



Food Technology and Innovation

Issue 5 : Autumn 2019

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I am delighted to welcome you to this edition of the Department of Food Technology and Innovation newsletter.

'Mixed emotions' is what best described what staff felt, seeing an exceptional group of students graduate. On the one hand, we were overjoyed to see the Class of 2019 performing so well and leaving the university with sixteen First Class Honours degrees. The Class of 2019 not only achieved exceptional grades in their studies, but are testimony to the quality of our students who are ready to take positions of responsibility in the food industry. On the other hand, we were all sad to see them go. Undoubtedly, for the lecturers it is satisfying to have contributed to their success, reflecting the topics taught in modules, and the different types of assessment which, most importantly, are applicable and relevant to the everyday workplace in the food industry. The Food Technology and Innovation department staff 'speak the language of the industry'.

As one cohort of students leaves another has just arrived. Our Year 1 'fresher' students are already making an impact. It is reassuring to see that the students progressing will take advantage of events organised both at the university as well as outside. Visits to companies, listening to and interacting with guest speakers and attending the City Food Lecture or the IFST Launchpad are just some opportunities available.

In this edition, you will enjoy reading the experience of Reece Smith who had a placement at Avara Foods and now works for ABP as an Operations Graduate. Another student, Morgan Metcalfe writes about his achievement during placement and bringing a product to market within 12 months. Morgan excelled on placement and was invited to be part of a programme broadcast by Welsh TV.

Staff have been busy too not only lecturing, but carrying out research and consultancy work. Wilatsana Posri will talk about her international exchange experience funded by the British Council and Lynn McIntyre talks about detecting campylobacter in poultry flocks. Martin Anderson now has the Freedom of the City of London which is a prestigious recognition of his work in meat technology.

It is gratifying to see so many staff and students of the Food Technology and Innovation department getting involved in a range of aspects of the food industry. In May our Year 2 students, with support from industry partners organized the Food Spectacular which is an event during which they have the opportunity to showcase their new product development ideas. The day was very busy and company representatives extremely impressed by the innovative ideas, quality and attention to detail of the products made and presented.

As this goes to print, the department has just hosted the Food Student Conference during which food professionals from Krispy Kreme UK Ltd, Minor, Weir and Willis Ltd, DDW UK Ltd- The Colour House, and Papa John's UK shared experiences of their careers with all students. Our Year 4 students who have returned from their placements at Tulip Ltd, the Co-operative Group Ltd and Yeo Valley Ltd, gave presentations of their year in industry.

Finally, the department has recently welcomed new staff and you have the opportunity to read about both Paraskevi Paximada and Rounaq Nayak, as well as our own graduate Rob Boffey who has returned to his alma mater as a food technician.

Luis de Aguiar

Senior Lecturer in Agri-Food Marketing, Food Marketing, Food Security and Sustainability

Reece Smith has graduated this summer with BSc(Hons) Food Nutrition and Well Being. In this article, Reece reflects on his Harper experience...



Whilst applying for degrees through UCAS, I must admit that I had never heard of Harper Adams University, let alone thought of applying for it. In fact, it was not even one of my original five UCAS offers. I was undecided on the universities that I had received offers from and wanted to find a better University, when my friend said he had applied to Harper. Ultimately, I had gone for an open day and immediately fell in love with the campus, the course, the career prospects and the general Harper Vibe.

Coming to Harper Adams University was a new experience for myself. I had never been a part of the "rural scene", never attended a Young Farmers Club, nor had any friends with a background in agriculture. The closest I have been to a tractor was meeting one whilst on a driving lesson. Nevertheless, I have always wanted to experience work on a farm, and at University I took part in almost every farm experience that the Harper Farm had to offer. I enjoyed taking part in the Universities activities, whether that was during or after opening hours. Some of the best experiences happened during final year whilst I was trying to split my time between dissertation and extra curricular activities. A few examples of these include; judging at a butchery competition with the Institute of Meat, having the privilege of attending the Meat Management Industry Awards and visiting Joules Brewery in Market Drayton.

During my placement at University, I also learned a significant amount about the food industry which was put into practice with my placement year at Avara Foods. Whilst on placement I worked with two different proteins (chicken and turkey) at two different sites, both of which were vastly different in management style, process capability and labour levels. The Telford site packed chicken in volumes I did not realise before hand and had automation on a scale akin to the likes of car manufacturers. This was very fast paced and incredible to see. In contrast, the Hollybank site in Derbyshire was much less automated, and relied heavily on manual labour. My placement gave me an insight into both factory styles and the differences between them. My experience of working in both sites also gave me an insight into managing large teams of people and had made me more eager to start my graduate career. One of the best experiences at University is first becoming independent and breaking away from living with your parents. Situating yourself around great supportive friends who really make life at university easier is important. The three girls I lived with throughout my second and fourth year were from completely different backgrounds and it really worked, I had the best time living with those three, and would highly recommend the Harper experience.

