

Same Department - New Name

So as to more closely reflect the nature of our work, the Department of Food Biosciences has become the **Department of Food and Nutritional Sciences**.

The start of August is the traditional date for the university to make changes to its administrative structures and the Department's change in name took effect from the 1st August. All the staff remain the same and we will continue with all our research activities. During the last 10 years, research into nutritional issues linked to food has become important in a wide number of our activities. This includes metabolic disorders, genetic differences, cancer prevention studies as well as pre- and probiotics.

Out teaching has also increasingly focused on nutrition topics with our BSc and MSc Nutrition and Food Science courses both being popular choices for students.

The Department is a part of the School of Chemistry, Food and Pharmacy which itself is a part of the Faculty of Life Sciences.

News

The following news items illustrate some of our activities during the first 9 months of 2009. To keep up to date with our activities, please take a look at our news pages

at: <http://www.reading.ac.uk/foodbiosciences/about/foodbio-news.asp>

20 September 2009: Food and Nutrition Expertise on Display at the Royal Berkshire Show

Several members of staff from Food and Nutritional Sciences along with colleagues from Psychology (Carol Wagstaff, Pauline How, Georgina Dodd, Giulia Corona, Jeremy Spencer, David Vauzour and Laurie Butler and Ian Rowland) attended the Royal County of Berkshire Show at Newbury on 19 and 20th September.

The Department displayed our 'Food for Thought' stand alongside displays from Museum of English Rural Life (MERL), and Department of Agriculture, in the University of Reading marquee commemorating 100 years of food and farming at the University. Over 2500 people visited the marquee and sampled a healthy

berry smoothie prepared on site by a bicycle powered smoothie maker.

From left to right, the photo shows **Dr Laurie Butler** (Director of Postgraduate Research from the Department of Psychology), **Professor Ian Rowland** (our own Director of Research) and lecturers **Dr Carol Wagstaff** and **Dr Jeremy Spencer** of our Department.



10 September 2009: British Science Festival addressed by Drs Spencer and Wagstaff

The British Science Festival is one of Europe's largest science festivals, taking place each September. The Festival is in a different location in the UK each year, bringing the latest in science, technology and engineering to a wider audience. This year it has been based at the University of Surrey.

The Department was represented by **Dr Jeremy Spencer** and **Dr Carol Wagstaff** who had been invited to jointly give a presentation entitled: 'Food for Thought: Phytochemical Rich Foods and Their Effects on Brain Ageing'.

Speaking at the British Festival of Science, Dr Jeremy described how new research has shown that drinking a smoothie made with

200g of blueberries boosts performance in tests of attention. He said that the berries took effect within hours.

People aged between 18 and 30 were given a smoothie before doing tests of their mental acuity. Everyone's brainpower dipped in the afternoon, but after five hours it was 15 to 20 per cent higher if the smoothie had contained blueberries than if it hadn't.

Blueberries contain high levels of plant pigments called flavonoids, which are already known to help protect against heart disease and cancer and can now add improved memory, attention and learning ability to their list of benefits.

The potency of flavonoids was originally ascribed to their anti-oxidant properties, which allows them to mop up damaging reactive molecules in the body. However, the quantities present in the brain are so low it is unlikely this can explain their effects on brain function.

Instead, they are thought to increase blood flow to the brain and interact with signal pathways that are crucial to brain cell survival and growth. The changes they evoke help at the vital stage where a fleeting nerve impulse is converted to a lasting memory. Flavonoids may even encourage the growth of new brain cells.

It is hoped the plant chemicals might have the power to repair damage that occurs in the brain as we age, combating dementia and Alzheimer's disease. Dementia is estimated to cost the UK £17 billion per year and just a 1% decrease in this figure would cancel out the expected costs of long-term care for our ageing population.

Dr Spencer admitted to frequently eating dried blueberries himself, but was keen to avoid the term 'superfood'. "It would not be right to single out blueberries as other plants could also be effective" he said.

Studies of grapes, tea and cocoa, all of which are rich in flavonoids, have

demonstrated beneficial effects on blood flow to the brain and improve memory and learning. The chemicals are also found in many other fruits, vegetables and cereals.

Dr Carol Wagstaff emphasised the need for a balanced diet because there are many different plant chemicals that are good for our health. She advised us to eat "a varied diet that incorporates all these different things, and to choose whole foods rather than supplements".

How much of these beneficial compounds are present in fruit and vegetables depends on how they are grown and what happens to them on the journey from farmer's field to dinner plate.

Plants produce the chemicals to protect themselves from stresses such as insect attack and sunlight. Growing the lettuce rocket under normal light intensities rather than in the shade, as is conventionally done, enhances the levels of flavonoids in its leaves. This raises the possibility of changing the way we grow food to boost its nutritional value.

