The University of Reading
Food Biosciences

April 2007

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.food.rdg.ac.uk/news.htm

20 March 2007: Reading final year students develop new food products

As part of their course final year food students in the Department have to develop new food products. Today the students have been presenting their results to staff, students and external assessors.

The students have to complete the whole process from developing a concept and recipe, writing the product specification including production details and hygiene/safety requirements, developing the packaging and outlining the likely marketing strategy. This year five groups of students took part creating products ranging from speciality breads to fresh fish sausages and creating a teenage lunchbox.

Each group combines students from different 'food' programmes - Food Science, Food Technology and Food Science with Business.

Further details can be found on our New Product Development page at:
http://www.food.rdg.ac.uk/misc/newproduct.htm

14 March 2007: Fabulous freshers funded for first year and beyond at University of Reading

The University of Reading has honoured the best of its most recent Freshers intake by giving them a £2,000 scholarship towards the costs of their first year studies in a new move to promote high educational attainment.

Entrance scholarships – which started in 2006 and were awarded to 64 entrants into the University – are given to those undergraduates who have come top of their class at entrance level for a range of degrees including Agriculture, Animal Sciences, Microbiology, Maths, Chemistry, Food BioSciences, Pharmacy, Natural Sciences, Modern Languages and Finance.

Vice-Chancellor, Professor Gordon Marshall, said: "I am absolutely delighted we have been able to reward these fine students for their hard work.

"At Reading we commit more than 40% of our increased tuition fee income to our bursaries and scholarships programme. This is because we believe in

making university accessible to everyone whom can benefit from higher education."

A lunch to honour the scholars took place today, where the students were presented with a certificate. They have already received their scholarship funds.

Sonam Nair, of Langley, attended Slough Grammar School and is now studying Food Biosciences after gaining three As and one B at A-level. She said:

> *"In sixth form I studied biology, chemistry and food technology. I decided to pursue a course in Food Technology at university because food and its production process have fascinated me.*
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> *"I became aware of the Reading Entrance Scholarship from the Reading Food Bioscience website. I knew one had to achieve high grades to qualify for the scholarship. Therefore I worked even harder for my A-level exams. I was happy and proud when I was selected for the entrance scholarship. This gave me immense satisfaction as I saw my hard work being recognized and rewarded. The scholarship reduced the financial burden of university life and it has motivated me further to work harder and aim higher.*
>
> *"Currently I am enjoying my course and the university environment. I am now aiming for a first class degree and to establish my career in the field of Food Technology after I graduate."*

Scholarships and bursaries provide opportunities to students who wouldn't necessarily be able to come to University. The cost of Higher Education can be a barrier to some, but the support of this University is giving students fantastic opportunities to develop their potential.

Over future years, Reading hopes to extend its range and number of scholarships offered, so that as many students as possible can receive this £2,000 award for the first year of their study at Reading .

Reading will also be awarding achievement scholarships which reward the highest achieving students following part one and two examinations, in their second and third years at the University of Reading , with the aim of giving students the incentive to work as hard as possible, while also removing some of the financial pressure associated with higher education study.

Visit our website for full details of the undergraduate scholarships on offer.

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1 March 2007: External review of Departmental teaching praises our programmes

All taught programmes at the University of Reading are subject to a detailed review every six years. This week it has been our turn to be subject to a detailed analysis and whilst some points needing attention were found, the overall results were excellent.

The Panel concluded that:

> ***"The curriculum is well-informed by industry, and that the Department actively seeks to ensure that its programmes are up-to-date. There is excellent support for industrial placements and the development of career management skills. There are very strong and effective links between teaching, research and industry."***

The reviewers included Mr P. Holland from Sainsbury's Plc and Dr K. Hunter, from the School of Animal, Rural and Environmental Sciences, Nottingham Trent University, as well as several reviewers from other Departments at Reading.

Detailed documentation on our programmes and policies as well as statistics on student recruitment, progression and results had been assembled by our teaching staff and submitted several weeks ago. The actual review lasted two days and detailed interviews were held with teaching staff and current students from all years and all courses. The review panel was also given access to all our facilities and support services as well as all internal documents (minutes of all teaching meetings for example).

