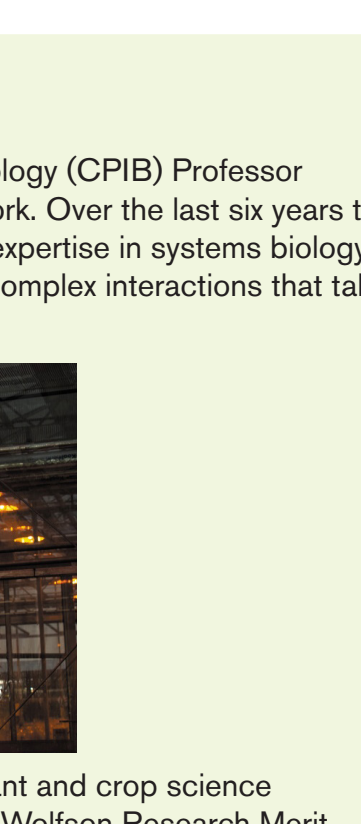


Welcome to the winter issue of Connect – designed to inform you about recent news from the School of Biosciences

## Nottingham rated no.1 in UK for agriculture

Our Agriculture courses have been rated no.1 in the UK in the latest league tables published by The Times/Sunday Times Good University Guide 2014.

Professor Neil Crout, Head of the School of Biosciences, said: "We are delighted that our courses in Agriculture and related subjects have been rated the best in the country by The Times/Sunday Times Good University Guide – this reflects our excellent teaching, facilities, and of course our fantastic students." The School of Veterinary Medicine and Science (our colleagues at Sutton Bonington Campus) also topped their category in the same league tables.



## Getting to the root of plant science

As Director of The University of Nottingham's Centre for Plant Integrative Biology (CPIB) Professor Malcolm Bennett has helped revolutionise the way bioscientists think and work. Over the last six years the interdisciplinary multi-school team at CPIB has developed world renowned expertise in systems biology, using mathematics and computer science to build predictive models of the complex interactions that take place in the roots of plants at every scale – from cell to the field.



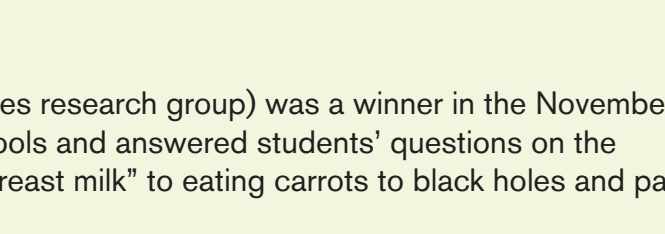
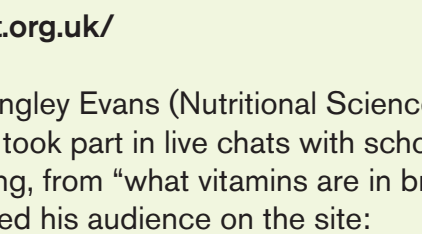
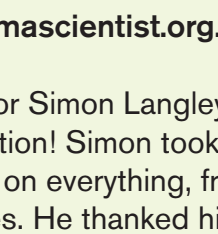
Professor Bennett's quest to answer some of the world's most important plant and crop science questions has now been recognised by the Royal Society with a prestigious Wolfson Research Merit Award – a scheme set up to provide universities with additional support to enable them to recruit and retain respected scientists of outstanding achievement and potential in the UK.

The award will support his research into the 'hidden half' of plants and help develop a new generation of crops with improved root architecture to help meet the challenge of global food security. Root architecture critically influences nutrient and water uptake efficiency.

Professor Bennett is part of a worldwide effort to develop new varieties of crops. He aims to translate his knowledge of key root genes to re-engineer important traits and optimise yields in crops relevant to Europe (wheat), Asia (rice) and Africa (pearl millet) with international collaborators. In the long term, combinations of root traits and novel genes are likely to be required to underpin food security.

## Sensational science enthuses kids!

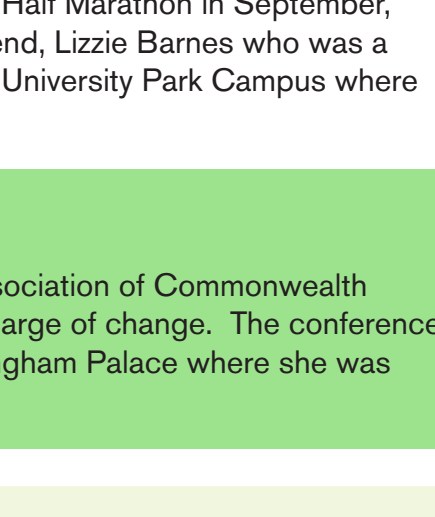
Fifty eager 4 and 5 year olds at Scargill Primary School in Derbyshire have been busy investigating their sense of taste and smell. Professor Joanne Hort (Director of the School's Food Sciences' Sensory Science group) and her PhD student, Martha Skinner, introduced the pupils to their senses of taste and smell. They were very keen to guess which animal had the most smell detectors, a rabbit or a dog, and were very surprised that a butterfly's taste buds are on its feet! The pupils experienced the five basic tastes by tasting marshmallows, lemon slices, coffee, salted crisps and umami paste. When asked to describe the taste of the foods, 'yummy' and 'yuk' were quite popular, but all the children could distinguish between the different tastes.