Once harvested and sitting on the shelf, levels of many plant chemicals start to decline. "A short supply chain produces healthier food" said Dr Wagstaff.

Sometimes a little bit of stress can be a good thing though. For example, being put in the fridge might be sufficient to shock your salad into producing extra protective chemicals.

9 September 2009: Top paper award for research student at international food engineering conference

The 7th Iberoamerican conference on Food Engineering took place in Bogota, Colombia, from the 6th to the 9th September 2009.

Attending from the Department were Professor Niranjan and his



PhD research student, **Carlos Jimenez**. This was a major international conference with many papers presented. Whilst the majority are participants were from South and Central America, a large contingent of Spanish researchers were also present.

With over 100 papers presented, we are delighted to report that Carlos was judged to have delivered one of the top three papers at the conference for his paper: 'A study of disproportionation occurring on the surface of steam injected milk foams using confocal scanning laser microscopy'. Carlos, a Colombian national, is now in his final year as a PhD research student working under the supervision of Professor Niranjan.

Professor Niranjan gave one of the plenary lectures on the topic of 'Steam induced frothing of milk'.

1 September 2009: Departmental success in obtaining 2 large research grants from the BBSRC

The UK's Biotechnology and Biological Sciences Research Council (BBSRC) is a major funding body for UK science. It is currently funding an initiative entitled Diet and Health Research Industry Club (DRINC). This is a £10 million, 5-year partnership between BBSRC and a consortium of leading companies (providing a further £1 million), aimed at helping the food industry develop products that deliver enhanced health benefits for consumers.

The Department has today heard of two successful bids for funding from this scheme

A proposal led by the Department's **Dr Parveen Yaqoob** to BBSRC's Diet and Health Research Industry Club (DRINC) for £725,000 has been successful. Other co-investigators on the grant from the Department are **Dr Kieran Tuohy** and **Professor Ian Rowland**. Also on the team from the University are **Professor Margot Gosney** (Director of Clinical Health Sciences) and **Dr Sue Todd** (from the School of Biological Sciences). The university's team has been joined by **Professor Richard Aspinall** from Cranfield University, with about £60,000 going to Cranfield. The project will investigate the immunomodulatory effects of a probiotic in young and old people, focussing on the immune response to a flu vaccination. Further details are given below.

The funding of this research continues to demonstrate that the Department is one of the UK's leading research establishments investigation links between health and diet. The Department incorporates the Hugh Sinclair Human Nutrition Group which has an international reputation for its research into the relationship between diet and the risk of chronic disease such as cardiovascular disease, diabetes, neurodegenerative disease and cancer.

The second project has received funding of £587,000. The project will be led by **Professor Glenn Gibson** with, as co-investigators, several other of our staff: **Dr Julie Lovegrove**, **Dr Kieran Tuohy**, **Dr Lisa Methven**, **Dr Dimitris Charalampopoulos**, **Professor Bob Rastall** and **Professor Ian Rowland**. The proposal concerns the influence of prebiotics on gut microbiota, lipopolysaccharide (LPS) and markers of metabolic syndrome.

1 September 2009: MSc Programme Director in Vienna to chair conference session at European nutrition congress

The European Society for Clinical Nutrition and Metabolism (also known as the European Society for Parenteral and Enteral Nutrition or ESPEN) stages regular annual congresses where top researchers present their latest results. The 31st Congress finished today in Vienna at the Messe Wien Exhibition & Congress Centre.

Attending from the Department was **Dr George Grimble**, our MSc Nutrition and Food Science Programme Director and Reader in Clinical Nutrition. George chaired the session on 'Metabolic Care in high risk patients: The chronic alcoholic'. 3 papers were included in the session covering (a) alcoholism in the clinic, (b) alcohol related malnutrition, and (c) alcohol induced muscle loss. Commenting afterwards, George said that the session was "a really engaging session, even though it seems like a real feel-bad topic". The challenge is for nutritionists to engage with this patient group.

20 August 2009: Student on placement beats managers in best cake competition!

It is the middle of August and we may be short of news items but we are proud of the work our students do when on placement. Not only are they good scientists and technologist helping their employers improve



their businesses, but often they get deeply involved in many social aspects.

So when **James Kidman**, a BSc Nutrition and Food Science student currently working for a year at 'The Jordans and Ryvita Company' in Biggleswade, heard that the 'Taste and Development' team were organising a 'best cake' competition to raise money for charity, he was keen to join in.

And we are pleased to report that, of the four cakes entered, James' plum, chocolate chip and hazelnut cake was declared the winner. Congratulations to James.