Commenting on the outcome of the review, **Professor Glenn Gibson**, Head of Department, thanked **Dr Mike Gordon** for his leadership as Director of Teaching and Learning and congratulated all staff on the overwhelmingly positive nature of the comments made. Minor points needing attention would be acted upon quickly to ensure that we remain one of the leading Departments in the country for the provision of qualified food scientists.

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1 March 2007: Professors attend the 2007 Nutrition and Intestinal Health Conference in Germany

Two of our leading research professors have been attending the 2007 Nutrition and Intestinal Health Conference being held over two days at the University of Kaiserslautern in south-west Germany.

Professor Ian Rowland, the recently appointed Hugh Sinclair Professor of Human Nutrition, gave his presentation on 'Chemoprevention of colorectal

cancer'. **Professor Bob Rastall**, Professor of Biotechnology, spoke on 'Gastrointestinal Microflora and Prebiotics'.

Further details of the Conference can be found on the conference web site at:
http://www.nutintest.de/index.html

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22 February 2007: Reading food regulation specialist addresses food safety conference in the Gulf

In conjunction with Gulfood, the major regional food exhibition for the Gulf, the Dubai Municipal Authority has just staged the 2nd Gulf International Food Safety Conference. The main topic of the 3-day conference was Risk Analysis in Food Standards. **Dr David Jukes**, Senior Lecturer in Food Regulation from the Department of Food Biosciences, had been invited to provide an overview of risk assessment within the European Union. Speaking to about 400 delegates from the United Arab Emirates and from many other countries in the region and beyond, Dr Jukes described how the European Food Safety Authority had been established to provide a scientific basis to food law for the European Union. The system established by the EU can provide useful guidance to the Gulf region and can serve as a model for future developments in food control within the Gulf.

Other international speakers came from the USA, Australia, France as well as 2 others from the United Kingdom. Speakers from the region, including Saudi Arabia, Jordan, Kuwait and the United Arab Emirates were able to show how the region is rapidly developing its own expertise in a range of food safety control issues. Between the main presentations, the speakers and delegates were able to discuss how best the region can develop so as to improve and ensure food safety for both the local communities and for the increasing number of visitors now travelling to the area.

The recent establishment of the Saudi Arabian Food and Drugs Authority is an example of the way the region is showing increased commitment to food safety. The Department has this year received several applications from their new employees who wish to attend our Masters programmes. We look forward to providing training for several of these in the coming year and in the longer term.

Details of Gulfood and the conference can be seen at:
http://www.gulfood.com/

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15 February 2007: Research results suggest that watercress could be a life-saver

Eating watercress daily can significantly reduce DNA damage to blood cells, which is considered to be an important trigger in the development of cancer, scientists revealed today.

The research, published in this month's American Journal of Clinical Nutrition, found that in addition to reducing DNA damage, a daily portion of watercress also increased the ability of those cells to resist further DNA damage caused by free radicals.

The dietary trial involved 30 healthy men and 30 healthy women (including 30 smokers) eating an 85g bag (a cereal bowl full) of fresh watercress every day for eight weeks. The beneficial changes were greatest among the smokers. This may reflect the greater toxic burden or oxidative stress amongst the smokers, as smokers were also found to have significantly lower antioxidant levels at the start of the study compared to the non-smokers.

Professor Ian Rowland, our new Professor of Human Nutrition, who led the research project, said: "Our findings are highly significant. Population studies have shown links between higher intakes of cruciferous vegetables like watercress, and a reduced risk of a number of cancers.

"However, such studies don't give direct information about causal effects. What makes this study unique is it involves people eating watercress in easily achievable amounts, to see what impact that might have on known bio-markers of cancer risk, such as DNA damage. Most studies to date have relied on tests conducted in test tubes or in animals, with chemicals derived from cruciferous vegetables."

Professor Rowland added: "Blood cell DNA damage is an indicator of whole body cancer risk, and, the results support the theory that consumption of watercress is linked to an overall reduced risk of cancer at various sites in the body. The nature of the study group also

means that the results are applicable to the general population eating a normal diet."

The single blind, randomised, crossover study was carried out with volunteers aged between 19 and 55. The volunteers ate one daily portion of watercress in addition to their normal diet.