Millie Preece wins Noble Food award 2019



Millie pictured with her parents at the recent award ceremony

We are very pleased to report that Millie Preece has won this year's Noble Foods award. This prize is awarded annually to the best final year undergraduate food technology research project at Harper Adams University.

Millie investigated the emotional responses in relation to the sensory attributes of cheese within the British cheese market. Millie engaged with 32 participants utilising a sensory evaluation of 6 different cheeses followed by focus groups to understand consumer perception of mood enhancing foods and perceptions of cheese. Millie concluded that there was an opportunity for a cheese to be marketed in such a way to evoke emotions of nostalgia. This was a Saputo Dairy UK sponsored research topic.

Dr Helen Pittson supervised this Honours Research Project and noted that "Millie worked diligently throughout the process. She spent time planning her sensory analysis to ensure the relevant emotions and sensory characteristics were captured. Her report was very well written and findings are going to be shared with an international audience through a member of the food department staff."

Sensory evaluation workshops



With funding from the British Council in Thailand, Dr Wilatsana Posri has designed and run sensory perception workshops for trainers in the food industry. The "University and Industry Links" programme aimed to strengthen the sensory science foundation for understanding consumer judgement and decision-making, to incorporate this into marketing practice and to equip participants with practical techniques for use in this field. Various approaches were included in the workshops and each was carefully appraised for its effectiveness to inform the future

development of the project. Following the five-day programme held in Thailand in March this year, a study visit to the UK was organised. Participants visited the sensory evaluation facilities at Harper as well as a trip to the Saputo Dairy UK Innovation Centre premises on the University Campus. Lee Williams also gave the visitors a tour of the Hands Free Hectare project at Harper's Agricultural Engineering Innovation Centre.

Student sees NPD project through to the supermarket shelf



Returning to Harper this autumn, Morgan Metcalfe writes about his exciting placement experience working in New Product Development for Dalehead Foods;

Currently a final year student studying Food Technology and Product Development at Harper Adams University, I chose to study food at Harper as our family is involved in the food

industry. I consider the food and drink industry to be of great importance to the economy. Studying at Harper Adams University will not only develop the skills needed to be in a complex and exciting industry, but also to gain knowledge about the range of ingredients available to the industry, how they are sourced and react together to create some innovative product concepts.

I have recently completed my 12 months' placement year at Dalehead Foods, which is a well-known established company operating in the UK meat supply chain with years of expertise. A company that is known for their excellence, expanding and being a division of Tulip Ltd, one of the major meat processors in the UK. I was based at their Cambridge site where further processing of pork primals took place, the factory is dedicated to supplying Waitrose with sausages, BBQ, party food, and added value products. My role within the company was to assist with the New Product Development sector, which I thoroughly enjoyed.

I am extremely grateful for all the opportunities I have gained over the past 12 months, from building great working relationships with key suppliers and customers, to following various exciting products through

the new product development procedure. My greatest achievement by far during my time at Dalehead Foods was my very own product making it to the shelves at Waitrose, this was a bacon chop line for the 'Scrumptious Summer' fixture. Some of the work involved developing various flavours following key trends within the food industry, costing the product up, working closely with the finance team, sourcing new ingredients, and working the theoretical nutrition out. Working on this project was a real eye-opener, seeing all the work that goes on behind the scenes to deliver a product on the shelf; it was great understanding the process from concept to launch. Seeing my product on Waitrose's shelves is amazing, I still can't quite believe it, being able to go into any of their stores and purchase my very own developed product. I have certainly enjoyed my year out in industry, the past 12 months have flown by, and the experiences I've gained and opportunities I have had have been incredible. It will stay with me forever.

My aspirations after graduating with a degree are to gain further experience in the meat retail industry, before hopefully one day returning to take over the family butchers. The family business is based in the rural market town of Llanrwst, Conwy Valley, North Wales.

Once again, we would like to thank Dalehead Foods and our other placement hosts in 2018-19 for their continuing support



Harper's first Food Spectacular showcases student innovations...