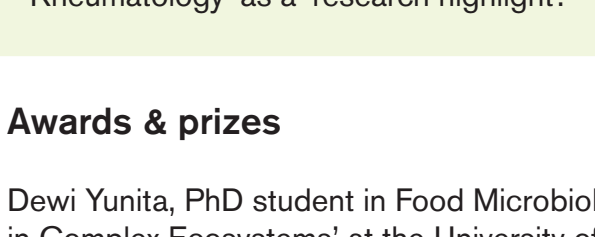
Describing the smell pots was more of a challenge. Was it banana, doughnut, or nail varnish? But it was an activity they really enjoyed and enabled them to understand the difference between taste and smell. After a sensational morning they had all earned their Super Taster badge!

## Arnold Hill Academy student visit

A-level students from Arnold Hill Academy took part in a joint event organised by the School's Animal Sciences group and the University's School of Veterinary Medicine on 17th October. Dr Carl Stevenson and his colleagues ran physiology practical activities in the morning. In the afternoon the students observed an anatomy practical in the Vet School and participated in a discussion on the use of animals in research.



## Bioenergy Outreach at the British Science Festival



Each September the British Science Festival transforms a different UK city into a vibrant celebration of science, engineering and technology. In 2013 the festival took place between 7-12 September in Newcastle. This year the theme was 'Making Waves' and many areas were explored including a range of topical issues and discovering the latest in new research. Around 500 students from all over the UK attended the event.

The University of Nottingham's bioenergy outreach team ran an activity stand within the exhibition hall - students could try out a range of 'hands on bioenergy related activities' including an experiment of sugar utilization by yeast to produce ethanol and carbon dioxide gas. Two of our Bioenergy PhD students, Abdul Abdelrahman and Cyprian Oshoma helped out on the stand.

Abdul said: " The Festival was a new, interesting and challenging experience for me. I had the chance to communicate with school students, their teachers and parents regarding second generation bio-ethanol. There were also communication and useful discussion with other groups of exhibitors from around UK and other countries. People showed high interest in our topic and activities. It was such an enjoyable three days."

## I'm a Scientist – Get me out of here!

'I'm a Scientist, Get me out of here' is a hugely popular free online event where school students get to meet and interact with real scientists. It's an X Factor-style competition between scientists, where the students are the judges.

Students challenge the scientists over intense, fast-paced online live 'chats'. They then ask the scientists all the questions they want to, and vote for their favourite scientist to win a prize of £500 to communicate their work with the public.

<http://imascientist.org.uk/>

Professor Simon Langley Evans (Nutritional Sciences research group) was a winner in the November competition! Simon took part in live chats with schools and answered students' questions on the website on everything, from "what vitamins are in breast milk" to eating carrots to black holes and parallel universes. He thanked his audience on the site:

'I am amazed and delighted to have emerged as the winner and I will be passing on the prize money to my local primary school so that they can buy some new equipment for teaching science. When I started in I'm a Scientist I was not feeling very confident. I was worried that I wouldn't have the time to take part properly but right from the first batch of questions I was completely hooked. Your imagination, curiosity and amazing questions blew me away. You asked some things that really made me have to think very hard, and challenged me to not just think about my own area of science, but to go back to the basics of physics and chemistry too.'

## Students raise funds for Mind

Biosciences' students Stef Hendy and Ellie Woodham ran the Robin Hood Half Marathon in September, raising more than £900 for the charity Mind. They ran in memory of their friend, Lizzie Barnes who was a fellow student in the School. Lizzie enjoyed running around the lake on the University Park Campus where the Half Marathon is based and had herself run many times for charity.

## Student meets the Queen

Adanna Innocent-Ukachi, PhD student in Food Sciences, attended the Association of Commonwealth Universities Centenary Conference in October on Future forward: taking charge of change. The conference included a reception for Youth Education and the Commonwealth at Buckingham Palace where she was presented to the Queen.

## New Publications

Dr Sara Kelly (Animal Sciences research group) is a founding member of the Arthritis Research UK Pain Centre, a centre of excellence established to increase the understanding of arthritis pain and to improve its treatment ([www.nottingham.ac.uk/paincentre](http://www.nottingham.ac.uk/paincentre)). Dr Kelly and colleagues' paper on 'Increased function of pronociceptive TRPV1 at the level of the joint in a rat model of osteoarthritis pain', originally published in the journal 'Annals of the Rheumatic Diseases', has recently been selected by the journal 'Nature Reviews Rheumatology' as a 'research highlight'.