The key findings of the watercress diet are as follows:

- significant reduction in DNA damage to lymphocytes (white blood cells), by 22.9 per cent.
- reduction in DNA damage to lymphocytes (white blood cells) when a sample was challenged with the free radical generating chemical hydrogen peroxide, by 9.4%
- reduction in blood triglyceride levels, by an average of 10%
- significant increase in blood levels of lutein and beta-carotene, which have antioxidant activity, by 100% and 33% respectively(higher intakes of lutein have also been associated with a lower incidence of eye diseases such as cataract and age-related macular degeneration).
- Average intakes of dietary fibre, vitamin C, vitamin E, folate and beta- carotene, were significantly higher during the watercress phase of the study.

The research was undertaken at the University of Coleraine where Professor Rowland has been the Director of the Northern Ireland Centre for Diet and Health (NICHE). The two year research project was funded by The Watercress Alliance, made up of British watercress producers, Vitacress Salads, Alresford Salads and The Watercress Company.

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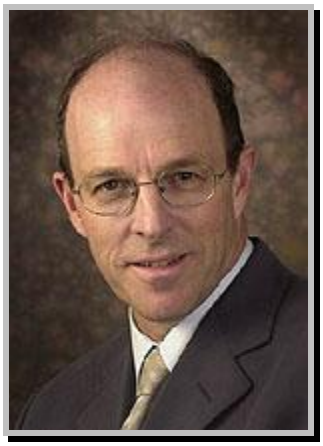
1 February 2007: Welcome to our new Professor of Human Nutrition

Following the promotion of **Professor Christine Williams** to be the Dean of the Faculty of Life Science, the University selected and appointed **Professor Ian Rowland** to take her place as the Hugh Sinclair Professor of Human Nutrition here within the Department of Food Biosciences. Today we welcome him as he starts work in his new role.

Professor Rowland has been the Director of the Northern Ireland Centre for Diet and Health (NICHE) at the University of Ulster, Coleraine. Its objectives are to advance basic knowledge in the area of nutrition and the relationship between diet and health, and to provide scientific support to the food industry for developing and evaluating new food products.



Ian Rowland has a BSc and PhD in microbiology from University College London and is a Registered Nutritionist. He is on the editorial boards of 5 journals and is the author of over 200 scientific publications. Dr Rowland is a member of the UK Food Standards Agency Advisory Committee on Novel Foods and Processes and is Vice-Chairman of the UK Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment.

His current research areas include the role of diet (in particular probiotics, prebiotics, phytoestrogens, and phytochemicals) in prevention of colon, breast and prostate cancer; the fermentation of non-digestible carbohydrates in the gut and the influence of dietary components on gut function. He has just return to the UK after attending the Annual Meeting of the International Life Sciences Institute at Cancun, Mexico held from 19 - 25 January. At the meeting he presented a paper entitled: 'Level of Evidence for Health Effects of Prebiotics and Synbiotics'.

He was recently awarded an Honorary Doctorate from the University of Gent for his work on nutrition and cancer risk.

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24 January 2007: Snow falls in Reading - but lectures continue!

It is not often that Reading wakes up to find snow on the ground - but that is what happened this morning!

Overnight snowfall provided a layer of snow about 2-3 cms deep on the ground. However as the temperature had risen to just above freezing by dawn, travel problems were few and staff and students were able to get to lectures on schedule. Attendance may however have been lower than normal!

To the regret of many, the snow was quickly melting! With the slightly warmer temperatures, a thaw is expected although further overnight snowfalls remain a possibility.

A slightly heavier snowfall occurred overnight in early February providing a second opportunity for all to appreciate the beauty of the Reading campus when under snow.

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11 January 2007: Food bioscientist helps the BBC tell 'The Truth about Food'

To be broadcast by BBC2 in January 2007 as six one-hour programmes, 'The Truth About Food' is a huge flagship BBC series: a series which aims to tell its audience the truth about which foods benefit them and how. The series has been over 2 years in the making and the first episode tonight features our own departmental research.

Gemma Walton, who has just finished a BBSRC funded PhD on bowel cancer, looked at gut bacteriology for the programme. Gemma worked with the shows producers and presenter Fiona Bruce to make a section on probiotics and prebiotics. The BBC approached Gemma because they were aware of her research and its value for consumers. A book accompanying the series has also been produced.