Harper Adams has a long established reputation for producing graduates who are technically competent to work in the fast paced food industry. The Food Spectacular event was a showcase of our creative and talented food technology undergraduates and postgraduates and was attended by industry contacts, university staff, alumni, family and friends. Students presented products, concepts and solutions addressing challenges currently faced by the food industry whilst also considering the future.

This cohort of students were set a brief by GOSH! Food based on vegan foods and associated health trends. They were given four suggested categories to choose from and they then had to produce a supermarket ready product which was free from all 14 allergens whilst also considering issues of sustainability, health and the consumer. They also had further industry input from Ulrick and Short who supported them by providing access to functional ingredients and their technical knowledge. Both industry partners also provided sponsorship for a prize awarded to the most creative product developed.

The winning product was Thai-Spiced Vegan Bites developed by Ellie Parsons, David Turner and Natalie Dawe (pictured bottom left with Head of Department Annette Creedon). Their product used sweet potato, parsnip and chickpeas and were flavoured with Thai herbs and spices and served with a spicy tomato relish.

Runners up included a Mint Choc-chip Ice Cream Sandwich (Dairy free mint chocolate chip iced dessert sandwiched between two chocolate chip cookies) developed by Diana Tembo and Marcia Rowlands-Jones, Stawbarb Protein Bites (strawberry and rhubarb protein bites) from Hannah Trollope and Hannah Lloyd and Raspberry and Coconut Chocolate Teacake (fruity biscuit base with a light raspberry marshmallow filling topped with a rich dark chocolate) by Laura Stewart, Victoria Mumby and Jayne McCurdy.

We would like to thank our sponsors Gosh! Food, Ulrick & Short and the Agri-Tech Growth and Resources for Innovation at Harper, for their support with this year's event.

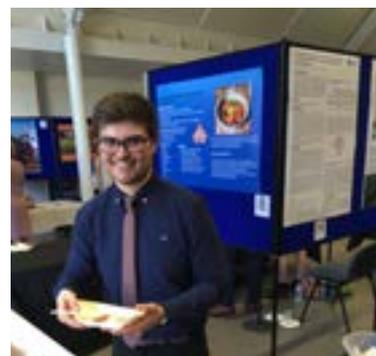
Ulrick & Short

starches  flours  fibres  proteins

Gosh!

Cheers!

The Food Technology and Innovation Department have been working on a project to bring the barley from Harper's ground breaking, Hands Free Hectare to the marketplace. Frank Vrieskoop working in collaboration with Customs Laboratories of Milton Keynes and local brewer Rowton, has produced a fine summer ale. The picture shows Frank pulling the first pint at the Harper Food Spectacular event.



We are delighted to announce that Dr Fittonia Elgina was awarded her Doctor of Philosophy degree at our recent graduation ceremony. Fittonia was the recipient of the Faccenda Postgraduate Research Scholarship and was supervised by a team of experts, including senior lecturers Dr Lynn McIntyre (Director of Studies), Dr Jayne Powles, and Dr Steve Moore of Avara Foods Ltd. Fittonia's research involved the development and evaluation of a rapid biosensor method for on farm detection of *Campylobacter* spp. in poultry flocks. *Campylobacter* has been the UK's number one cause of food poisoning for several years and is primarily associated with the consumption of poultry meat and offal, although red meats and raw milk are also sources. It does not however produce symptoms of infections in broiler chickens so without testing, it is impossible for poultry

presented her research at international Biosensor and Food Microbiology conferences in Australia and Ireland, and won the Poulterers Research Prize. Many congratulations to Fittonia, and we wish her all the best in her future endeavours!

Tackling causes of food poisoning; detecting campylobacter in poultry flocks

farmers to know whether their chickens harbour this human pathogen in their guts prior to slaughter. Being able to rapidly detect *Campylobacter* in poultry sheds is therefore of great value to producers as it provides them with better information on which to base decisions about on farm biosecurity practices, and other post farm activities, including transportation and slaughter. As a Harper Adams PhD student, Fittonia was successful in winning best oral presentation at the Society for Applied Microbiology, Early Career Scientists Research Conference,



Dr Fittonia Elgina (left) with Dr Lynn McIntyre— Director of Studies

Students Visit to Amazon



Picture shows our colleagues Pam Whitehouse and Luis de Aguiar (left) with some of our final year students, visiting the Amazon distribution centre at Rugeley in Staffordshire. The trip provided a fascinating insight into the company's leading edge logistics.

