

## News

The following news items illustrate some of our activities during the last 3 months. 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>

### 29 September 2007: Department welcomes prospective students to view our facilities

The University holds regular 'Open Days' when prospective students and their parents are invited to see around the campus and visit individual Departments. There are usually two days in June, when schools often send groups on a visit, and a Saturday in September, when individuals are more likely to come along.



Today has been one of these Open Days and the Department has had a very busy morning with a large number of visitors. There was slow start to the morning, caused by a major accident on the M4 delaying many visitors, but later a continuous flow of people came through our doors.

We had decided to base the main welcome in our processing hall where displays of our research were available. Our undergraduate Admissions Officer, Dr Richard Frazier planned the arrangements with volunteers from our

staff and researchers available to discuss our programmes and to show people around our facilities.

The general view is that today has been one of our most successful open days that the Department has held with many enthusiastic potential students seeing what we have to offer. Many of these will now be filling in their applications and, based on their comments, we look forward to seeing many of them again next year as students.

### 25 September 2007: New international agreement links Department with major institution in Thailand

A key agreement has been signed between Kasetsart University, Thailand, and the University of Reading by Professor Rob Robson, Pro-Vice-Chancellor (Teaching) at the University of Reading, and Dr. Sornprach Thanisawanyangkura, the Vice President for Planning and International Affairs (KU).

Professor Niranjan from the Department delivered the signed agreement to our new colleagues in Thailand.

This agreement will provide Kasetsart University students doing Bachelor's degree in Food Science, Food Product Development and Biotechnology programmes, the opportunity to do their final year at Reading. These students will be taking a selection of modules offered

by Reading. The credits gained will be transferred to Kasetsart University and the students will receive BSc degree offered by Kasetsart University. The University of Reading will also recognise the achievements of these students by awarding appropriate certificates.



Professor Christine Williams, the Dean of the Faculty of Life Sciences at Reading, expressed her delight at the signing of the agreement and said this partnership will be of great benefit to both institutions. Kasetsart University is recognised as one of the premier higher education institutions in Thailand and their programmes in Food Science, Food Product Development and Biotechnology, attract top students from around the country. We look forward to welcoming them into the final year of our programmes which we hope will widen their educational experience and further enrich the international student community at Reading.

The Dean of the Faculty of Agro-Industry at Kasetsart University, Dr Siree Chaiseri, said that the programme with University of Reading provides an opportunity for KU students to broaden their international outlook. The University of Reading is one of the most research-intensive universities in the world. The high quality education offered by the Department of Food Biosciences will foster Thailand's graduates taking a lead in the application of science and technology for food industry. This collaboration encourages the sharing of

good practices and experiences, and strengthens the academic relation between University of Reading and Kasetsart University.

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## 25 September 2007: Primary school children introduced early to food bioscience

**Instead of teaching to students aged 18 to 21, we have today hosted students aged from 9 to 11.**

About 90 children from a local primary school, Aldryngton School, have been with us to find out about different aspects of microbes and food.

The school children studied gram stained yogurt bacteria and yeasts under the microscope as well as mushrooms and stilton cheese.

Last week researchers from the Department took agar plates to the school and the children were asked to touch the surface on one half of each plate with 2 of their fingers just after they came back from playing and then do the same on the other half after they had washed their hands. The plates were returned to us for incubation and the results were frightening to say the least! We think that all the children are going to be washing their hands more carefully from now on.



While in the Department the children also did a simple experiment where they combined water with fast acting yeast and sugar in a number of flasks and placed a balloon on top of each one.

The flasks were incubated at different temperatures to see its effect – the circumference of the balloon after 30 minutes indicated the amount of gas produced and hence the activity of the yeast.

We also had a 'biotechnology' shopping basket which included foods and food supplements that either contained microbes or which had used microbes in their production. There were also a few that had nothing to do with microbes – the challenge was to find these.

**Professor Bob Rastall** gave them a lecture on 'Microbes, Food and Us' which they appeared to thoroughly enjoy based on the hundreds of questions that they had afterwards. Some of the questions were even too difficult for him to answer!

Our thanks to Jane Westwell of the Society of General Microbiology for helping to put the day together.