For most of his time with the company, James is providing support to the Taste and Development team for the company. He spends time on all aspects of new product development from initial sample preparation through to artwork checking for product labels. The work also involves monitoring quality issues and checking recipe modifications to respond to changes in raw materials.

Many of our students spend a year on industrial placement as an integral part of their degree programme and learn much from the experience and challenges that they meet. Frequently, placement students find that the companies that they do their placement with will offer them full time employment on graduation.

17 July 2009: Department says farewell to Dr Anne Marie Minihane

Today colleagues, friends and students gathered in the Department to say farewell to Dr Anne Marie Minihane. Anne Marie is leaving the Hugh Sinclair Unit of Human Nutrition to take up a professorial position at the University of Auckland.



She joined the Department's Hugh Sinclair Group in 1997 as a postdoctoral fellow and was appointed Lecturer in Human Nutrition in 2001. In April 2005 she was promoted to Reader in

Integrative Nutrition. From 2006-2007 Anne Marie was the Reading representative of the Nutrigenomics Network of Excellence (NuGo) and in 2007-08 she was awarded the University of Reading, RETF Excellence in Research Award of £50,000.

In 2008 Dr Minihihane was awarded the Nutrition Society Silver medal. The Silver Medal has been awarded annually since 1991 for scientific excellence in the field of Nutrition. She presented her Silver medal lecture entitled 'Nutrigenetics: A valuable public health tool or simply an expensive research exercise' to a packed lecture theatre at the Nutrition Society's annual conference in Nottingham in July.

Dr Minihihane sat on numerous University and External Committees and was heavily involved in collaborative research with colleagues from other departments as well as other universities in the UK and Europe. Latterly Dr Minihihane took over the management of the Hugh Sinclair Clinical Unit and was also co-founder and deputy director of the

Institute of Cardiovascular and Metabolic Research (ICMR).

Her membership of external committees included ; Member of Bioscience for Business Special Interest Group in Health and Wellbeing, Member of the West Berkshire Obesity Management working group and Member of ILSI Expert Group on Guidelines for Human Intervention Studies.

Dr Minihihane has now moved to the Department of Physiology, School of Medical Sciences, Faculty of Medical and Health Sciences at the University of Auckland as Associate Professor in Physiology. Her friends and colleagues will miss her enthusiastic approach to both the business and especially social side of life, her friendly smile and more significantly her infectious laugh. She has been a pivotal member of staff in the Department for many years and we wish her well in her future career.

14 July 2009: Top Ten Position for High Pressure Processing Research Paper

Each year, research journals are ranked according to the number of times the papers they publish are quoted in other research papers. This is known as the impact factor. This year the top ranked journal in the Food Science and Technology category is Critical Reviews in Food Science and Nutrition.

The publishers of this journal have also listed their 'top ten' papers which have contributed to this ranking. At number 3 in the list is the paper 'Opportunities and Challenges in High Pressure Processing of Foods' which was jointly authored by N. K. Rastogi, K. S. M. S. Raghavarao, V. M. Balasubramaniam, K. Niranjana, and D. Knorr. **Professor Niranjana**, our Professor of Food Bioprocessing, helped write the paper which was a collaborative effort by experts from India, Germany and the USA and was published in 2007.

The Department, with its large food processing pilot plant, has a strong research interest in food processing and has helped develop a better understanding of the potential of high pressure processing as an effective food preservation technique.



3 July 2009: Department celebrates our graduates and prize winners with their relatives and friends

Our degree ceremony today was at 3.30 when our new graduates received their certificates from the Vice-Chancellor in the Great Hall at the University's London Road campus.

For many of the undergraduates, it is the end of their formal education and they will now progress to their careers - mostly in the food industry or related sectors. Some will continue with further studies - either at MSc level or undertaking research leading to a PhD. We wish them all well in the years ahead.

Earlier in the day, we staged our annual prize giving in the Pilot Plant when we welcomed all our graduates and their relatives and friends to the Food Studies Building and presented the winners with their awards. The following is a listing of this year's winners:

- Pocock Prize for best Part 3 results: Charlotte Mills

- Nathan Goldberg Award for the best written report mark (project/dissertation): Hannah Brinsden
- IFST Prize for Professional Commitment: Hannah Kelly
- Frank Shires award for best overall performance: Charlotte Mills
- The Bovril Cup for the best final year project: Ditte Hobbs
- The EIT Biotechnology Prize for the best overall Part 3 result in Biotechnology: Stuart Ainsworth
- The Dairygold Prize for the best Part 3 results in Nutrition and Food Science: Hannah Brinsden
- Kerry Foods Product Development Prize for the best group in the Product Development Module: Hannah Brinsden, Raoom Fatani, Aneesa Lone, Laura Jeanes, Darryl Roadnight and Natalie Verner
- Hutchinson Jonas prize for best Industrial Placement: Laura Coyle