Colleagues Dr Frank Vriesekoop and Luis de Aguiar have been researching consumer enthusiasm for non-meat based protein sources, in different parts of the world. This major study focused on plant based, cultured meat and insect based protein alternatives. Plant sources are more widely available and enjoyed the greatest preference. Comparisons were made between the UK, Spain, Brazil and the Dominican Republic. Respondents from higher economic group countries were more likely to purchase non-meat alternatives. The study found that the product characteristics were more influential than wider considerations such as environmental benefits, on the purchase decision.

This highly contemporary research is available online now and will appear in print in the December issue as follows; Gómez-Luciano, C.A., de Aguiar, L.K., Vriesekoop, F. and Urbano, B., 2019. Consumers' willingness to purchase three alternatives to meat proteins in the United Kingdom, Spain, Brazil and the Dominican Republic. *Food Quality and Preference*, 78, p.103732.



Harper Adams University

A degree that matters

Undergraduate degrees:

- BSc (Hons) Food and Consumer Studies
- BSc (Hons) Food Technology & Product Development
- BSc (Hons) Food Technology with Nutrition
- BSc Food and Consumer Studies

Postgraduate degree:

- MSc Food Industry Management

Master of Research:

- Food & Public Policy
- Food Industry Management
- Food Supply & Retail Management
- Food Safety & Security
- International Supply Chain Management
- Meat Technology

Degree Apprenticeships

- Food & Drink Advanced Engineer
- Food Industry Technical Professional

Postgraduate Apprenticeship:

- Postgraduate Engineer - including PG Diploma in Engineering Business Management
- Senior Leader Masters Apprenticeship - Including MSc Food Industry Management



Food matters

harper.ac.uk

Inspiring the next generation to follow careers in the food industry; Food Science Summer School 2019

Once again this year we ran a Summer School pitched at providing year 11-12 students with an insight into careers in the food industry and a taste of university life. A record number of participants took part in the residential programme which is sponsored by the Institute of Grocery Distribution. The experience included a mix of lectures on global food issues and the opportunity for hands-on practical sessions covering meat, desserts, food imagery and sensory evaluation. Students were taken on a visit to the Avara Foods plant in Telford, as well as going to the Saputo Dairy UK innovation centre, which is based on campus. A highlight of this year's programme was the "Meet the Employers" event. This included a panel session comprising guests from the food industry, followed by a networking buffet supper.

"Overall a brilliant experience."

The summer school was very well received by attendees and Alastair Boot, the event co-ordinator received very favourable comments from attendees as they left, including "Very informative. Supplied me with information on every aspect of the food sector. Really (helped) narrow down my choices within that. Provided experience on the university lifestyle. Overall a brilliant experience." We would like to thank Avara Foods and Saputo Dairy UK for hosting the visits and to the Worshipful Company of Butchers for their sponsorship. We are very grateful to our industry panellists for their time and enthusiasm in support of the networking buffet. The panel pictured below, comprised David Baker of Faraday Fine Foods, Sarah Wadelin of Minor Weir and Willis, Clare Mike of LEAF, Ashley Ramsay of Huntapac, David Nuttal of Harper Adams Catering, Sonia Mills of Image on Food, Zoe Shackleton of Flower and White, Phil Davidson of Avara Foods, Clare Keegan of Harper Adams Apprenticeships, and Megan Neale and Simon Hunt of Saputo Dairy UK.



Introducing our new colleagues....

Over the summer we have been joined in the Food Department by three new members of staff; Rounaq Nayak, Paraskevi Paximada (Evi) and Rob Boffey. We would like to extend a very warm welcome to all three.

Hi all! I am a new starter at HAU, and my primary job title is Lecturer in Food Policy, and I will mainly be teaching Food Policy and Ethics. However, I will also be contributing to 6 other modules. I have come from the University of Oxford where I was a postdoctoral research assistant in Human Factors within the 'Quality, Reliability, Safety and Teamwork Unit' research group. Prior to that, I completed my doctorate (in Human Factors) at Loughborough University in July 2018. My areas of research interest are primarily 'food safety culture', 'food fraud', 'food crime', and 'policy and protocol compliance behaviour'. I have also carried out research and provided lectures and training in the healthcare, rail and construction sectors. When I am not at TF10 8NB, I am usually either playing football, playing with my two dogs (a German Shepherd and a Staffie who is a rescue), my 4 year old son or going on hikes with my equal-half (because neither is better than the other). I am based in G43, Jubilee Adams Building – I look forward to getting acquainted with all HAU stakeholders in the near future.



