

Annual Report and Accounts

2009 - 2010

Biotechnology and Biological Sciences Research Council

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Annual Report and Accounts 2009 - 2010

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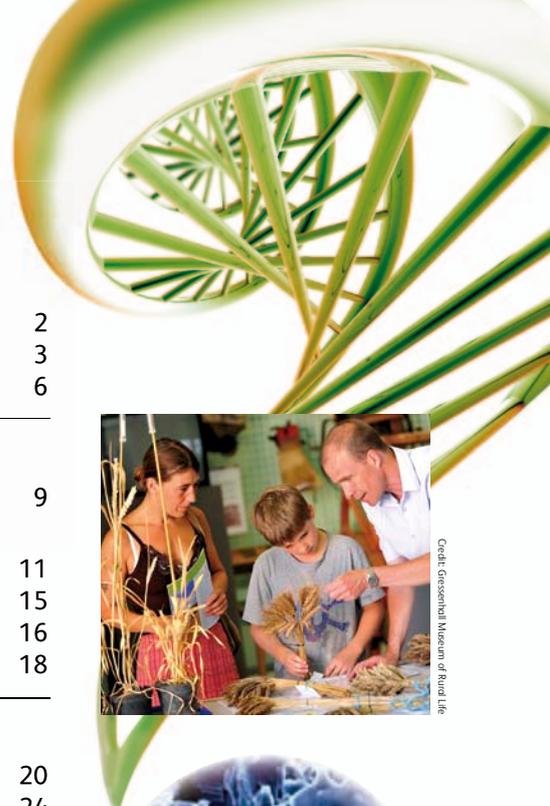
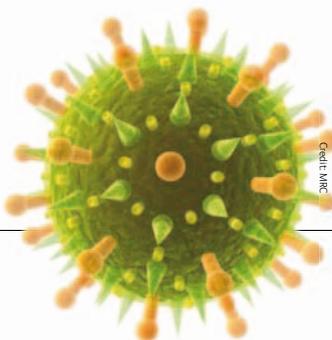
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The Biotechnology and Biological Sciences Research Council (BBSRC), established by Royal Charter in 1994, is the UK's principal funder of basic and strategic research across the biosciences, in universities and research centres throughout the UK.

During the period of this report, BBSRC was funded primarily by the Science Budget through the Department for Business, Innovation and Skills (BIS).



BBSRC works collaboratively with its sister Research Councils through Research Councils UK (RCUK) in areas that include: cross-Council programmes of research; research training and careers development; knowledge exchange and economic impact; communications, public engagement and administrative harmonisation. ([www.rcuk.ac.uk](http://www.rcuk.ac.uk))



This Annual Report covers the period 1 April 2009 to 31 March 2010, and can be viewed at ([www.bbsrc.ac.uk/annualreport0910](http://www.bbsrc.ac.uk/annualreport0910)).

The previous Report can be viewed at ([www.bbsrc.ac.uk/annualreport0809](http://www.bbsrc.ac.uk/annualreport0809)).

Readers may wish to cross-reference this Report with the BBSRC Strategic Plan 2010-2015, which was published in January 2010 ([www.bbsrc.ac.uk/publications/policy/strategy/strategic-plan-index.aspx](http://www.bbsrc.ac.uk/publications/policy/strategy/strategic-plan-index.aspx)).

To facilitate an overview of our activities, this Report uses footnotes to link related material.

To avoid repetition of the names of organisations, Government Departments, BBSRC institutes, committees etc, acronyms are listed on page 48.



Professors Sir Tom Blundell (left) and Douglas Kell

## Chairman's statement

**I would like to begin with some history that is extremely relevant to our current activities.**

**BBSRC was formed in 1994, by merger of the former Agricultural and Food Research Council with parts of the former Science and Engineering Research Council, following the Government White Paper 'Realising our Potential' of the previous year. The backdrop was a shared vision of Government, the scientific community and industry: bioscience had evolved to a point where its speed of advance, pervasiveness and applications required similar recognition to that afforded to the physical sciences. This did indeed help to realise the potential of bioscience research, in practice and symbolically, by liberating it from any implied limitation to certain spheres of impact.**

Sixteen years later, this vision has proved successful. During the recent global expansion of bioscience the UK has retained its world-leading position with a clear and distinctive focus. It is not a coincidence that bioscience in universities and research institutes is increasingly shaped by core fundamental science rather than by sub-disciplines or areas of application. There is some irony. As biological approaches become ubiquitous in areas such as sensor technology, drug delivery, gerontology, materials science, regenerative surgery and the manufacture of fine chemicals, it is food and farming that are centre stage once again as world population is set to reach 9 billion by 2050. However, this is not a return to the past. Research underpinning agriculture is very different from that of twenty years ago, precisely because it benefited from the ideas and techniques of generic bioscience. Without these developments, we would be far less well placed to tackle food security issues. Of course, food security is not the only challenge we face. When

we consider it alongside the low carbon economy, protection against zoonoses such as swine flu, an ageing population, affordable medicines and defence against bioterrorism, then the pervasiveness of bioscience is obvious. In each area, progress depends on the same fundamental science and the exchange of knowledge and ideas across conventional disciplines. New knowledge of cell behaviour in plants can inform understanding of cancers, digestive enzymes in invertebrates have potential for biofuel production, and so on. An exciting example is the 'one health' approach that recognises the inextricable links between humans and other animals. This brings together health-related sciences with medical and veterinary disciplines and will inform, for example, design and development, from first principles, of strategies against diseases of humans, livestock and other animals.

I was delighted to take over as Chair of BBSRC in July 2009. The success I have outlined above brings its own challenges in investment and resource allocation in what promises to be a difficult economic climate. BBSRC needs to continue to listen to the research community and to wider society, and to be imaginative in supporting the highest quality science so that the UK stays at the forefront of research. We can be fairly sure that the next sixteen years will not be like the last sixteen, but we can be absolutely certain that bioscience will be a principal driver of new lifestyles, sustainable technologies and businesses that will become increasingly important to all of us in the UK and elsewhere.

**Professor Sir Tom Blundell FRS**  
BBSRC Chairman  
November 2010

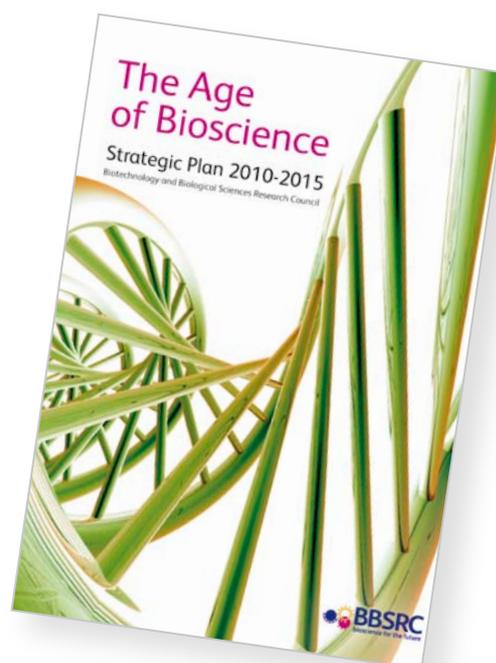
## Chief Executive's report

**There were many significant milestones for BBSRC in 2009-2010, including further independent evidence of the UK's leading role in the life sciences, a groundbreaking partnership with the USA's National Science Foundation; new alliances for innovation with the Technology Strategy Board; government investment of over £100M for redevelopment of the Institute for Animal Health, and formation of a major UK multi-partner programme on Global Food Security.**

2009 brought a pandemic of swine flu, which posed serious scientific and logistical challenges around the world. BBSRC responded quickly, and our science contributed practically. Throughout this Report are further examples of how BBSRC research has generated new knowledge and driven innovation across the bio-based industries. During the year we have increased our collaborative working through Research Councils UK (RCUK) and we are pleased to note the findings of a study into support for innovation, which show the benefits of spend on Research Councils in maximising macroeconomic impact "*Public support for innovation, intangible investment and productivity growth in the UK market sector*" Haskel and Wallis, February 2010 ([eprints.imperial.ac.uk/bitstream/10044/1/5280/1/Haskel%202010-01.pdf](http://eprints.imperial.ac.uk/bitstream/10044/1/5280/1/Haskel%202010-01.pdf)).

For BBSRC, 2009-2010 was punctuated by several important reviews and consultations. These included: "*Maximising UK Opportunities from Industrial Biotechnology in a Low Carbon Economy*", a report from the Industrial Biotechnology Innovation and Growth Team; a BBSRC and (former) Biosciences Federation public consultation to identify key areas of bioscience facing, or likely to face, shortages in research expertise; a BBSRC and HEFCE-led review of public sector facilities for land-based research; an RCUK consultation on priorities for food security research; and our own summer 2009 consultation to develop our five-year Strategic Plan.

We have used emerging findings from these and other studies both to test and validate our underlying policies and principles, and to inform our strategic planning. As a result, we entered 2010-2011 with focused priorities: in science, in skills building and in maximising social and economic benefits from our investment. In January 2010 we published "*The Age of Bioscience: the BBSRC Strategic Plan 2010-2015*" ([www.bbsrc.ac.uk/publications/policy/strategy/strategic-plan-index.aspx](http://www.bbsrc.ac.uk/publications/policy/strategy/strategic-plan-index.aspx)). This describes our vision for UK bioscience, around strategic research priorities in Food Security, Bioenergy and Industrial Biotechnology, and Basic Bioscience Underpinning Health, and the long-term cross-cutting



*The BBSRC Strategic Plan 2010-2015 was launched on-line by the Chief Executive.*

themes needed to deliver the vision - Knowledge Exchange; Innovation and Skills; Exploiting New Ways of Working; and Partnerships.

We have set ourselves challenging but realistic objectives which we know command confidence, and address aspirations and concerns, across the research, business and wider communities that we serve, and which we believe are crucial for maintaining the UK's scientific lead and in generating new business opportunities and 'green' jobs as the UK economy emerges from recession.



As we presaged in our 2008-09 Annual Report, BBSRC, on behalf of the Research Councils, led a widespread consultation in summer 2009 on priorities for food security research. The interest and encouragement we received from stakeholders including government and the agri-food sector, reflects the enormity of the challenge and the commitment of researchers and research funders to find evidence-based solutions to a sustainable supply of affordable, good quality food from less land and with fewer inputs.

In March 2010, the Global Food Security programme was launched. This multi-agency programme brings together the research interests of Research Councils, Executive Agencies and Government Departments around four themes:

- ▶ **Economic resilience**
- ▶ **Resource efficiency**
- ▶ **Sustainable production**
- ▶ **Sustainable, healthy, safe diets**

Work is now underway to define priorities in these areas, and a strategic plan will be published early in 2011. BBSRC is the major public funder of research in the area of food security.