In addition, prizes were awarded to students on the basis of their work in Part 1 and Part 2 as follows:

- The Lonza Prize for the best overall results in Part 2: Danara Ormanbekova
- Dairygold Food Ingredients Prize for Highest Exam Marks in Nutrition & Food Science Part 2: Tina Eggers
- Dairygold Food Ingredients Prize for Highest Exam Marks in Nutrition & Food Science Part 1: Paulina Erceg
- Kerry Ingredients Award for the Best Part 1 Results: Justinas Kanopa and Nicholas Tsisios

Congratulations to all our winners!

15 May 2009: Nutrition Society again awards its Silver Medal to Reading

Each year the Nutrition Society selects an individual to receive its Silver Medal. The prestigious Silver Medal has been awarded annually since 1991 for scientific excellence in the field of nutrition. The competition is open to Nutrition Society members from all disciplines.

This year **Dr Jeremy Spencer** has been selected to receive the award which will be presented to him at the Society's Annual Meeting in July. This makes it two in a row for the Department as last year the award went to **Dr Ann Marie Minihane** and prior to that, in 2003, the award went to **Dr Parveen Yaqoob** of the Department.

Dr Jeremy Spencer is a graduate of Warwick University and King's College London and is currently Reader in Molecular Nutrition within the Department. He was awarded the Medal in recognition of his international reputation in the field of diet and health and in particular for his leadership of innovative research theories and extensive academic publication record. His current research interests are centred on how a specific group of dietary compounds, known as flavonoids, improve memory in older adults and reduce the brain injury associated with Alzheimer's and Parkinson's disease.

4 March 2009: Prize awarded to student with the best industrial training performance

Each year a large proportion of our undergraduate students spend a year in industry between their second and final years in the Department. Performance in the training is assessed and contributes towards the final degree classification.

In recognition of some of the outstanding work that our students do, each year a prize is awarded for



the overall best performance. The prize is funded by the Hutchinson Jonas Recruiting Company.

Following the completion of the assessments for the trainings which took place in 2007-2008, **Laura Coyle** was selected as the best performing student. Today the Department welcomed Claire Hornshaw, Group Marketing Manager from the Hutchinson Jonas Recruiting Company to present Laura with her prize.

As part of her BSc Nutrition and Food Science degree, Laura's placement was at the Head Office of Tesco where she joined the Technical and Development Team. Mainly working in the 'Chilled Convenience' section, Laura was became a full member of the team. Her work was varied and included:

- helping to develop and launch a new range of pies and pastries for sale warm in stores
- implementing enhanced product specifications and subsequently offering advice to other sections on how to do this
- assessing impact of new legislation on future product development and food labelling
- investigating issues with supplier quality systems

Congratulations to Laura on her award and our thanks to Hutchinson Jonas for providing funding for the prize.

17 January 2009: Discussions down under for food law specialist

Deakin University, Melbourne, Australia has been hosting a

symposium on 'Food Law and Policy' and invited several specialists from around the world. Dr David Jukes, Senior Lecturer in Food Regulation in the Department, was invited as one of 3 speakers from Europe. With a number of local experts and additional international speakers from the USA and China, the Symposium was able to address Australian food law issues taking into account international developments.

Dr Jukes gave one of the opening talks describing international developments including the new European controls on nutrition and health claims. The issue of controls designed to assist consumers to adopt healthier eating habits is a hot topic in Australia at present and the opportunity to share ideas was welcomed by all the delegates.

The Chinese speakers provided an interesting insight into the recent food safety crisis in their country involving the contamination of milk with melamine. As has been the case in many other countries, this food safety failure has led to a significant reassessment of the national food law and its enforcement. The symposium provided a good opportunity for an exchange of ideas on how best to ensure consumer protection in different countries.

Subsequent to the Symposium, Dr Jukes is attending a research workshop for Deakin PhD students. Although the workshop is primarily designed to assist the students in successfully completing their PhD studies, future research collaboration will also be discussed.

Our Degree Programmes

The Department of Food and Nutritional Sciences offers the following programmes:

- BSc Food Science;
- BSc Nutrition and Food Science;
- BSc Food Technology with Bioprocessing (*the new name for BSC Food Technology from October 2010*);
- BSc Food Science with Business

- MSc Food Science;
- MSc Food Technology Quality Assurance;
- MSc Nutrition and Food Science

- PhD, MPhil - Research degrees

For full details, visit our web site at:
<http://www.reading.ac.uk/foodbiosciences/>