Dr Rounaq Nayak

I joined the Department of Food Technology and Innovation as a lecturer in Food Science and Technology in June. I completed my PhD in Food science (emulsions, functional ingredients, food structuring, encapsulation of sensitive ingredients, powder formation) at the Agricultural University of Athens. I moved to the UK to work as a researcher at Sheffield Hallam University in 2017. There, I was focusing on the development of novel low-fat and low-salt cheese. I am interested in understanding how the physicochemical properties are affecting the final product quality. My focus is on the texture and micro-structure of dairy products and sauces. I have collaborated with various companies (Arla, Unilever, Greencore, Ferro, Stergiou), universities (Wageningen University), and research institutes (IATA-CSIS, BSRC Fleming) in Greece, Netherlands, Spain, and the UK. I will be teaching on the food science, research and food processing topics from October, and I am enjoying being part of Harper to the max.



Dr Paraskevi Paximada

I have joined the department this summer as a food technician. Since graduating from Harper in 2013, I have worked in the food industry for Ornuu (the manufacturing arm of the Irish Dairy Board) and for importers John Morley. My roles included being a development technologist focusing on sport nutrition and writing product specifications, as well as being part of a technical team with responsibility for supply chain and third party audits.

Outside of work, I am a member of the Cheshire Federation of Young Farmers and have been county secretary, organising activities for over 1500 members from 11 clubs across Cheshire. These events have ready-steady-cook, stock judging quizzes, debates and Panto. Through this role I found my latest hobby; livestock show stewarding. I have officiated at 15 shows over the past 3 years (see photo). Being from a farming background I aim to bring my can do attitude and tenacity to the team to enable Harper Adams to shine as the industry leading University in both knowledge and experience. Being a "true blue" I have always looked for the opportunity to come back to Harper. I feel that with my broad industry knowledge and contacts I am well-equipped to offer my support and experience to future Harper graduates.



Rob Boffey

So my door is always open and I look forward to working with you all in the not too distant future.

Skills requirements for the red meat and poultry sector

With support from the Worshipful Company of Butchers, our colleague Martin Anderson is embarking on his PhD. It is recognised that the UK red meat and poultry sector faces recruitment, skills, education and training challenges, whilst having varied and unmapped requirements. Most previous initiatives have either been at local or at business level, with national approaches to vocational skills at the sector skills council / NGO level. The relative success of these schemes has been difficult to measure. There has been the suggestion that the further and higher education sectors have failed the industry in providing the right skills. Martin's studies will seek to map sector skills requirements as they currently exist, and benchmark them against other sectors and international evidence. This will support the identification of appropriate strategies for the red meat and poultry sector as it moves forward. We wish Martin every success with this major project.

The left hand picture below shows Martin being formally granted the freedom of the City of London by the Guildhall Clerk, Murray Craig (left), one of the Beadles (right). The right hand picture shows Martin following his enrolment as a liveryman at the Worshipful Company of Butchers.



Water Stress

Students on the second year of their Food Industry Technical Professional Degree Apprenticeship recently visited one of the UK's largest water treatment plants, run by Severn Trent Water at Derby. This trip was organised as part of the module on "Issues in Global Food Production." The visit was designed to raise awareness around water stress, a concept which is moving up the agenda for all of us. Whilst we all enjoyed the summer heat of 2018, the UK came within days of being placed on a water shortage alert. The students were given a tour of the plant, and the chance to explore water treatment, sewage treatment and water usage issues. The site also handles food waste and has an anaerobic digester. Phoebe Owen from the Apprenticeship programme commented, "This trip put our everyday water waste (from taking baths rather than showers to excessive toilet flushing) into sharp critique. Whilst walking around the site was fascinating, the smell certainly left a lot to be desired!" We would like to thank Severn Trent Water for hosting this visit and particularly their Education Officers Philip Pearce and David Cork for their insight. We look forward to inviting Philip and David back to Harper in due course.

For further information on our degree apprenticeship course please email: apprenticeships@harper-adams.ac.uk



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This Newsletter is distributed to our students past, present and prospective, to Harper colleagues and to our friends outside of the University. You are very welcome to share the link with your contacts. Many thanks to all those who have contributed. Every effort has been made to be accurate. However, kindly forgive any errors or omissions. Comments, suggestions and contributions for future issues are very welcome. Do please get in touch if you would like to follow up anything you have read in this newsletter.

Dr James Bell: jbell@harper-adams.ac.uk



**Harper Adams
University**

Harper Adams University
Newport
Shropshire
TF10 8NB
harper.ac.uk
+44 (0) 1952 820280