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## 19 September 2007: Meeting to evaluate the latest developments in functional and natural foods

**Professor Ian Rowland, Professor of Human Nutrition in the Department, has this evening chaired a meeting of the London Technology Network.**

The meeting was designed to provide a forum in which to access the region's academic brilliance and gain detailed knowledge of the cutting-edge research and developments in the field of nutrition and health. More specifically the event considered the latest challenges within functional foods, the technological issues surrounding nutrients and gut stability, and the most up-to-the minute developments in cosmoceuticals.

Professor Rowland summarised briefly the current status of functional food products in the UK market, speculated on the future areas for functional food development and outlined the challenges for the healthcare industries in the nutrition marketplace, in particular implications for companies of the new European health claim legislation.

The London Technology Network promotes innovative collaborations and

helps to stimulate technology-intensive innovation between universities and business. To do this, they have created a network of over 100 university-based research experts linking 6,000 academics across London, the East and South East, to map their research in order to provide technology solutions to business needs.

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## 18 September 2007: Nutrition researchers meet to discuss problems with dietary fat and possible solutions for a healthier diet

**The Department has today hosted a one-day meeting linking our researchers with the group known as 'Nutritionists in Industry' and with SENSE (a network of professional nutrition consultants who work on a self employed basis). The meeting took the title: "Where are we with dietary fat: its association with health and disease and technologies/approaches to alter population fat intake."**

**Professor Ian Rowland** from the Department welcomed members of the group to the Department and the University and three of our lecturing staff gave individual presentations. **Dr Julie Lovegrove** spoke on 'Dietary lipids, CVD risk and insulin sensitivity and obesity'; **Dr Parveen Yaqoob** spoke on 'Dietary lipids and inflammation'; and **Dr Anne Marie Minihane** described 'Dietary fat recommendations and main sources of fat in the diet.'

The Nutritionists in Industry is a Group of about 85 members who exchange information and discuss ideas regarding all areas of nutrition within industry.

The aim of the Nutritionists in Industry Group is to raise the profile of nutritionists and dieticians working in the food industry, as a credible source of nutrition information, knowledge and expertise, to the benefit of the industry and ultimately the consumer.

The Nutritionists in Industry Group is a UK organisation and membership is open to people working full time as a nutritionist in industry with appropriate qualifications.

SENSE is the original network of professional nutrition consultants who

work on a self employed basis. It was established in 1996 and aims to help and promote self-help of all self employed or freelance nutritionists and/or those with interests in the general area of food and nutrition. Members have a wealth of skills and experience.

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## 13 September 2007: Departmental Research Day builds links with researchers at Surrey University

The Department's Annual Research Day this year was made into a joint venture with researchers from the School of Biomedical and Molecular Sciences, Division of Nutrition, Dietics and Food Sciences at the University of Surrey. We welcomed them to our day and representatives from each Department presented the latest information about their work.

The event was staged in the Nike Lecture Theatre, Agriculture Building, here at Reading with another room being used for poster presentations.



The day started with welcomes from **Professor Ian Rowland**, our Head of Research, and **Professor Gary Frost**, Head of Research for School of Biomedical and Molecular Sciences at Surrey.

Topics covered by our own researchers included:

- **Trevor George** - Effects of acute consumption of fruit and vegetable juice shots on vasodilation and risk factors for cardiovascular disease
- **Lucy Chove** - Detection of proteolysis in milk
- **Lesley Hoyles** - Improved detection of Actinobacteria associated with the human faecal microbiota
- **Maria Dermiki** - Recovery of the antioxidant astaxanthin using colloidal gas aphrons (CGA)

- **Vanessa Clarke** - Polyphenol content and antioxidant activity of beer
- **Francesca Fava** - Prebiotic oligofructose protects against insulin resistance and metabolic disease in high-fat fed mice
- **James Collins** - Lactobacillus plantarum reduces s. typhimurium invasion in a novel 3d porcine jejunum model
- **Sandra Martin** - Feeding strategies for the control of Salmonella Typhimurium in pigs

The day ended with an enjoyable drinks reception.