*Professor Alan Thorpe, Chair of RCUK, speaking at the launch of the Global Food Security programme - a partnership of: RCUK, the Department for Business, Innovation and Skills, the Department for Environment, Food and Rural Affairs, the Department for International Development, the Food Standards Agency, the Government Office for Science, the Scottish Office, and the Technology Strategy Board*

We have continued to invest strategically to ensure scientific excellence in BBSRC Institutes and to enable them to discharge their responsibilities in providing strategic national research capability, most notably in food security and for land-based industries. With Institute Directors, we have developed highly focused strategic research programmes at each Institute, and are enhancing our assessment of Institute performance by enabling clearer and separate focus on research excellence, national capability and knowledge exchange. We are also making changes to achieve greater convergence between our processes for funding research at Institutes and in Universities that will make it easier to compare standards and ensure equitable resourcing.

With BIS and the Institute Governing Bodies we have made progress towards durable new arrangements for Institute governance that will ensure clarity of roles and responsibilities for Boards and BBSRC, apply best practice governance standards and help to ensure sustainable operations. I am very grateful to all who are contributing to this complex but important issue.

The scientific community was greatly saddened by the untimely death in August 2009 of John Innes Centre Director, Professor Chris Lamb CBE FRS. Chris was an internationally renowned researcher, whose legacy includes not only the world-leading Institute but also the scientific vision behind the Norwich Research Park as a major UK centre for bioscience research.



**Professor Maurice Moloney** has been appointed Director and Chief Executive of Rothamsted Research, following the retirement of Professor Ian Crute CBE. Professor Moloney is an authority on plant seed biology and its applications in crop improvement. Before taking up this post in April 2010, he was Chief Scientific Officer of SemBioSys Genetics Inc.



**Professor Dale Sanders FRS** has been appointed Director and Chief Executive of the John Innes Centre, with effect from September 2010. An authority on the behaviour of plant cell membranes, he is currently Head of the Department of Biology at the University of York.

We have enhanced our support for innovation and skills development across a broad front: through overall commitment of £11.8M to research relevant to industry and business needs, increased support for PhD studentships, and strong partnerships with the Technology Strategy Board and companies. Many examples are provided in this Report.

We have strengthened international relations with researchers and organisations where UK bioscience can benefit intellectually, and in effectiveness and efficiency, from strategic partnerships, where we can help to address challenges such as combating poverty in developing countries, and where we can contribute to delivering RCUK's International Strategy as well as the United Nations Millennium Development Goals. In particular, we have held productive high level meetings in the USA on bioenergy, on food security and on data-intensive science; in Japan on scientific successes flowing from the Human Frontier Science Program (HFSP) for which BBSRC and MRC provide the UK sponsorship, and on issues around supercomputing and systems biology; and in Mexico, Thailand, Vietnam, India and China on research challenges in food security. Links with Brazil on bioenergy and food security have also been strengthened.

We are strengthening our relationships with key international funders, including the Bill and Melinda Gates Foundation and Embrapa.

We have also continued to support UK bioscience within EC programmes and partnerships where the UK remains the partner of choice for multinational bioscience research and through, for example, partnerships with the Institut National de la Recherche Agronomique (INRA) and European Research Area Networks (ERA-Nets).

In 2009 RCUK signed a memorandum of understanding with FAPESP (the Research Council for the State of São Paulo) to help encourage and support international collaboration.

BBSRC contributes to many high level policy fora, for example, in the Government's Food Research Group, Food Research Partnership and Foresight programme, that inform the UK Food Research and Innovation Strategy where we are contributing in areas of skills, research translation and international collaborations. Our research informs a wide range of policy, for example predictive modelling of carbon cycling, based on long-term experimentation at Rothamsted Research, is used by countries around the world to calculate carbon dioxide inventories, and informs calculations of carbon sequestration potential for different land management scenarios in Europe and the UK. We are also working through the UK Age Research Forum to contribute to a coordinated national approach to research into ageing as well as through the new overarching industry and Government Industrial Biotechnology Leadership Forum.

*Examples of international collaborations pages 8, 11, 12, 13, 14, 16*



*The BBSRC delegation to the USA in July 2009 that met Senator Durbin's team at the US Senate to discuss the Lugar-Casey Bill on Global Food Security (left to right): Dr Rowan McKibbin, Professor Janet Allen, Mr Steve Visscher and Dr Paul Burrows*

As part of our strengthening relationships with user communities, BBSRC Directors have given invited presentations at major business-led events, including for example, AgriBusiness 2010, the annual conference of the Agricultural Industries Confederation. With Volac, BBSRC sponsored a session on research needs and priorities at the 2010 Oxford Farming Conference.

As we come into a period of financial stringency for public sector investment, it will be vital to sustain stable funding for core research capabilities. Within RCUK, and particularly through work with the RCUK Shared Services Centre Ltd, we have continued to coordinate and harmonise our operations with those of the other Research Councils to effect greater efficiency.

The activities I have described, and which are reported in this document, result from the dedication and hard work of many people: our Chairman and members of Council, members of our Boards, Panels and Committees and the wider research community, and BBSRC staff in the Swindon Office and in Institutes. I am delighted to record my real gratitude to everyone, and to look forward to ongoing success as we take forward our vision for bioscience in the UK.

**Professor Douglas Kell**

BBSRC Deputy Chairman and Chief Executive  
November 2010



## Key funding data

### Research funding: Analysis of gross expenditure

£M	Universities	BBSRC institutes	Other organisations	Total
Responsive Research Grants	140.6	12.3	12.5	165.4
Core Strategic Grants	-	50.8	0.6	51.4
Research Initiatives	52.0	8.0	6.2	66.2
Equipment and Facilities	6.5	-	2.6	9.1
Capital and Buildings	8.9	69.5	44.7	123.1
Training Awards and Fellowships	47.3	3.8	2.6	53.7
<b>Total</b>	<b>255.3</b>	<b>144.4</b>	<b>69.2</b>	<b>468.9</b>

### Summary of grant applications and success rates

	2006-07	2007-08	2008-09	2009-10
Number of applications	2,240	1,983	2,033	1,865
Success rate by number (%)	30	29	21	22
Equivalent success rate by value (%)	30	28	23	23

### Applications and success rates by gender

Percentage of successful applications from total applications

	2007		2008		2009	
	Male	Female	Male	Female	Male	Female
Project grants	25.6	23.2	18.3	12.9	19.6	18.9
Programme grants	44.8	55.1	44.4	43.9	37.9	39.7
New investigators	36.7	30.6	24.8	14.8	33.0	41.3
Fellowships	12.5	13.6	14.4	6.7	10.9	1.7

Percentage of female applicants for peer-reviewed funding

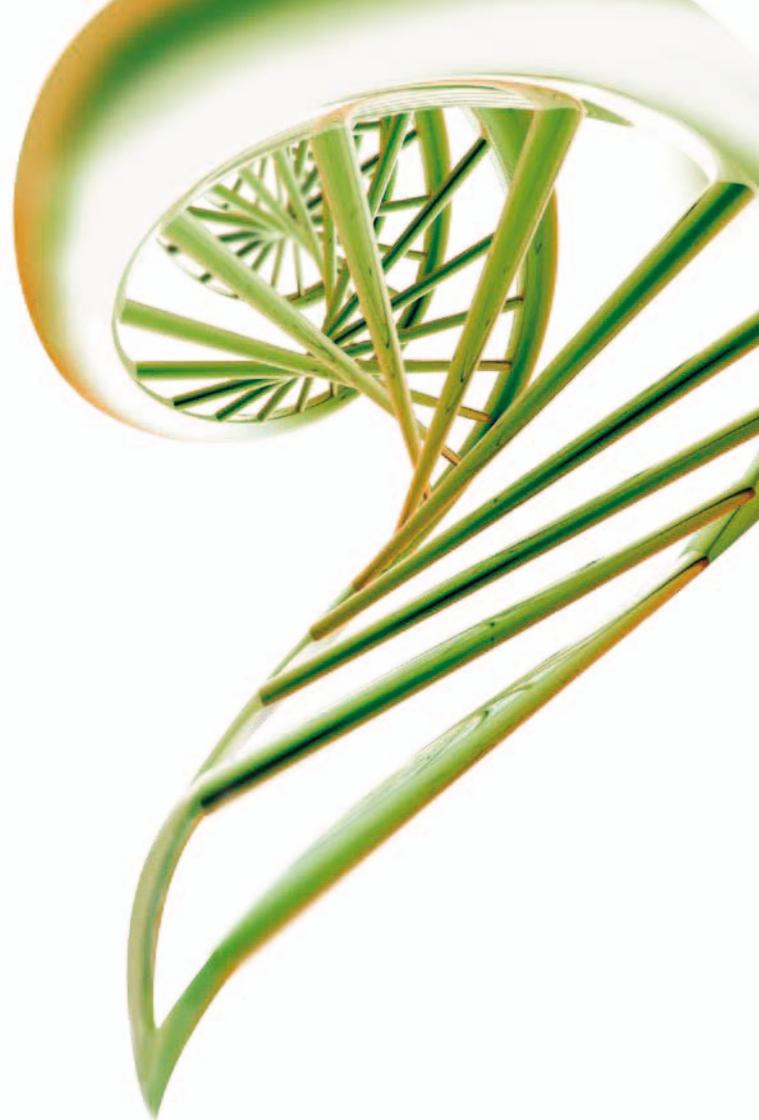
	2007	2008	2009
Project grants	19.7	22.8	23.6
Programme grants	12.6	21.6	19.5
New investigators	24.8	28.9	32.9
Fellowships	37.9	23.6	25.2

### Transferring Knowledge (BBSRC Institutes)

	2006-07	2007-08	2008-09	2009-10
Industrial income (£k)	7,979	7,618	5,746	6,426
Income from intellectual property (£k)	551	455	563	864
Patents awarded	15	10	27	15
Commercial licensing agreements	41	53	36	46
Spin-out companies trading	17	16	16	17
Refereed publications co-authored with industry	82	71	55	41

Financial figures are subject to audit

Figures prior to 2008-09 include the former institutes, Roslin Institute and the Institute of Grassland and Environmental Research



### Top 25 universities by grant funding

University	Research grants (£M)
1 Manchester	17.79
2 Cambridge	13.22
3 Nottingham	13.10
4 Imperial College London	11.03
5 Edinburgh	10.83
6 Oxford	9.61
7 Glasgow	8.46
8 Bristol	8.20
9 University College London	7.91
10 Newcastle	7.83
11 Warwick	6.66
12 Leeds	5.73
13 Sheffield	5.01
14 Liverpool	4.57
15 Birmingham	4.31
16 York	4.24
17 Dundee	4.15
18 Aberdeen	3.75
19 King's College London	3.71
20 East Anglia	3.59
21 Cardiff	2.54
22 Leicester	2.44
23 Exeter	2.21
24 Durham	2.13
25 Sussex	2.10

### Institute funding (£M)

	BBSRC SPs*	BBSRC Other Funding	Defra/ FSA	Industrial Contract Income	Other Research Income*	European Union	Other Sources	TOTAL Revenue Income	BBSRC Capital Funding
Babraham Institute	11.8	2.3	-	0.7	3.9	0.4	6.0	25.1	15.5
Institute for Animal Health	9.5	5.7	6.1	0.0	0.4	1.3	5.1	28.1	30.8
Institute of Food Research	8.0	1.4	0.4	0.6	1.7	1.9	0.3	14.3	4.0
John Innes Centre	11.0	8.1	0.7	0.1	1.1	2.5	2.6	26.0	8.9
Rothamsted Research	10.6	6.6	4.7	2.5	0.9	1.0	1.7	28.0	7.9
The Genome Analysis Centre	0.6	0.0	-	0.6	0.0	-	-	1.3	-
<b>TOTAL</b>	<b>51.5</b>	<b>24.1</b>	<b>11.9</b>	<b>4.5</b>	<b>8.0</b>	<b>7.1</b>	<b>15.7</b>	<b>122.8</b>	<b>67.1</b>
2008-09 Comparatives	56.4	22.9	14.9	2.4	5.7	5.8	13.7	121.8	45.9

\*Strategic Programmes

\* Including charities and Government Departments

Two institutes, the Institute of Biological, Environmental and Rural Sciences (IBERS) and the Roslin Institute (RI), embedded respectively in Aberystwyth University and the University of Edinburgh, received Core Strategic Grants of £4.5M and £7.5M respectively.

