The Monash University Food and Dairy Graduate Research Industry Partnerships (GRIP) collaborates with industry on the challenges and opportunities in sustainable manufacturing.

Over the last 12 months, our students have continued to greatly benefit from the mentoring given to them from our generous industry partners as they seek to find solutions to these challenges through research.

In this newsletter we introduce three of our students, whose projects vary from looking at antioxidants in wine, to nutrient re-capture from dairy farm wastewater, and the potential of sugar cane to provide us with beneficial dietary fibre. I am delighted and proud to see our PhD students embracing the opportunities of the program.

At the end of 2018, the Food and Dairy GRIP was recognised with a BHERT Award for Outstanding Collaboration in Research and Development: Industry Partnership. I also had the personal privilege of receiving an IChemE 2018 Global Award in the food and drink category.

We are as ever thankful to our industry partners for demonstrating their willingness to meaningfully engage with our students, a highlight of which was a tour of the Bega R&D facility in Port Melbourne. We were also pleased to welcome Michael Lee from the Meat and Livestock Association (MLA) for a seminar discussing innovation investments and evaluation metrics in the Meat Industry.

I hope you enjoy reading through our second newsletter. For any enquiries please contact me at any time. Professor Cordelia Selomulya.

AWARDS

Monash Food and Dairy wins BHERT Award
Our Food and Dairy Program continues to impress, this time recognised with the 2018 BHERT Award for Outstanding Collaboration in Research & Development: Industry Partnership. In 1998 BHERT (Business and Education Round Table) initiated a series of Awards to reinforce the importance of business-university partnerships in innovation, R&D and teaching. These are prestigious annual awards which recognise outstanding achievement in collaboration between the sectors of business and higher education. More information can be found here (https://www.bhert.com/awards.html)

Cordelia Selomulya wins IChemE Global Award
We congratulate Professor Cordelia Selomulya for winning the IChemE Global Awards 2018 - Food and Drink category last November.

Cordelia Selomulya received the award at The IChemE Global Awards ceremony and dinner, which took place in Manchester, UK.
GRIP MENTOR DR KELLIE TUCK

In the 14 years Associate Professor Kellie Tuck has been at Monash University, she has built and nurtured valuable collaborative research partnerships with industry as she seeks to investigate innovative pathways to advance food technology. Kellie supervises a GRIP project in conjunction with Dr Joanne Tanner (Chemical Engineering) and industry partners Meat Livestock Australia (MLA) and Meat Standards Australia (MSA).

In this project, the group are developing an on-pack visual indicator that can monitor the eating quality and freshness of value meat products and thus ensure optimal eating quality and freshness. The incorporation of such a visual indicator will also increase the shelf life of the product, reducing waste throughout the food supply chain without endangering consumers health.

Kellie believes that being part of the Monash Food and Dairy GRIP has greatly facilitated her collaboration with Dr Joanne Tanner.

STUDENT RESEARCH

Across western countries human intake of dietary fibre is low, despite overwhelming evidence linking a high fibre diet to positive health outcomes. Monash PhD student and GRIP participant Daniel So is seeking to understand the physiology and application of sugarcane fibre with the aim of introducing it into the food supply as a means of improving fibre intake at a population level.

For his research, Daniel has been linked with Tamu Innovations, an agri-processing company that produces certified functional food ingredients and sustainable energy alternatives, based on a zero-waste philosophy. Tamu’s primary raw material is sugar cane fibre, otherwise known as bagasse.

“Through my collaboration with Tamu Innovations I work closely with the group’s Chief Technology Officer, Dr Jonathan Middis,” Daniel said. “I have learned so much in such a short time working with and being mentored by Dr Middis who has spent his career at the cutting edge of food manufacturing. He understands the pipeline starting with consumer needs, through to new product development and bringing those new products to market”. Daniel seeks to address key challenges as part of his research. As a waste product of sugarcane processing, sugarcane fibre is widely available and highly fibrous. Despite this, there has been minimal scientific interest in the fibre to date: its properties have been poorly characterised and the effects of its consumption by humans is not well understood. The next two years will be most exciting for Daniel’s work.

“We are hoping to undertake two clinical trials in 2019 and 2020. During 2018, the first year of my PhD, I concentrated on characterising the fibre, developing the food products and designing the trials. I am hopeful I will get answers to some of the key research aims, including understanding the precise physiological effects of consuming sugarcane fibre.”

STUDENT RESEARCH

First year PhD student Fang Wen is working with Dr Sharon Aarons from Agriculture Victoria on a project that addresses the nutrient loss in dairy farms across Australia. The project specifically aims to improve nutrient recovery of Australian grazing-based dairy systems. Their approach looks at wastewater treatment technologies that separate the majority of water content in dairy effluent for reuse, while also retaining nutrients like N, P, K for agricultural re-application, rather than losing these valuable nutrients downstream where they can cause eutrophication.

“The GRIP program enables me to connect daily challenges in the industry to my studies of interest. It opened a door of excellent opportunities to interact with some of the best minds in the field and help me prepare for a future career,” Fang said.

Moving forward to stage two of the project will involve expertise from the Monash’s Department of Chemical Engineering. “Together we are trying to build a pilot plant for wastewater processing that will further reject impurities in pretreated dairy effluent and provide recycled water with respectable quality”, Fang said.
Bega Tour
In February our students and staff visited the Bega facility in Port Melbourne, where GRIP partner Karren Bathurst discussed the brand history and diversification.

Karren provided valuable industry insights on competition and industry trends, highlighting that trends constantly change and industries must adapt.

Karren’s colleague Ahmed Hassan, the Group Continuous Improvement (CI) Manager at Bega Cheese Limited, discussed the priorities of CI and how this is implemented at Bega.

Other themes discussed throughout the day included zero waste, one team continuous engagement (i.e., all depts working to achieve same goal), and End to End supply chain - from farm to fork. Such insights into the challenges and role of R&D in a commercial environment are invaluable to our students.

A tour of the factory followed and the group were shown where the vegemite, peanut butter and salad dressings were manufactured.

Following a generous lunch were talks on consumer science and sensory testing at Bega. Qualitative methodologies were described, including identifying how consumers interact with particular products via focus groups, one on one, and video diaries.

The day concluded with a fun and interactive experience for the cohort to understand sensory testing, partaking in tests on vegemite, peanut butter and dips to see if they could identify the different tastes in the samples.

MLA Industry Partner Seminar
Michael Lee from Meat and Livestock Australia (MLA) made a special trip to Melbourne to share his industry experience with the GRIP Cohort. Of particular interest to the students was how to pitch your research to a commercial party. Key considerations discussed included clearly understanding what you are trying to achieve and how this could generate a return on investment.

In his presentation, Michael detailed the elements of Business Model Canvas: namely value proposition, understanding the problem to ideate/testing solutions and interpreting insights to inform innovation.

Other topics included Cost Benefit Analyses, commercial R&D considerations and future trends, specifically #snackification. Michael concluded with highlights from the MLA GRIP projects from the perspective of digitalisation and improved customer personalisation experience.

Karren (fourth from the left) as part of the GRIP team receiving the BHERT Award

Learn more about the Food & Dairy GRIP
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