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## 12 September 2008: Flavour Chemistry Research Group Away Day

The flavour group has today held its annual Research Day. Instead of using the regular venue at Shinfield Grange, the flavour group made a bold move in deciding to hold it at the University's Innovation Works on the University's London Road Campus. This has provided a unique setting designed specifically to stimulate creative thought.

The Group has been joined today by members of the department management group, **Phil Riley** from FT Technologies, and **Dave Baines**, a flavour consultant. During the morning, each member of the group gave a short summary of current research topics, concluding with a talk from **Gordon Ross** of Agilent on the applications of LC-MS, our newly acquired instrument.



In the afternoon, the Group has taken full advantage of the state-of-the-art brainstorming software to expand their ideas for future research using the LC-MS. The future of flavour research was also

explored using floor to ceiling wall scribbling.

The Group now hopes to take the novel ideas which have been discussed and build them into future research proposals.

The picture shows the Group hard at work on the brainstorming software

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## 23 August 2007: Flavour group turn out in force for the American Chemical Society meeting in Boston

Five members of the Department's flavour research group have been attending the 234th National Meeting of the American Chemical Society being held in Boston, USA. This year, a number of sessions in the AgriFood Division were of particular interest to the group.

**Professor Don Mottram**, Professor of Food Chemistry in the Department, was the organiser of the session "Chemistry and Toxicity of Acrylamide".

In this session Don presented a talk on "The Maillard reaction and its role in the formation of acrylamide in foods" and **Steve Elmore** gave a talk on "The effects of sulfur nutrition on acrylamide and aroma compounds in cooked wheat and potato". Both were also co-authors on a paper given by Rothamstead on the agronomic and genetic approaches to reducing acrylamide precursors in wheat and potato.



The "Thermal generation of Aromas" session was also well represented by the Department. **Jane Parker** gave a talk entitled "Analysis of Semi-Volatile Compounds in a Range of Cooked Meat and Fish", **Jose Oruna Concha** talked about "Free amino acids and dipeptides

in meat as precursors of thermally generated aroma" and **Lisa Methven** gave a paper on "The importance of sulfur amino acids in the formation of aroma volatiles in cooked salmon".

The Reading group also attended an excellent session on the "Interactions between taste, smell and somatosensation" and another on the "Food bioactives". Both of these were particularly useful given that the Department's new LC-MS provides us with the means to identify and quantify a wide range of taste active and bioactive compounds.

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## 8 August 2007: Department welcomes new batch of students from China

**The Department has established strong links with Henan University in China. As part of the link we are accepting suitably qualified students onto the second year of our BSc courses.**

This is the second year that we have operated this scheme and we are delighted that a new group has just arrived here in Reading. The students will attend some English language classes and some introductory laboratory classes before starting the new term in October.

Last year's students from Henan made good progress and many achieved excellent results in the end of module examinations in May. The students are supported by our own Departmental International Student Tutor, Dr Cathy Lau.



The photograph shows the new students at an informal welcome meeting held within the Department. Dr Lau is shown in the photograph above - she is wearing the white cardigan to the right of the photograph.

## 8 August 2007: New Food Biosciences web site launched

**As part of the moves to create a new image and to make the whole University of Reading web site more useful to users, we have today launched our new web site.**

Our new web site is only the second Departmental site to be developed and the first 'science' department to be transferred onto the new system.

Users will notice several changes and, for a transitional period, some pages from our old site will not have been transferred. Work is underway to ensure that all useful material is incorporated into our new site.

Perhaps the biggest change is that our web address has changed. Users should note that the official address is now: [www.reading.ac.uk/foodbiosciences](http://www.reading.ac.uk/foodbiosciences). People using the old address will however find that they are automatically redirected to the new address.

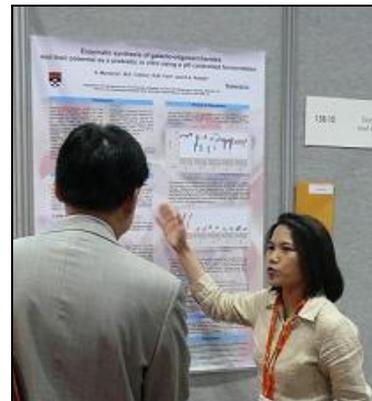
We would welcome comments from users on the new site and suggestions for the types of information which we could add to make the site even more useful.