### Publications from BBSRC institutes

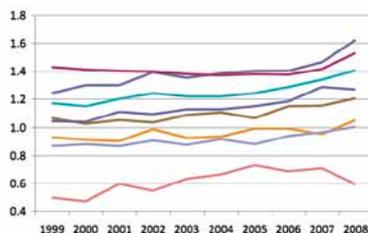
	2007-08	2008-09	2009-10
Referred publications per scientist	2.4	2.5	2.3
Total publications per scientist	4.3	4.3	3.5

Figures prior to 2008-09 include the former institutes, Roslin Institute and the Institute of Grassland and Environmental Research



# Delivering UK and Global Priorities

UK life science ranks with the best in the world: citation impact analysis, for example, shows it ahead of all G8 countries, including the USA. Analysis of outputs in plant and animal sciences, spanning January 1999 - June 2009, reveals the John Innes Centre together with the co-located Sainsbury Laboratory as the world's leading institution (*Essential Science Indicators, Thomson Reuters*). This list, based on scientific impact, showed the Institute of Food Research as second in agriculture and food sciences in a previous analysis (January 2009).



International comparative performance of the UK research base, Department for Business, Innovation and Skills, September 2009

BBSRC has continued to develop and tension its funding mechanisms in order to support the best innovative, fundamental research anywhere in our remit, to target strategic priority areas of R&D, and to enable rapid deployment of world-class science in response to unexpected challenges.

Despite growing demand, we maintained responsive mode success rates at over 20%, and continue to work with the research community to minimise nugatory effort by academics in applying or reviewing applications for funding. We have awarded Independent Research Organisation status to CABI (formerly the Commonwealth Agricultural Bureaux) and the University of Buckingham, making them eligible for our support because of high quality research in areas not widely represented elsewhere.

We have funded two strategic longer-larger awards (LoLas) to support research requiring 'big science' approaches and multidisciplinary partnerships, bringing the portfolio total to 19. These include £5.6M to a consortium of five universities\* and three government-funded agencies, with additional support from Pfizer Animal Health, that aims to develop diagnostics and a single vaccine to test and protect pigs simultaneously against four major respiratory diseases. This brings together fundamental bioscience and genomics technologies, with applied clinical studies funded by others.

\* University of Cambridge, Imperial College London, the London School of Hygiene and Tropical Medicine, the Royal Veterinary College and Huazhong Agricultural University, China.

LoLa on crop genetics page 13; animal vaccine development pages 17 and 29

## Diseases that cross between livestock and humans are a growing concern worldwide



H1N1 virus

A novel flu virus, H1N1 was reported in Mexico in March 2009. Before pandemic status was declared (June 2009), BBSRC, the Medical Research Council (MRC), Wellcome Trust (WT), Department of Health and Defra, brought together veterinary and clinical scientists to identify priorities for a rapid and coordinated UK research response. Over the summer, proposals were invited and reviewed, and in November 2009 awards were made totalling £7.5M for four projects focusing on the development and spread of the disease in pig and human populations. Within this, BBSRC contributed £0.5M of a £1.7M initiative with Defra, MRC and WT to support two consortia led by the University of Cambridge and the Veterinary Laboratories Agency which are aimed at understanding and modelling the transmission, spread and evolution of flu viruses in the UK pig herd in order to inform risk management and intervention strategies.

Evolutionary biologists at the University of Edinburgh, using tools developed for studying avian flu, and in partnership with scientists in Hong Kong, Oxford and the USA, contributed programs and data sets that enabled rapid analysis of the evolution of the swine flu pandemic and indicated that transmission to humans had occurred several months before recognition.



At the Roslin Institute, scientists found what appears to be the first evidence of disease-causing bacteria transferring from humans to livestock. This has important implications for understanding potential impacts of industrialisation and globalisation on patterns of disease and

for effecting control strategies. The research showed that *Staphylococcus aureus* from humans in Europe had crossed into poultry around 40 years ago, where it is now found worldwide.

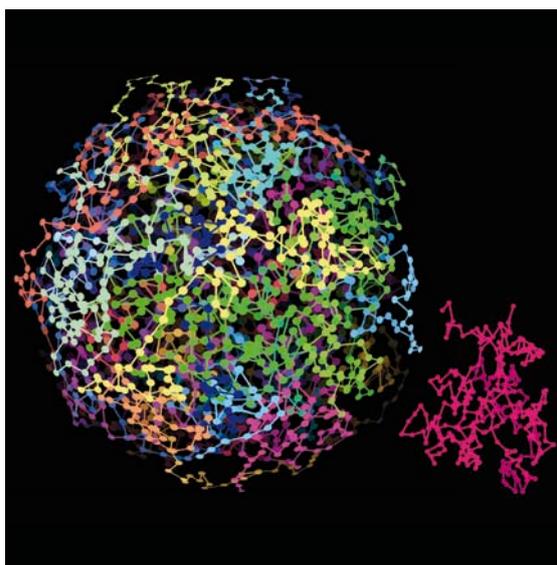
## New knowledge

■ A 3-D look at genes by researchers at the Babraham Institute showed that genes work together by huddling in clusters inside the nucleus and that this spatial organisation relates to gene expression. Their findings, published in *Nature Genetics*, revealed that spatial networks of active genes with related physiological roles congregate in hot spots in the nucleus known as transcription factories.

The team, funded by BBSRC and MRC, used sophisticated imaging techniques, with fluorescent tags pinpointing the hot spots. This revealed that DNA is the most mobile element and that multiple co-regulated genes share transcription factories.

This is the first demonstration of the importance of spatial organisation of genes in determining gene expression in specific tissues and developmental processes in animal cells, and paves the way for a virtual 3-D nucleus for use in more effective drug design and stem cell therapies.

Credit: Leon Clay



*3-D reconstruction of chromosome folding and interactions between chromosomes in a mouse precursor red blood cell. Right (red) folding of a single mouse chromosome. This illustrates the path of the genome through the nucleus, revealing the functional relationships between structure and tissue-specific gene expression patterns.*

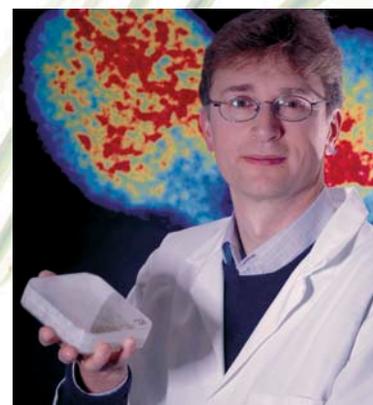
■ Researchers at the University of Manchester have successfully carried out the first re-wire of genetic switches. They found a way to hijack so called 'riboswitches' inside bacterial cells so that they were no longer activated by small naturally occurring molecules found in cells, but by the addition of a synthetic molecule.

The findings, published in the *Proceedings of the National Academy of Sciences*, suggest novel ways to turn important biological pathways on and off and have potential in drug discovery programmes. The team was funded by BBSRC's Selective Chemical Intervention in Biological Systems initiative.

■ Nobel Laureate Niels Bohr suggested that the intentional act of drawing a gun and shooting is slower than the act of firing in response to this action. By creating a 'laboratory gun fight' - pressing buttons rather than drawing guns - researchers at the University of Birmingham have shown that people are indeed swifter when they make a movement in reaction rather than when they choose to initiate a movement. The results suggest that the brain has developed a 'quick and dirty' response to the environment; they also have implications for understanding neurological conditions in which intentional movements are more difficult than reactive ones. The research, jointly funded by the Wellcome Trust, captured the imagination of the international media when published in the *Proceedings of the Royal Society B*.



.....  
**Professor Andrew Millar** and his team at the University of Edinburgh, with researchers from the University of Warwick, have used computer models to examine the internal 'clock' of *Arabidopsis* plants. They unravelled a complex connection between genes that create an internal rhythm and those that trigger flowering. The rhythms of gene activity shift with seasonal changes in daylight, and might be harnessed to adapt crops to climate change.





## Strategic impact

Bioscience affects our lives profoundly, from food and farming to new medicines and novel 'green technologies'. BBSRC has funded world-class research that can be expected to deliver benefits across these areas. We have entered strategic funding and delivery partnerships to accelerate the realisation of this potential. Notably, we have led development of a new multipartner programme on Global Food Security (see page 4).

Alongside Defra we are a partner in the new Sustainable Agriculture and Food Innovation Platform led by the Technology Strategy Board (TSB). This brings government, business and researchers together to stimulate new technological approaches for increasing food productivity and decreasing environmental impacts. The five year investment of up to £90M (up to £50M of which is expected from TSB) will focus on innovative technological R&D in areas such as crop productivity, sustainable livestock production, waste reduction and management, and greenhouse gas reduction. In the first phase, we have committed £2.5M to a programme of up to £13M on crop protection. This will support collaborative R&D with businesses across the agricultural supply chain to help growers increase yield and meet existing and new EU regulations on pesticide use.



