging application. This presentation reports the outcome of research carried out in our laboratory in which both isocyanate and non-isocyanate polyurethanes (PUs) were chemically grafted with and/or physically incorporated into starch to produce starch-PU hybrid packaging materials. The process of synthesis and physicochemical properties of these hybrids will be presented in a concise manner.