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## 31 July 2007: Postgraduate researcher displays prebiotic research results in the USA

**The annual Institute of Food Technologist (IFT) exhibition and meeting is one of the world's largest showcases for advances in food science and technology. This year the event has attracted over 23,000 people to the convention centre in Chicago and the Department was again represented.**

Our postgraduate researcher, Sujira Maneerat, had been selected to present a poster entitled: "Enzymatic synthesis of galacto-oligosaccharides and their potential as a prebiotic in vitro using a pH controlled fermentation". Her poster attracted much interest from a wide range of international delegates. Sujira, from Thailand, is just starting the final year of her research leading to a PhD degree. She is supervised by **Professor Bob Rastall** and is working with **Dr Michelle Collins**, one of our Post-doctoral research fellows.

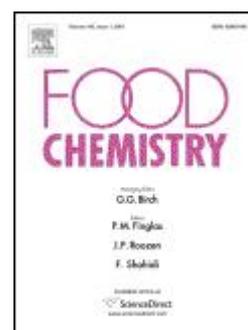


Prebiotics are substances which can enter the gut and selectively enhance the growth of bacteria beneficial to health. The Department is one of the leading centres of work into prebiotic foods. The work is attracting significant interest from industry and much of the work is attracting industrial funding.

Also from the Department and attending the meeting was **Dr David Jukes**, Senior Lecturer in Food Regulation, who was catching up on food law developments in the USA and holding discussions with colleagues from the Institute for Food Laws and Regulations at Michigan State University.

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## 19 July 2007: 'Food Chemistry' journal achieves top ranking status



'Food Chemistry', an international food research journal centred here in the Department of Food Biosciences, has risen in the impact factor rankings, based on data for 2006, to 6th place in the world out of 96 scientific food journals.

**Professor Gordon Birch** is the Managing Editor of the journal and a Professor Emeritus of the University having retired from the Department several years ago.

The journal has now surpassed the Journal of Agricultural Chemistry (8th place, the official journal of the Agricultural Food Division of the American Chemical Society) so, "Food Chemistry" is now the world's leading food chemistry journal.

Owned by Elsevier, 'Food Chemistry' has regularly published contributions from major international bodies including the Royal Society of Chemistry and the European Chemoreception Research Organisation. There are 24 issues per year and the journal continues to receive major contributions from food chemists throughout the world.

Gordon has been Editor since the first issue back in July 1976. At the time he was on the staff of the National College of Food Technology, one of the original parts of the Department of Food Biosciences. Writing in the first issue in 1976, the then Dr Birch stated:

*"It is to be hoped that Food Chemistry will be a means of drawing the inter-related disciplines together in work of a complementary character. It is not adequate, for instance, to know the percentage of carbohydrate in a food, without also acquiring some idea of the character of the carbohydrate, how and to what it is metabolised, its source and the effect of the soil on which it has been grown, or the trace elements which accompany it."*

The multidisciplinary nature of food science is a key element within the Department of Food Biosciences where our staff combine expertise in many different aspects of science but share a common interest in the application of that science to food.

Gordon concluded his first editorial with the following statement:

*"We launch Food Chemistry in the confidence that it will fill a gap and will offer a suitable receptor for those who are seeking to extend our knowledge of the chemistry involved in daily sustenance."*

Under his supervision, the journal has certainly filled a gap, steadily increasing its status to reach its current high point. Congratulations to Gordon on his foresight and continued success.

More details of 'Food Chemistry' can be found on the journal's web site at: <http://www.elsevier.com/locate/inca/405857>

## 17 July 2007: Change in Head of Department

**It has been nearly a year now since the University created the larger School of Chemistry, Food Biosciences and Pharmacy composed of 3 Departments - one of which is Food Biosciences.**



Professor Glenn Gibson was appointed to be Head of the Department and has seen us through the initial stages of the transition. However, after a year in the post, he has decided that the task should be taken on by someone else. As an interim measure, **Professor Bob Rastall** has agreed to be acting Head pending consultations and the formal appointment of a new Head.