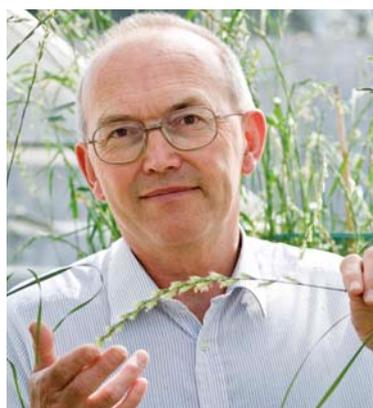
Credit: Carrie Manning

*BBSRC is a partner in a new research programme of up to £10M, with Defra, the Scottish Government, NERC and the Wellcome Trust, to help arrest the serious decline in insect pollinators such as honey and bumble bees, which are essential for the production of some crops.*

*This research, under the Living with Environmental Change (LWEC) programme, is aimed at understanding the complex relationships between biological and environmental factors that affect the health and lifespan of pollinators.*

*In addition, we have awarded £1M, in partnership with Syngenta, for research by scientists at Rothamsted Research and the University of Warwick to examine and model how factors such as disease and food supply affect the survival of bees in farmland. The aim is to develop a predictive tool that farmers and landscape managers can use to balance the relevant factors in order to improve the health of honey bees.*

*We have also awarded £320k for research at the University of Reading using synthetic biology approaches to study the Israeli Acute Paralysis Virus, implicated in honey bee Colony Collapse Disorder.*



**Dr Stephen Moss** of Rothamsted Research received the 2009 Technology Award from the Royal Agricultural Society of England for his team's development of a rapid diagnostic test for detecting herbicide resistance in arable weeds. The Rothamsted Rapid Resistance Test has had a major impact on weed control in the UK and beyond.



**Professor Bill Davies** and colleagues at the University of Lancaster won a Queen's Anniversary Prize for Higher Education for using research into how plants react to stress to develop irrigation and crop management techniques which result in water-saving and better crops in some of the driest regions of the world.



Credit: Chris Sanders JAV

**Dr Simon Carpenter** of the Institute for Animal Health won the first Rooker Prize for contributions to livestock animal health research. This recognised how field studies on the midges that spread bluetongue virus had revealed 'vector-free' and 'transmission-free' periods when restrictions on animal movement could be relaxed, saving UK farming millions of pounds in trade.

LWEC page 15, Studentship on bee research page 27, Bumblebee Conservation Trust page 30

## Global Food Security

Advances in genomic technologies and bioinformatics are increasingly enabling livestock breeders to benefit from detailed data about animals' genetic make-up in a comparable fashion to that harnessed by their counterparts in crop breeding. Livestock genomics will help the industry to retain and harness genetic diversity, for example to meet changing environmental conditions and market needs as well as optimising animal welfare, meat yield and quality.

International collaborations have been vital. In 2009, a draft cattle genome was published and a first draft pig genome was released. BBSRC-funded researchers played an important role in each project, the former involving 300 scientists in 25 countries and the latter 180 scientists in 20 countries. BBSRC's contribution to the cattle genome included research at the Roslin Institute to identify genes associated with immunity. These will provide new opportunities to breed animals better able to resist current and emerging diseases. Knowledge about the pig genome will shed light on the effects of domestication on genetic make-up as well as informing breed improvement. It is also expected to inform understanding of aspects of human health because pigs are very similar to humans in a number of aspects of their physiology. BBSRC has funded research on the analysis and sequencing of the pig genome at the Roslin Institute, University of Cambridge, The WT Sanger Institute and the European Bioinformatics Institute. More generally, BBSRC support has enabled annotation of, and access to, the chicken, cattle and pig genome sequences through the Ensembl genome browser ([www.ensembl.org](http://www.ensembl.org)).

Credit: IAH



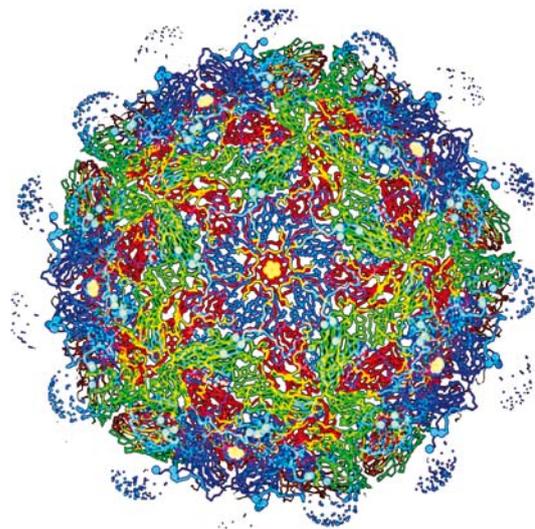
*Understanding and controlling animal diseases remains a major focus of BBSRC science. We also contribute to the European Research Area Network that coordinates research into Emerging and Major Infectious Diseases of Livestock (EMIDA).*

*Livestock diseases in developing countries page 14, Global Uncertainties page 15, animal vaccines page 17, TGAC page 24, redevelopment of IAH page 25, studentships on animal production and disease page 27, bluetongue diagnostic page 29*

There is growing interest in the contribution that fish farming could make to global food security, but the spread of disease can be a problem. For example, proliferative kidney disease costs the UK trout industry alone around £2.5M a year. BBSRC-funded research at the University of Stirling's Institute of Aquaculture has revealed how the causative parasite can cycle virtually indefinitely between trout and tiny aquatic invertebrates, and why the existence of different parasite strains means that some trout species are seen to be more vulnerable than others. The findings have important commercial implications for movement of trout species around the world and for stocks of wild fish, as well as for diagnostic and vaccine strategies.

BBSRC has supported the establishment of Animal Sciences UK, led by the Institute for Animal Health and the Roslin Institute – a forum that brings together leaders in research and policy development across the sector.

*The Institute for Animal Health has been awarded £1.3M from the Wellcome Trust to help translate its fundamental science into novel commercial-scale methods of making novel vaccines against foot-and-mouth disease. The award will support an international research partnership including scientists in the USA and South Africa as well as at IAH and the University of Oxford, and vaccine manufacturer Intervet-SPAH. The partnership, led by Dr Bryan Charleston of IAH, will focus on greater vaccine stability for longer-lasting immunity and genetic manipulation of vaccine strains to make them suitable for large scale production.*



Credit: IAH/University of Oxford

*The intact icosohedral structure of the FMD virus capsid is necessary for the induction of protective immunity.*



Collaborative research in partnership with industry, international research centres and the wider public is helping to provide practical options for increased sustainability across the food production chain.

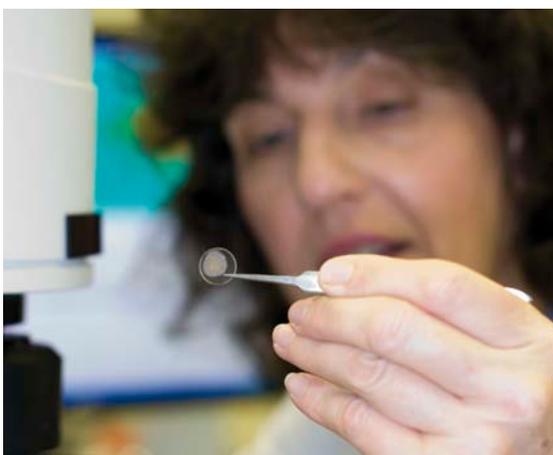
■ Land owners and residents from Loweswater in the Lake District are participating in a RELU project to improve water quality by finding sustainable solutions to the problem of algal blooms forming on the water. Computer modelling indicates that the cause is a combination of diffuse phosphorus pollution from many years of fertiliser application and failing septic tanks in the catchment. Research is aimed at identifying how to develop solutions such as reducing fertiliser application, better maintenance of septic tanks and separating clean from dirty water. The RELU project is interdisciplinary and funded by the UK Research Councils, with additional support from the Scottish Government and Defra.

■ A new way of modelling and predicting how farming affects farmland ecology has been developed by collaborative research between Rothamsted Research, the Scottish Crop Research Institute and Syngenta. The model groups crops and wildlife, with similar characteristics such as diet, size and germination, to predict impacts on productivity and biodiversity simultaneously. It could be used, for example, to identify impacts from climate change or the introduction of new crops or technologies.

■ Plant breeders and food processors are part of a study into pea genetics aimed at enhancing product quality and increasing profitability for growers. Peas fix nitrogen in the soil, so their wider use in rotations would reduce the amounts of fertiliser required for other crops. As fertiliser manufacture has a large carbon footprint, the switch to peas would be environmentally beneficial. The research is funded through a LINK project jointly funded by BBSRC, Defra and 10 additional partners.



*Pea plants replenish soil nitrogen levels naturally. Researchers are seeking to match their environmental benefits with economic sustainability.*



**Professor Clare Mills** of the Institute of Food Research coordinated EuroPrevall, a four and a half-year multidisciplinary study into the prevalence, cost and origins of food allergy across Europe. This research, involving 63 organisations across 24 countries, undertook cohort studies in infants (through a 12,000 strong birth cohort), school children and adults to provide a unique resource of data and biological samples to define the patterns and prevalence of food allergies. Outputs include key missing data on allergy management such as how many people suffer from allergies, which are the key foods involved, threshold doses that trigger response and the role of the food matrix in determining allergenic potential.



Credit: Tony High

**Dr Catherine Howarth** of the Institute of Biological, Environmental and Rural Sciences at Aberystwyth University, which was awarded a Queen's Anniversary Prize for Further and Higher Education for the way its basic plant science has helped crop improvement. This includes research on high-sugar and more digestible forage grasses, more persistent and consistent white clovers, high quality oats, and disease-resistant pearl millet, the last having been developed in collaboration with breeders in India. Dr Howarth works on oats and pearl millet.

BBSRC is the UK's principal public funder of plant science. We have continued to invest at complementary levels: from the fundamentals of photosynthesis to plant genomics, to crop and product improvement. Many crops are genetically very complex but can be investigated using tools developed with the model species *Arabidopsis*. For example, a way of identifying factors controlling gene recombination during pollen and egg cell formation, which could have a huge impact on accelerating and improving the precision of conventional cross-breeding, is now being deployed in barley as a representative cereal. This research is funded through a strategic LoLa to scientists at the Universities of Birmingham, Dundee and Aberystwyth.



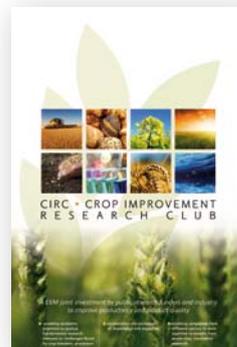
Credit: IIC

*Brachypodium distachyon* is a wild grass species with a small structure and compact genome. It provides a bridge between the well-characterised *Arabidopsis* reference plant and key crop plants such as wheat. The *B. distachyon* genome was published in *Nature* in 2010 by a consortium of researchers led by the John Innes Centre, the US Departments of Energy and Agriculture, and Oregon State University.

## £6M public-private investment in crop improvement

We have launched the Crop Improvement Research Club, in partnership with the Scottish Government, KTN Biosciences and 13 companies\* from the breeding, farming and processing sectors. The Club, managed by BBSRC, will support innovative, excellent research on yield, sustainability and product quality in oilseed rape, barley and wheat.

It will address challenges holistically; for example, identifying and optimising traits that determine quality attributes in processing and manufacturing as well as ways of reducing agro-chemical inputs and improving nutrient utilisation. One aim is to increase quality consistency in crops grown under a variety of agronomic and environmental conditions.