Gemma says:

"The first in a new BBC 2 series The Truth About Food is scheduled to be shown tonight at 9pm. The first episode is entitled "How to be Healthy" and involves a study in Colorado on cowboys looking at the effects of a probiotic yogurt and a diet high in prebiotic vegetables on their faecal bacteria. Filming for this part of the show was done on location in Colorado, where I was lucky enough to go and experience life on the ranch (whilst collecting faeces). Further filming was done back in the lab here at the department where Fiona and a film crew learnt how the samples were analysed."

The work at the Department is very frequently sought after by the media and we are pleased that Gemma's involvement has once again helped this.

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10 January 2007: Postgraduate researcher returns from 10 week research trip to Australia

One of our postgraduate students has just benefited from an attachment to the The University of Queensland in Brisbane, Australia.

Helen Grimley has, from 30th October, been at the School of Land and Food Sciences at the University of Queensland. During her time in Australia she was able to complete a project that investigated the role of calcium in fouling of UHT plants and sterilised milk production. Her work was supervised by Professor Hilton Deeth, a prominent researcher in the field of dairy science in the southern hemisphere. In Hilton's laboratory she was able to use the University's unique heat processing plant and gained experience in some new analytical techniques.

Whilst in Australia, she also traveled to Melbourne to meet with Martin Palmer of the Dairy Ingredients Group Australia (DIGA) who has been a visitor to the Department of Food Biosciences. There she was able to look around their company and see the laboratories of Food Science Australia where she gained a good appreciation of current Australian dairy research.

Helen has commented that: "Going to Australia was a great opportunity, not only to study, but to learn about another country and to experience the sun, sea and sand that are commonly associated with the country." She certainly came back with a better tan than those of us who have been in the UK for the last 10 weeks!

On the way to Australia she also visited Shanghai, to attend the IDF World Dairy Congress. There she presented a poster on the effect of removing calcium on acid gel rheology.

The Department has strong links with the University of Brisbane and their work on dairy processing. **Dr Mike Lewis** and **Dr Alistair Grandison** (Helen's supervisor) have both collaborated with Professor Deeth on several projects.

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2 January 2007: New lecturer joins Department to strengthen work on science in the food chain

As one of its key research themes, the University has given priority to 'Food Chain and Health'. To enhance this work, the University agreed to make a new lecturing appointment, based in the Department of

Food Biosciences. After interviews in the early Autumn, the post was offered to **Dr Carol Wagstaff** who starts work with us today.

After obtaining a BSc. in Biology from Royal Holloway, University of London in 1995 Carol completed her post-graduate studies at the University of York on molecular and physiological studies of plant gravitropism, gaining her DPhil in 1999. Following a spell working for ADAS Rosemaund as a Crop Physiologist, involving the design and analysis of field trials, Carol returned to academia as a post-doc at Cardiff University, spending a period of five years researching the molecular, physiological and ultrastructural changes that occur during post-harvest handling of cut Alstroemeria flowers. Her work has included the custom design, screening and statistical analysis of an Alstroemeria cDNA microarray, quantitative RT-PCR, plus a wide range of other plant molecular biology and physiology techniques. Carol has also worked with Affymetrix, CATMA and oligonucleotide array platforms in related projects on Arabidopsis and Petunia .

More recently Carol was based at Southampton University working with baby leaf salad crops where her areas of focus included using a range of QTL mapping and EST data-mining techniques to identify candidate genes for desirable traits involved in baby lettuce leaf processability, characterising transgenic lollo rosso lines to assess the impact of the antisense XTH transcript on cell wall properties and shelf life, and characterising shelf life in commercial salad lines at the ultrastructural and physiological level to determine the important parameters for baby leaf salad longevity.

Carol's research programme in the Department of Food Biosciences will focus on improving the nutritional properties of salad crops during postharvest shelf life.

The Department is delighted to welcome Carol to work with us both as a researcher and as one of the lecturing staff.

Further details of the 'Food Chain and Health' Research Theme can be found on the University site. See: http://www.info.rdg.ac.uk/research/themes/foodchainhealth.htm

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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.food.rdg.ac.uk/index.htm