*It has subsequently been confirmed by Dr George Marston, Head of School, that Professor Rastall will take on the role of Head of Department.*

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## 17 July 2007: A successful year for knowledge transfer activities supported by the Department

**The Food Technology Enterprise Hub (FTEH), in which the Department is a major Partner, has just announced that, in the last 12 months, its clients have secured over £1 million worth of investment. Key to the success of these companies is their involvement with the various FTEH Partners such as the Department of Food Biosciences. Several companies owe the development of their products to the services of both the academics within the Department and also our pilot plant facilities available for external use.**

As an example of the type of successful activities supported by the FTEH, Ella's Kitchen (Brands) Ltd has just completed its first 18 months of trading. The company developed a range of Smoothie Fruit and baby food products in conjunction with Reading Scientific Services Ltd (RSSL) and the Department of Food Biosciences. From a standing start this company is now profitably trading in all of the major multiple retailers with an annual turnover in excess £1 million. Ella's Kitchen is just one of the SME companies currently working with the Department to deliver innovative new products to the food industry.

Based on its successful start, the Food Technology Enterprise Hub has just announced details of a major food industry conference, to take place on 13th September 2007. Focusing on how to get products into the retail and food service markets, speakers will include representatives from ASDA, Brakes, HIM Ltd, Big Thoughts, Leatherhead Food International and others.

For more details visit about the work of the 'Hub', visit their web site at <http://www.foodhub.co.uk>.

More information on Ella's Kitchen can be found on their web site: <http://www.ellaskitchen.co.uk/>

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## 12 July 2007: Presentations made to the American Dairy Science Association

**With the Department's long history of research into aspects of dairy processing, we were once again represented at the American Dairy Science Association's Annual Meeting. This year the meeting was held in San Antonio, Texas from the 8th to 12th July.**

Present from the Department were **Dr Alistair Grandison** and **Dr Mike Lewis** who both gave research papers based on some of their recent work. Also present at the meeting was Professor Richard Phipps, from the University's Department of Animal Sciences who presented a paper based on a joint research project also involving Alistair.

The three papers presented were:

- 'The effect of pH and ionic calcium on the heat stability of sterilized and UHT milk' presented by Dr Lewis. This was an overview of work carried out by a number of research students in the Department.
- 'Challenge testing the lactoperoxidase system against a range of bacteria using different activation agents' presented by Dr. Grandison, based on the work of Leonard Fweja, one of our former PhD students who was supported by the Commonwealth Scholarship Commission.
- 'Selenium supplementation of lactating dairy cows: effects on total selenium content and speciation in blood, milk and cheese' presented by Professor Phipps, resulting from a study sponsored by Alltech.

should consider a career in the food industry – preferably after studying in the Department of Food Biosciences in Reading!



Feedback questionnaires showed that the course was much enjoyed by all, and two thirds of respondents indicated that they were likely to apply for degree programmes in Food Biosciences, which should contribute significantly to student recruitment for 2008 and beyond.

The courses were organised by **Alistair Grandison, Glynis Jodrell, Anne-Marie Minihane, Richard Frazier** and **Vina Gillham**, and involved staff, students and former students of the Department of Food Biosciences plus other representatives of the food industry.

## 4 July 2007 - Food Biosciences Summer school for sixth formers

**The 21st annual summer school for sixth formers has just been completed. The course was held over 3 days (from July 2nd-4th) in the Department of Food Biosciences. Fifty two students, studying A level sciences, from schools and colleges in all parts of the country were sponsored by food manufacturing and retailing companies to attend.**

They were accommodated in Wantage Hall and carried out practical and project work, attended topical lectures on "hot topics" in the food industry and took part in the Marks and Spencer/Northern Foods business game. There was also a careers session, which highlighted the wealth of opportunities available to food science and technology graduates in the food industry. Teachers were invited to attend the second day of the course (sponsored by the Institute of Food Science and Technology) where they could take part in practical exercises and attend lectures.

The aims of the two courses are to demonstrate that food science and technology are serious disciplines involving good scientific ability. Students capable of achieving science A levels

## Our Degree Programmes

The Department of Food Biosciences offers the following programmes:

- BSc Food Science;
- BSc Nutrition and Food Science;
- BSc Food Technology;
- BSc Biotechnology;
- 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/>