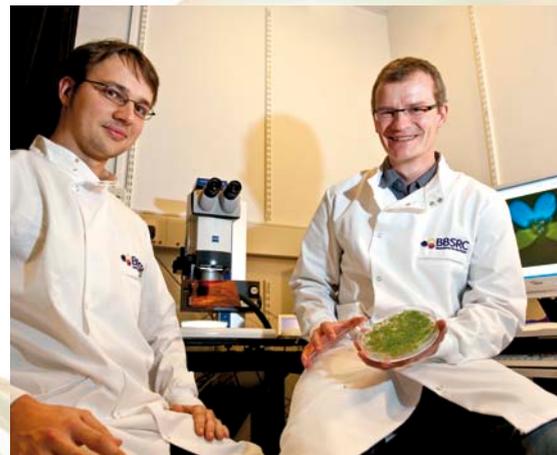


The Crop Improvement Research Club will support basic research in areas such as sustainable control of pests and diseases, protein and non-starch polysaccharide functionality in processing wheat, genetic and environmental determinants of yield in malting barley, and gene-gene interactions that affect yield potential and stability.

\* BASF Plant Science Company GMBH, Campden BRI, Elsoms Seeds, HGCA, KWS UK Ltd, Limagrain UK Ltd, Monsanto UK Ltd, National Association of British and Irish Millers, RAGT Seeds Ltd, The Scotch Whisky Research Institute, Syngenta Seeds Ltd, United Oilseeds Marketing Ltd, and Velcourt. BBSRC's investment is £4.9M.



Losses and control of potato blight cost £3Bn a year worldwide. **Professor Paul Birch** (centre) and colleagues at the University of Dundee, with researchers at the Universities of Warwick and Aberdeen, identified a molecular signature in proteins secreted by the causative agent *Phytophthora infestans* that enables the proteins to enter and attack potato cells. This provides an important new target for breeding varieties resistant to blight, and for other controls.



Evidence of a fundamental process controlling seed/grain size in plants was published in *PNAS* by **Dr Michael Lenhard** and colleagues at the John Innes Centre and scientists from the University of Freiburg, Germany. The researchers found an *Arabidopsis* gene that acts at the base of the growing seed. Switching the gene off reduces seed size: increasing its activity increases size and weight by a third. Corresponding genes in crops could potentially be used to enhance grain yield. Dr Lenhard (right) with PhD student Nikolai Adamski.

*Arabidopsis 'internal clock'* page 9, *Arabidopsis and bioenergy research* page 18, *Ensembl Plants* page 24, *National Arabidopsis Stock Centre* page 24, *wheat genome* page 24.

The World Bank estimates that, for the world's poorest people, GDP growth originating in agriculture is around four times more effective in reducing poverty than any other sector of growth (World Development Report 2008, *World Bank "Agriculture for Development"*).

■ BBSRC and the Department for International Development (DfID), with contributions from the Scottish Government, have invested over £13M in new research on some of the most prevalent, damaging and costly diseases of livestock, to help support farmers in the developing world. As animal diseases do not respect international frontiers, the research is expected to generate valuable information for the UK as well.

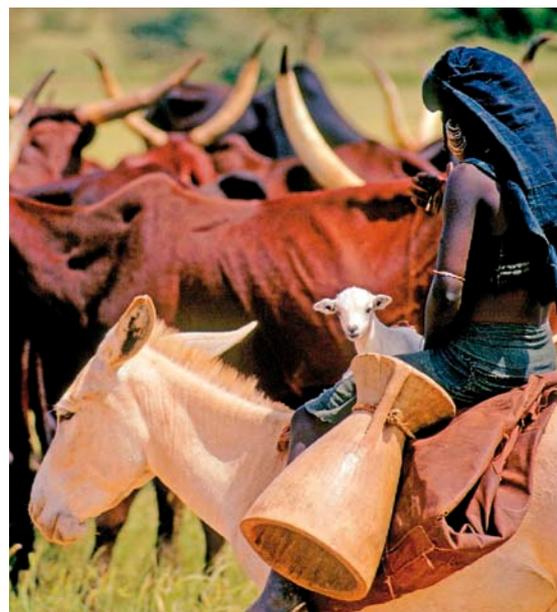
This new initiative, Combating Infectious Diseases of Livestock for International Development (CIDLID), comprises 16 projects, each with a UK and international partner. In total this brings together scientists in 15 UK institutions with researchers in eight countries including India, Ethiopia, Kenya and South Africa. Together they seek to identify sustainable solutions to the threat of animal disease, improve food security and increase scientific capability in developing countries.

Controlling Foot and Mouth Disease (FMD) is difficult because of genetic variation in the virus, which can impair the effectiveness of vaccination. Researchers from the UK and Tanzania are mapping this variation across Tanzania by sampling wildlife, mainly buffalo, and livestock (domestic cattle, sheep and goats). The international team is testing herds adjacent to the Serengeti National Park to investigate the risk of FMD spreading from wildlife to livestock and to determine whether and how the immune response to one type of virus might protect against other types. This research will aid the design of controls for FMD in Tanzania, and increase understanding of the effectiveness of FMD vaccines more broadly.



Credit: Sarah Cleaveland

*Researchers from the Universities of Glasgow and Edinburgh are working with the Institute for Animal Health and researchers from Tanzania to map genetic changes in FMD viruses and track the spread of the disease.*



Credit: Victor Englebert

*Researchers from the University of Edinburgh are working with the Nigerian Institute for Trypanosomiasis Research to identify cost effective methods for sustainable farmer-based control of sleeping sickness.*

Sleeping sickness is a serious parasitic disease that causes severe production losses in cattle. The parasites are transmitted by tsetse flies feeding on blood from infected animals. A single treatment with an injectable drug can clear all parasites from an animal's bloodstream, but it cannot be used continuously to treat herds because of the risk of the parasite becoming resistant - jeopardising treatment of humans as well as livestock. Research is aimed at ways to target interventions to high-risk carriers of the disease amongst livestock.



Credit: University of Glasgow

**Dr Sarah Cleaveland** of the University of Glasgow leads the CIDLID project on FMD control in Tanzania and is part of another CIDLID project on malignant catarrhal fever in livestock, also in Tanzania.

## Cross-Research Council programmes

In addition to joint funding of individual projects, BBSRC works closely with its sister Research Councils through contributions to major cross-Research Council programmes.



### Energy Programme

BBSRC's investment in bioenergy and related research (e.g. IBTI) in 2009-10 was £11.5M



### Lifelong Health and Wellbeing

A total of £16M of joint funds has been committed to date under this MRC-led programme, supporting three centres, ten collaborative development networks and three multidisciplinary collaborations.



### Global Food Security

We invest a total of around £180M in strategic research around food security and the underlying plant and animal science. BBSRC has been instrumental in establishing the new Global Food Security programme (see page 4)



### Living with Environmental Change

In addition to the research around pollinators (see page 10), we have supported 9 awards totalling £4.4M



### Global Uncertainties

Our focus in this area is on prevention of plant and animal diseases that could have major impacts on the UK economy and well being. We have announced that we will commit up to £2M to an ERA Net project on EMIDA.

### RCUK Nanotechnology Group

We have awarded 9 grants totalling £4.9M.

### Rural Economy and Land Use (RELU)

Projects are jointly funded by BBSRC, ESRC and NERC. Of 29 projects awarded since 2004, six have involved researchers at BBSRC Institutes on topics including alternative pest management, *E.coli* 0157 and energy crops



## Bioscience underpinning health

The proportion of elderly people in the UK population is increasing. Although UK life expectancy is predicted to rise from 77 years for men and 81 for women to 82 and 86 years respectively by 2031 (Office of National Statistics), this is not matched by an increased healthspan.

**Nearly 40% of people in the UK aged over 65 suffer from longstanding illness**

*(Age UK, 2010, 'Older people in the United Kingdom').*

BBSRC funds research into the biological processes of ageing that can be expected to inform strategies to minimise detrimental changes and so increase healthspan. This research is often 'stand alone' basic science, but may contribute to multi-funded projects where the science is taken towards direct medical applications. BBSRC-funded research ranges from using model species and systems approaches to identify underlying processes that affect the rate of ageing to characterising changes associated with age-related diseases.

- ▶ In partnership with the US National Institute on Ageing, we have invested a total of £2.6M in six transatlantic research projects on the biology of ageing.
- ▶ We have provided £1.5M in support of three awards under the RCUK Lifelong Health and Wellbeing programme, and have agreed to fund up to a further £2M.
- ▶ We have funded research into signalling and muscle physiology that could lead to a better understanding of the ageing bladder and bowel with implications for understanding incontinence.
- ▶ BBSRC and Research into Ageing sponsored a session at the 2009 British Society for Research on Ageing Annual General Meeting.
- ▶ We have made 16 responsive mode grants for fundamental research on aspects of ageing, at a total cost of £14.6M.

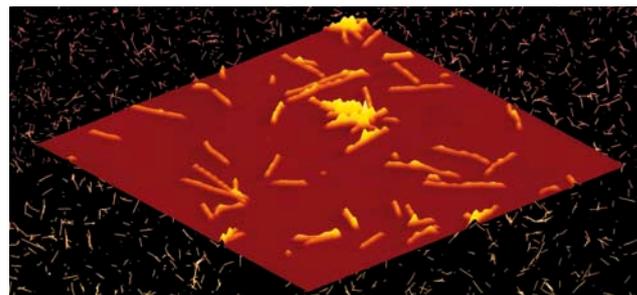
### Outputs from BBSRC-supported research on ageing include:

*Discovery of a gene in simple worms, which seems to influence lifespan and rate of ageing. Increased activity of the gene correlates with improved stress resistance and immunity. Corresponding genes exist in humans and other animals (University of Birmingham).*

*Description of a mechanism by which deterioration in the skin's ability to recognise and remove damaging materials could explain why older people are more vulnerable to cancer and skin infections (University College London).*

*Discovery of how a common blood protein mitigates eye damage by inhibiting build up of another protein in response to inflammation, this has implications for controlling age-related macular degeneration, the primary cause of vision loss in the elderly (University College London. Also funded by UCL and the Mercer Fund of the Fight for Sight charity).*

*A new target for treating amyloid protein diseases such as Alzheimer's and Parkinson's based on the discovery linking length of amyloid fibres to toxicity (University of Leeds, part-funded by the Wellcome Trust).*



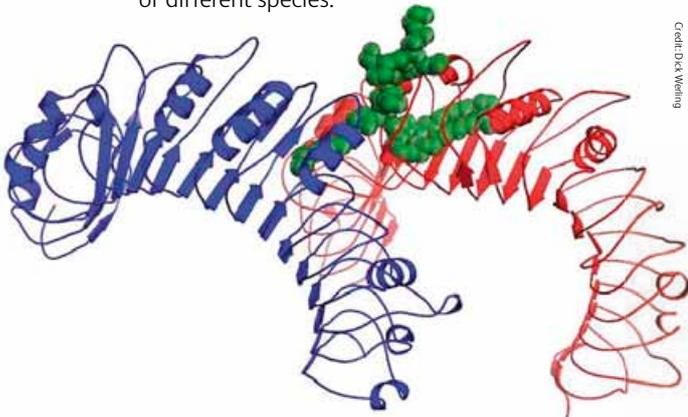
*Amyloid fibrils (protein assemblies symptomatic of several protein misfolding diseases). Atomic force microscopy, cell biology and biochemical assays have revealed that cytotoxicity is critically dependent on fibril length (Astbury Centre for Structural Molecular Biology, University of Leeds).*

The University of Newcastle was awarded the Queen's Anniversary Prize for Further and Higher Education for its pioneering ageing research. The University hosts the BBSRC Centre for Integrated Systems Biology of Ageing and Nutrition (CISBAN) which is led by **Professor Tom Kirkwood**. CISBAN researchers have identified a molecular pathway that reacts to internal signals of DNA damage in a cell and triggers suppression of the cell's ability to divide. This discovery by experimental biologists, mathematicians and computer scientists increases understanding of ageing processes relevant to maintaining a healthy lifespan and controlling conditions where cell ageing is a factor.