## Awards & prizes

Dewi Yunita, PhD student in Food Microbiology, attended the International Conference 'Microbial Interactions in Complex Ecosystems' at the University of Torino, Italy, in October. Not only did she win one of the 12 awards to Young Scientists given by the Federation of European Microbiological Societies (FEMS) to attend the conference, but her poster on 'Presence of Staphylococcus equorum in cheeses' was given one of the three awards for an 'Outstanding Research Contribution by a Young Investigator to the Profession of Food Microbiology and Hygiene' by The International Committee on Food Microbiology and Hygiene (ICFMH) of The International Union of Microbiological Societies (IUMS).

## Grants & studentships awarded

### £473,000 award

The BBSRC (Biotechnological and Biological Research Council [www.bbsrc.ac.uk](http://www.bbsrc.ac.uk)) is the leading funding agency for academic research and training in the biosciences at universities and institutes throughout the UK. The Council has awarded an Industrial Partnership Award Project Grant of £473,000 to Dr John Harris and Dr Sara Kelly (Animal Sciences) and their collaborator Dr Joanna Murrell (PI, Bristol University, School of Veterinary Sciences) to investigate whether peripheral and/or central changes in sensory processing are present in individual client owned dogs with osteoarthritis pain.

Until very recently, pain in people was thought to be a single uniform entity; the nature of the pain experienced by an individual was considered to be similar regardless of the underlying cause. However this concept has recently been challenged and it is now understood that the nature and quality of pain caused by each disease condition is different, reflecting underlying changes in the sensory system. In humans this has led to personalized therapy for pain. It is now possible, in people, to identify distinct pain patterns (pain phenotypes) that relate to distinct changes in sensory processing and to target these underlying changes in sensory processing with specific drugs. This has resulted in improved pain management in people suffering with chronic pain.

The aim of this current proposal is to translate the concept of personalized pain therapy from people to dogs, and subsequently increase our capability to provide adequate pain relief to dogs suffering from chronic pain.

### Successful DTP bid

NERC (National Environment Research Council [www.nerc.ac.uk](http://www.nerc.ac.uk)) invests in world-class environmental science, innovation and training for the UK through universities and its six research centres (including the British Geological Survey and the Centre for Ecology and Hydrology). The School's Agricultural and Environmental Sciences group were part of a successful bid to NERC's Doctoral Training Partnership scheme. Their 'ENVISION: Developing next generation leaders in environmental science' DTP is one of fifteen partnerships, receiving a total of £100m to train the next generation of environmental science PhD students.

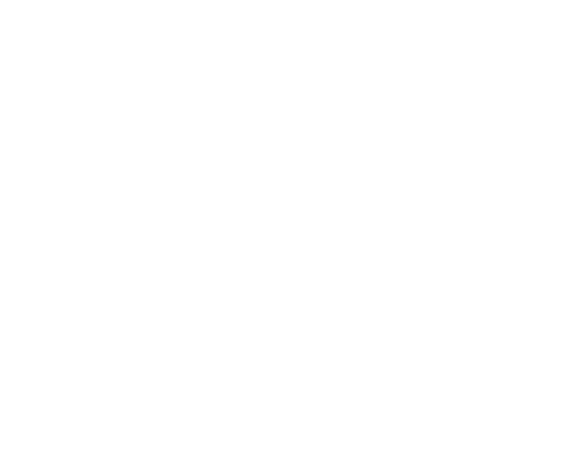
### Technology Strategy Board £475,000 success

Professor Andy Salter, Dr Judy Swift and Dr Fiona McCullough (Nutritional Sciences research group) together with their industry partners, have secured £475,000 from the Technology Strategy Board 'Nutrition for Life' Collaborative R&D competition. Their project will look to understand the psychology of consumers with regard to meat and replacement of meat in meals. Based on these consumer insights, ingredients, new meat alternative products and meat hybrid products will be developed that meet the needs of omnivores whilst not compromising on taste and mouth feel. Intervention studies will look at the effects of meat replacement notably on cardiovascular health and weight management benefit.

## Appointments, promotions & retirements

Mike Davies has joined Agricultural and Environmental Sciences as a Teaching Associate in Agricultural Systems, working alongside Drs Steve Ramsden and Paul Wilson.

Professor Colin Black has retired after working for over 39 years at The University of Nottingham. Colin was given a warm send-off at which Professor Jerry Roberts spoke about Colin's illustrious career in plant science. He will be missed by staff and students alike, and we wish him all the very best for his retirement.



Val Black, Prof Colin Black and Prof Jerry Roberts

## NEXT ISSUE: Spring 2014

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