■ Understanding fundamental cellular processes such as how molecules recognise and interact with each other, the regulation of metabolic pathways and cell communication, advances our knowledge of the healthy system and thus underpins progress in disease prevention, diagnosis and treatment. Studies of the immune function, and on the behaviour of disease-causing microbes, are good examples of this. Cross-disciplinary applications of new technologies are also important. BBSRC has committed over £0.5M to fund three awards under EPSRC's 'grand challenge' on nanotechnology in healthcare. These address aspects of pathogen detection and targeted delivery of drugs to specific tissues.

■ Collaborative research by scientists at the University of Nottingham, Institute for Animal Health, Royal Veterinary College and the Roslin Institute offers a rapid and cost-effective 'one health' approach to developing vaccines that could work in humans and other animals against common threats such as flu viruses and food poisoning bacteria. The researchers found only very slight species differences in a molecule that acts like a barcode - identifying a particular threat and communicating it to cells of the immune system. This molecule is crucial for triggering immune defence and so could be a critical target for vaccine design, and could be used to adapt a single vaccine for treatment of different species.



Credit: Dick Weening

A bacterial antigen (green) binding to two bovine innate immune receptors.

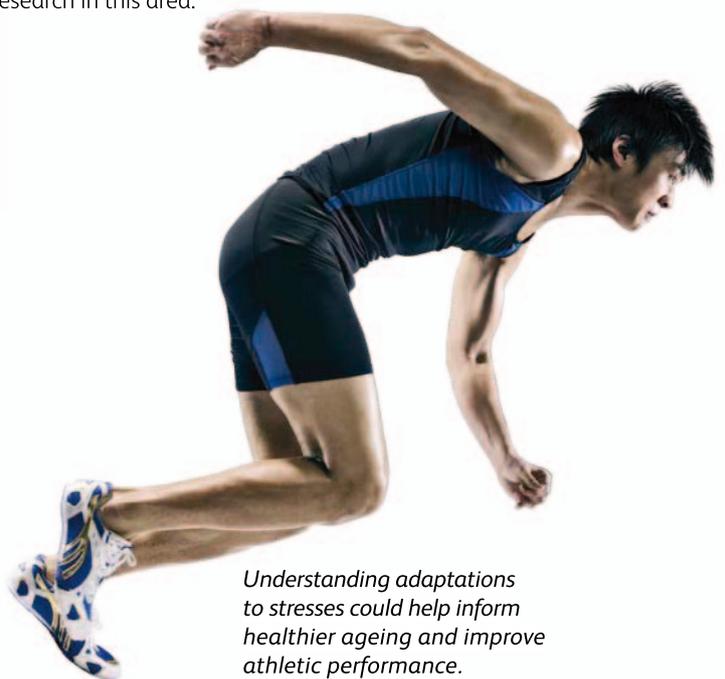
■ Sarum Biosciences Limited has secured an exclusive worldwide licence agreement to exploit therapeutic and diagnostic applications of a natural virus that attacks bacteria for combating the hospital 'super-bug' *C. difficile*. The bacteriophage endolysin technology which is pivotal to this work was developed by scientists at the Institute of Food Research, with support from BBSRC's Follow-on Fund.

Many aspects of research into physiological responses and cell and tissue science require the use of animals. BBSRC remains committed to this use of animals and to seeking ways to replace, refine and reduce the use of animals in research (the 3Rs). BBSRC is a funder of the National Centre for the 3Rs (NC3Rs), investing £1M in 2009-2010. All applications for BBSRC that involve use of non-human primates, cats, dogs and equines, are reviewed by the Centre. With the NC3Rs we identified as a priority area the replacement of vertebrates with less sentient lower organisms where possible. Centre awards in this area include one funded by BBSRC to the University of Birmingham to explore molecular control of cell proliferation in fruit flies and mammals. Also with NC3Rs and with tissue engineers we have promoted research into tissue models as replacements in some testing.



Credit: NC3Rs

■ Elite athletes are generally fitter than average. They could provide clues about how the body adapts to high levels of demand and stress over long periods and maintenance of health in an ageing population, for example around physiological and psychological factors associated with muscle performance, acquisition of new skills, and training. In September 2009, BBSRC, in partnership with UK Sport, brought together relevant academics and members of the sports and exercise community to identify areas that could benefit from multidisciplinary research. We are looking to support both short and long term programmes to promote research in this area.



Understanding adaptations to stresses could help inform healthier ageing and improve athletic performance.



## Bioenergy and industrial biotechnology

BBSRC has increased investment in the science needed to support a switch from petrochemical-based technologies and businesses to 'greener' alternatives. We have done this at many levels: from pushing the boundaries of our understanding and ability to manipulate fundamental bioenergetics; to strategic analysis to inform policy formulation; to exploration of economically and environmentally sustainable processes and products.



■ We have announced a partnership with the US National Science Foundation (NSF) to invest up to \$8M in groundbreaking research into biochemical mechanisms to enhance the efficiency of photosynthesis. This is a massive scientific challenge but, if even partly successful, it would transform technologies for food, feed and bioenergy production. BBSRC and NSF have launched an 'Ideas lab' in 2010 that will bring together leading researchers in all relevant disciplines to develop proposals for novel and innovative approaches.

■ Biomass crops such as short rotation coppice (SRC) willow and miscanthus grass are potential sources of renewable energy. A study under the cross-Research Council programme RELU showed there is sufficient land available to meet the UK Government Biomass Strategy objectives of 350,000ha for electricity, without significantly affecting food production. Findings indicated that policy support and incentives might be essential for large scale adoption in the UK - relatively low returns being vulnerable to fluctuations in the price of other crops such as cereals. Despite some prior concerns about possible impact on biodiversity, the results showed some positive benefits compared with arable crops, especially for SRC.

Biofuels are the only realistic alternative to fossil-derived transport fuels that could be deployed quickly using current infrastructure. Second-generation biofuels, i.e. fuels derived from non-food crops or from waste and non-edible parts of food crops, are the focus of the BBSRC Sustainable Bioenergy Centre (BSBEC). Discovering novel and sustainable ways of releasing sugars from wood and straw so that they can be fermented to liquid biofuels is important for the development of such biofuels. Scientists at the University of Portsmouth, collaborating with a team from the University of York, have found a group of enzymes in marine wood borers (gribbles) that together convert such unpromising materials into sugars which can be fermented into fuel alcohol. The ability to break wood down without assistance from microorganisms had not been detected previously in animals.



Credit: Graham Melvin

In addition to BSBEC, BBSRC has funded two grants on bioenergy research totalling £0.9M.



**Duncan Eggar** CEng, FRSA has been appointed BBSRC 'Bioenergy Champion'. In addition to developing and coordinating the work of BSBEC, he is forging links nationally and internationally around science in support of policy development.



BSBEC project leader **Dr Paul Dupree** and colleagues at the University of Cambridge identified enzymes in the 'model' plant species *Arabidopsis* that increase levels of fermentable sugars such as glucomannan in the plant's stem. Enhancing activity of corresponding enzymes in biofuel crops could significantly increase yield.



IBTI • INTEGRATED BIOREFINING RESEARCH AND TECHNOLOGY CLUB

■ In 2009, we awarded the first four grants (totalling £1.8M) under the Integrated Biorefinery Technologies Initiative Research and Technology Club (IBTI) which was launched the previous year with funding from BBSRC, EPSRC and a consortium of 10 companies. IBTI supports research and technology to replace fossil-fuel derived chemicals and consumer products with 'green', i.e. sustainable, alternatives. Two coordinators have been appointed to guide these developments, which are one way in which we are addressing recommendations of the "Maximising UK Opportunities from Industrial Biotechnology in a Low Carbon Economy", a report from the Industrial Biotechnology Innovation and Growth Team.

Credit: S. Martin, TMO Renewables Ltd



*IBTI aims both to build a research community in industrial biotechnology and, from the start, to foster academic-industry interaction.*

The first IBTI projects explore:

- ▶ options for plant breeders to improve the composition and 'processability' of wheat and oilseed rape straw for bio-alcohol production (John Innes Centre, Institute of Food Research)
- ▶ use of lignin-degrading enzymes from novel strains of bacteria to produce valuable aromatic chemicals such as phenols for the manufacture of plastics (University of Warwick)
- ▶ a systems biology approach to identify bioreaction metabolic networks for biofuel production, for example, combining data on biomass degradation and fermentation to bioethanol (University of Surrey)
- ▶ options for using non-food plants as an alternative to oil-derivatives for the production of wax esters (Rothamsted Research)

In September 2009, we announced a further £3M to support additional future projects.



Credit: Plymouth Marine Laboratory

■ BBSRC, EPSRC and the TSB are funding a new collaboration between researchers at Heriot-Watt University, Plymouth Marine Laboratory, Ingenza Ltd and Aquapharm Biodiscovery Ltd. The aim is to identify enzymes in marine organisms which may be used in high-yielding, scalable and economic manufacture of pharmaceuticals and agrochemicals – both to make new products and to improve current processes by reducing wastes.

Credit: University of Oxford



IBTI coordinator **Professor Chris Knowles** of the University of Oxford



IBTI coordinator **Dr Adrian Higson** is Chemical and Healthcare Manager at the National Non-Food Crops Centre.

# Providing National Capability

## Investing in skilled people

**BBSRC has confirmed its commitment to developing the skills base required by the UK research community and by bio-based industries and businesses. We have given priority to so-called vulnerable areas in academic research where skills shortage is, or is becoming, critical to our research priorities.**

We also provide a range of highly targeted training and professional development opportunities in partnership with industry (see page 27), support academic-industry exchanges and enable researchers to develop business awareness skills (see page 28).

The BBSRC Bioscience Skills and Careers Strategy Panel met in October 2009 to consider the findings of a consultation led by BBSRC and the (former) Biosciences Federation into areas of bioscience vulnerable due to a lack of expertise. As a result of findings from across academic and industrial sectors, we have targeted resources for training to several priority areas: whole animal physiology; industrial biotechnologies, and plant and agricultural sciences. We are also working with NERC's review of UK capabilities in systematics and taxonomy to understand the issues for skills and careers in this area.



**Professor So Iwata** of Imperial College London was awarded the first BBSRC Diamond Professorial Fellowship that will support his use of facilities at the Diamond synchrotron at Harwell to study the structure of human cell membrane transporters.

■ We have provided additional funding to support research institutions with the high cost of training for *in vivo* research. In partnership with the MRC and the British Pharmacological Society, we have established strategic skills awards of up to £10k a year for the duration of a student's PhD studies.

Four university-based Integrative Mammalian Biology (IMB) projects have successfully attracted additional private and public funding to help train scientists in specialist *in vivo* skills, essential for the translation of basic research discoveries into medical treatments. Glasgow, Liverpool, London and Manchester have been supported by the IMB programme since 2007, jointly funded by BBSRC, the British Pharmacological Society (through their Integrative Pharmacology Fund, supported by AstraZeneca, GlaxoSmithKline (GSK) and Pfizer), the Department for Innovation Universities and Skills (now BIS), the Higher Education Funding Council for England, the Scottish Funding Council and MRC. We have provided £200k to support the adoption at these centres of systems approaches to mammalian physiology.

The new industry funding secured by the IMB projects will enhance biomedical research by focusing on skills development, addressing economic and business factors, exploring social issues and expanding academic provision. Examples include a Pfizer-sponsored Chair in Integrative Biomedicine and '3Rs' lecturer at King's College London and CASE studentships which have been awarded to the University of Manchester with AstraZeneca and GSK as industrial partners.

### Fellowships portfolio 2009

David Phillips	7
Research Development	5
Diamond Professorial	1
Institute Career Path	1
Industrial Impact	1
Enterprise	8

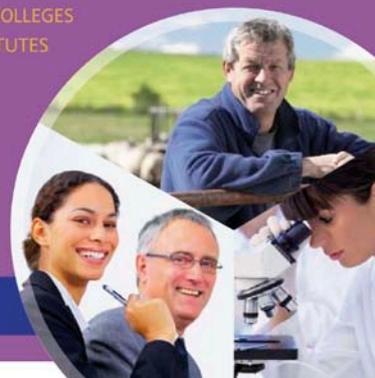
**Developing high level skills in the agri-food sector to secure our future food supply.**

BBSRC Advanced Training Partnerships provide a formal collaboration between users and providers of high level skills in the agri-food sector, bringing together companies with research organisations and training providers.

Advanced Training Partnerships will deliver flexible training through masters courses or modules, professional doctorates, knowledge exchange or other mechanisms.

For further information please visit:  
[www.bbsrc.ac.uk/atp](http://www.bbsrc.ac.uk/atp) or email [atp@bbsrc.ac.uk](mailto:atp@bbsrc.ac.uk)

AGRICULTURAL COLLEGES  
RESEARCH INSTITUTES  
UNIVERSITIES  
LEVY BODIES  
INDUSTRY



- BBSRC contributes to the Skills Sub-Group of the Government's Food Research Partnership.

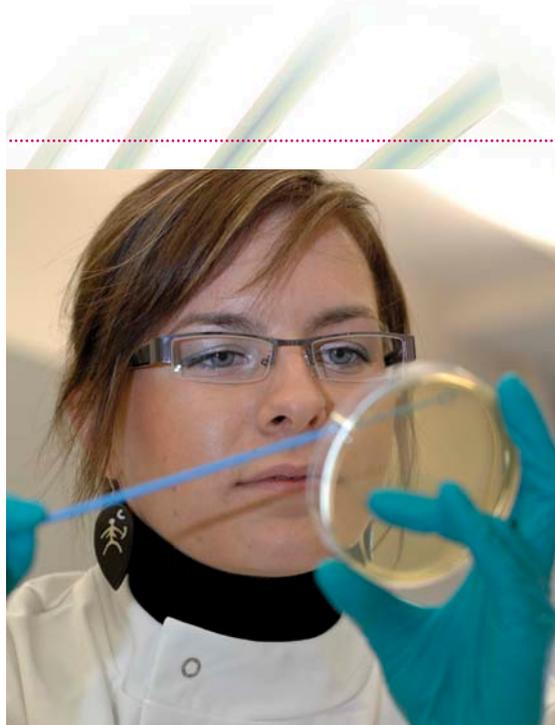
We have committed up to £15M to establish training for food security research and development. The BBSRC Advanced Training Partnerships (ATPs) are aimed at ensuring that the UK has highly skilled professionals in the agri-food sector. ATPs will support specialist and technical training in the sector and help companies to manage succession planning in niche skills areas.

The ATP call was launched in February 2010 and seeks to create a partnership approach addressing skills issues, bringing together companies with research organisations and training providers. They will deliver flexible training, for example, through Masters courses and modules, professional doctorates and knowledge exchange mechanisms. ATPs complement the industry-led AgriSkills Strategy of Lantra (the sector skills council for environmental and land-based industries) and NFU to support skills at farm-level.

- To help build research capacity in systematics and taxonomy, BBSRC and NERC have together made available a total of £0.75M to fund projects where these disciplines form a substantial component. This three-year scheme will provide short-term funding of £5k -£30k to enable researchers to obtain preliminary findings on which to base submissions for grant awards.

- We have doubled the size of our Research Experience Placements scheme (previously Vacation Bursaries) to enable 200 undergraduates every year to gain experience of full-time research. Students receive support for summer projects of up to ten weeks in strategically important areas for BBSRC, such as food security and systems biology.

- We have also contributed over £0.5M to the career development programme of Vitae, which promotes a broad range of transferable skills training for PhD students and early career postdoctoral researchers.



Food Standards Agency PhD scholarship-holder **Ewelina Wachnicka** is working at the IFR on a quantitative approach to define an appropriate level of protection with respect to *Clostridium botulinum* in chilled foods.



We have increased our investment in studentships to a total of £47M, and the number of PhD students we support to 2,348. Within this portfolio, we have targeted awards to strategically important areas such as bioenergy, environmental change and diet and health (the last through DRINC). We have also supported specialist training courses, for example in systems biology data management (through ERASysBio).

#### Top 25 Universities by postgraduate funding

University	Funding (£M)	Fellowships
1 Manchester	4.49	3
2 Edinburgh	3.33	5
3 Imperial College, London	3.06	5
4 Nottingham	3.01	5
5 Cambridge	3.00	5
6 Leeds	2.51	3
7 University College London	2.35	4
8 Oxford	1.82	4
9 Sheffield	1.77	-
10 Birmingham	1.68	5
11 Bristol	1.66	2
12 York	1.62	-
13 Liverpool	1.40	2
14 Glasgow	1.33	2
15 Newcastle	1.26	1
16 Dundee	0.88	1
17 Kings College London	0.84	2
18 Cardiff	0.82	1
19 Bath	0.82	-
20 Southampton	0.80	1
21 Royal Veterinary College	0.76	-
22 Aberdeen	0.69	-
23 Leicester	0.65	-
24 Warwick	0.63	-
25 Kent	0.60	2

#### First destination data of PhD students\*

Completing in academic year:	2006-07	2007-08
<b>% of known destinations</b>		
Government and public sector	6	10
Higher education	44	41
Industrial and commercial sector	34	37
Further training	5	4
School teaching/other	3	1
Not employed	8	7

\*Collected on behalf of Research Councils by HESA (Higher Education Statistics Agency)

#### Studentships

Directly funded	37
DTG* funded	1,581
Targeted Priority	155
Ind CASE & Ind CASE Partner**	311
Masters	111
<b>Total</b>	<b>2,195</b>

\*Doctoral Training Grant

\*\*Industrial CASE and Industrial CASE Partnership scheme



**Drs Catherine Hall and Ian Wilkinson**, who completed PhDs at the University of Leicester, supported by BBSRC Industrial CASE studentships with industrial partner UCB Celltech, now have permanent positions in the pharmaceutical sector. They focused on developing robust, reliable and relatively rapid NMR spectroscopy approaches to identifying structural features in potential therapeutic antibodies and complexes formed with target proteins. This information has potential application in the design of therapeutic antibodies and drug development.

#### Training first rate people

	2006-07	2007-08	2008-09
Students qualifying from Masters courses (%)	87	98	96
	2003-07	2004-08	2005-09
Students submitting PhD theses within 4 years (%)	80	80	83

■ BBSRC's support for engaging and inspiring young people about bioscience, to encourage them to pursue science-based careers, is delivered largely through RCUK. This includes support for: Researchers in Residence ([www.researchersinresidence.ac.uk](http://www.researchersinresidence.ac.uk)), Nuffield Bursaries and the Bringing Cutting Edge Science into the Classroom CPD courses for secondary school teachers, delivered through the Science Learning Centres. Among the last is a new course on Food Security and Agriculture that was run at the Hertford SLC in March 2010. A further course will be run at the John Innes Centre in July 2010.

■ We also support scientists-schools engagement through our network of 22 local schools coordinators, through targeted support for activities at our institutes, and by support for key national initiatives.

Examples of BBSRC-supported engagement have included:

- ▶ Sponsorship of the UK team's participation in the finals of the 2009 International Biology Olympiad in Japan.



The UK team at the International Biology Olympiad came back with a haul of one gold and three silver medals. Left to right: Dr Celia Caulcott, BBSRC Director of Innovation and Skills with the team of Ted Pynegar, Elizabeth Jefferys, Joseph Harvey and Sarah Gales

- ▶ Scientists at the University of Manchester took families for an education day at Chelsea Physic Garden in London, where they led interactive activities, including digital microscopy, on the science of carnivorous plants.



BBSRC local schools coordinator Dr Amanda Bamford of the University of Manchester describing the biology of carnivorous plants.

- ▶ The Babraham Institute hosted an event in October 2009 at which twenty Nuffield Bursary students also presented their research projects to parents, science teachers, academics and industry representatives. The Institute, the John Innes Centre and Rothamsted Research hosted four, ten and six students respectively to undertake research in their laboratories.
- ▶ Schools and curriculum-based activities around the RCUK 'Darwin Today' touring exhibition.



'Darwin Today' visited the Thomas Hardy School in Dorchester.



Former teacher, **Dr Tristan Bunn** has been working on a BBSRC-funded post to develop an education outreach strategy and test new activities for the three Norwich Research Park-based BBSRC Institutes. Tristan is pictured with Catherine Reynolds (right) and Dee Rawsthorne who respectively lead on communications and engagement in Norwich. The Teacher Scientist Network, hosted at the JIC and partly funded by BBSRC, arranged visits by 100 researchers to 130 schools in Norfolk during National Science and Engineering Week 2010.



## Investing in infrastructure

Biological research is increasingly driven by, and dependent on, effective interfaces between biology, computing and data management. BBSRC has invested to ensure that UK scientists have access to world-class infrastructure and facilities to underpin advances in bioscience, food & farming and bio-medicine. We have also continued to invest to help ensure that the UK has the necessary national capability for research in strategically important areas such as animal health and land use. We do this through a portfolio of institute- and centre-based research, and national and international partnerships.

■ We are on target to meet our commitment to increase funding for tools and resources to £12.3M by 2011. In particular we are addressing ways to alleviate bottlenecks in data analysis. We have allocated up to £6.5M for Bioinformatics and Biological Resources; and we have supported new computational approaches through £2.25M funding under the Tools and Resources Development Fund. Under the former, for example, we are investing £371k in coordinated development of tools and resources for wheat genomics that can be efficiently used by the wider cereal community.

■ Planned development of the European Molecular Biology Laboratory's European Bioinformatics Institute (EMBL-EBI) near Cambridge as the central hub of a new European Life-Science Infrastructure for Biological Information (ELIXIR) - an initiative involving 32 partners from 13 countries - highlights the UK's pre-eminence. BBSRC has committed £10M to EMBL-EBI to expand data resources and IT infrastructure as a first step. UK participation in ELIXIR is also supported by MRC, NERC and the Wellcome Trust.

■ EMBL-EBI, in partnership with Cold Spring Harbor Laboratory USA, has launched a new web resource for plant genomics research. Called Ensembl Plants, the free resource provides worldwide access to data on valuable genetic traits such as resistance to drought or pests. The first data released include BBSRC-funded analyses of 17 strains of the model species *Arabidopsis*. We have continued to support the National *Arabidopsis* Stock Centre at the University of Nottingham.

■ BBSRC, MRC and the University of Cambridge Centre for Trophoblast Research have jointly invested £1.65M in a state-of-the-art, high-throughput epigenomics facility at the Babraham Institute, as part of a new Genetic Research Hub with partners including EMBL-EBI.



*The BBSRC Genome Analysis Centre, a £13.5M partnership with EEDA, Norfolk County Council, South Norfolk Council, Norwich City Council and the Greater Norwich Development Partnership, was officially opened by Nobel Laureate Sir John Sulston (right) and HM Lord-Lieutenant of Norfolk Richard Jewson in July 2009. It provides, at ISO 9001 certification, a national facility in genomics and bioinformatics of plants, animals and microbes. The Centre's Director is Dr Jane Rogers (left).*

■ BBSRC has committed £0.5M and land and buildings for a new £5M development with regional agencies at the Norwich Research Park (NRP). Over 30 laboratory and office units will be provided for start-up and growing businesses, alongside the world-class research undertaken by two thousand scientists at the NRP. The new facility is known as NRP Innovation Centre and is managed by Colney Innovation Limited of which the shareholders are the John Innes Centre, The Institute of Food Research, the University of East Anglia and BBSRC.



Credit: EBI



### Pirbright re-development

■ BBSRC and the Higher Education Funding Council for England, on behalf of public stakeholders in land-based research, commissioned an independent report into public sector facilities that are vital for future UK agricultural and land-based research. The report was published in May 2009. It identified 24 strategically important resources across 15 institutions as crucial; over half of these are hosted by BBSRC Institutes or former institutes, including 10 facilities across the Institute for Animal Health and Rothamsted Research. Data from the report contributed to a wider study by Defra into research capabilities.

■ Redevelopment of the world-leading laboratories of the Institute for Animal Health at Pirbright is underway following a combined investment of over £100M from the Large Facilities Capital Fund of the Department for Business, Innovation and Skills and from BBSRC's capital allocation. The redevelopment and transfer of research from the Compton site are scheduled for completion by 2013, in line with the Institute's re-focused strategy around: large animal viral diseases; vector-borne and emerging viral diseases of livestock; avian viral diseases and livestock aspects of viral diseases that also infect humans.

■ North Wyke Research merged with Rothamsted Research in August 2009. We have consulted on our intention to invest at least £1M to create a national facility at North Wyke for farm-scale analysis of agroecosystems to explore options to increase productivity in economically and environmentally sustainable ways. Responses have helped us to address specific technical challenges in developing the facility.

■ In July 2009, then Science Minister Lord Drayson opened a £22M Biological Support Unit at Babraham Institute that combines state-of-the-art automation and robotics to optimise data use, environmental consistency and high levels of animal welfare. This both accelerates research projects and ultimately minimises the number of animals needed.

■ The first UK base for Embrapa, the Brazilian Government's agri-business and research organisation which places Brazilian scientists at elite overseas institutions through its Labex programme, has been established at Rothamsted Research. The placement, which was launched in March 2010 by UK Chief Scientific Advisor Professor John Beddington and Embrapa Director-President Dr Pedro Arraes, will focus on the genomics and molecular pathology of *Septoria* leaf blotch, the most important foliar disease of wheat in Europe. It will also strengthen links between UK and Brazilian scientists across the UK.

IP management and technology development company PBL, which is part-owned by BBSRC, has signed a partnership agreement with Embrapa. This will give scientists working with PBL access to expertise and opportunities to develop and translate their research for Brazilian markets.



(From left) Professor (now Sir) John Beddington at the Labex launch with Dr Pedro Arcuri (coordinator of the Embrapa Labex Europe programme), Dr Pedro Arraes (Director-President Embrapa) and Dr Alexandre Amaral (Labex, Rothamsted Research)

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# Securing Economic and Social Value

## Collaborative research and training

**BBSRC remains committed to harnessing social and economic benefits of the research it funds as effectively as possible through constructive relationships with end-users. This includes identifying how basic and strategic research can help tackle industrial and policy challenges, ensuring that research is sufficiently multidisciplinary to address real situations, and strengthening expertise and skills across the bio-based industries.**

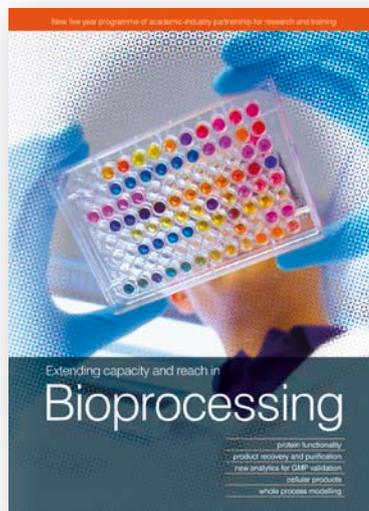
■ We have revised our strategy and policy for knowledge exchange and commercialisation, which sets out BBSRC's position, principles and plans to enable the optimal and successful application of the outcomes of the research we fund. In developing this strategy, we commissioned consultants DTZ to review the operation of our technology transfer policy at BBSRC Institutes. In response to the findings, which were published in August 2009, we are introducing a distinct funding stream for knowledge exchange and commercialisation activities at BBSRC Institutes. This will enable a longer term and more strategic approach to the successful application of the intellectual assets of the Institutes.

■ We have continued to develop our research and technology clubs as a mechanism to bring together academics and industry to identify and support high quality research relevant to industrial need.



### DRINC • DIET AND HEALTH RESEARCH INDUSTRY CLUB

■ We made a further seven awards, totalling over £4M, through the Diet and Health Research Industry Club (DRINC), which is led by BBSRC in collaboration with the MRC and 15 member companies. The new projects include research that addresses: the influence of prebiotics on gut bacteria; the effects of fruit juice processing and metabolism on cardiovascular health; and the role of plant cell walls on nutrient absorption.



■ We announced a further £10M in support for the Bioprocessing Research Industry Club (BRIC) which brings academics and industry together to find ways of delivering new medicines from biological materials more quickly and effectively. BRIC - a BBSRC-led partnership with EPSRC and the UK biopharmaceutical industry with support from the HealthTech and Medicines Knowledge Transfer Network - focuses on five priorities: bioprocessing research challenges for protein products and their host cell producers; high throughput bioprocess development; effective modelling of whole bioprocesses; robust and effective analytics for bioprocessing; and bioprocessing research for cellular products.

■ We have committed up to £3.5M in partnership with EPSRC and the TSB to test the concept of Innovation and Knowledge Centres by exploring opportunities at the interface between biological sciences and engineering.

**Professor Parveen Yaqoob** of the University of Reading is funded through DRINC to look at the effects of pre- and probiotics on immune function and in particular their impact on immunological ageing.



Credit: University of Reading

*Other research and technology club activities pages 13 and 19; TSB sustainable agriculture and food page 10; commercialisation of institute research pages 10, 11, 12, 17, 29; research informing policy pages 8, 10, 12, 18*



*Researchers transplanting Brassicas – they aim to increase their mineral content through exploiting novel pre-breeding techniques and fertilisers.*

■ We have continued to use Industrial Partnership Awards (IPAs) to fund responsive mode grants where applicants have attracted at least 10% cash funding from an industrial partner. Sixteen awards were made in 2009.

With IPA support, scientists at the University of Nottingham are exploring whether dietary intake of calcium and magnesium might be boosted, with concomitant health benefits, by biofortifying cabbages and other brassicas. The four-year project is being conducted in collaboration with the University of Warwick, Rothamsted Research, the Scottish Crop Research Institute and Yara UK.

■ Scientists at IBERS are working with farmers, technology companies and fuel manufacturing and distribution companies to develop a sustainable biofuel production process. This builds on IBERS research with high sugar ryegrasses. Early indications suggest a potential ethanol production of circa 5,000 litres per hectare of ryegrass per year. The *Grassohol* and *Fibrzymes* projects, led by Aberystwyth University (IBERS), are jointly sponsored by BBSRC, DECC and Defra through the Renewable Materials LINK Programme, and by European Regional Development Funding through the Welsh Assembly Government's Academic Expertise for Business Programme. The project partners are: Aber Instruments, Alvan Blanch, Biocatalysts, Germinal Holdings, NFU, One51, TMO Renewables and Wynnstay Group plc.

As well as collaborative research with industry, we have continued and developed a variety of mechanisms to co-support training. These include:

- ▶ 110 masters studentships including support for integrative mammalian biology, bioinformatics and theoretical systems biology, and bioprocessing
- ▶ 67 industrial CASE studentships, including projects on biomarkers of the innate response to disease in chickens (University of Glasgow and Aviagen Ltd), pesticide residues in bees and stored pollen and their effects on bees (Keele University and British Bee Keepers Association) and economic analysis of heifer rearing and breeding selection (Royal Veterinary College and DairyCo)
- ▶ 75 Industrial CASE Partnerships, including programmes with GlaxoSmithKline, Pfizer and Unilever.

We have continued to support tailored training for graduates working in, and with, industry through Modular Training for Industry courses. During 2009-2010, new courses started in: animal welfare and livestock production (University of Oxford), histotechnology (Royal Veterinary College), meat science and technology (University of Bristol), crop protection (Rothamsted Research), experimental design for *in vivo* research (Newcastle University), vaccine bioprocess development and commercialisation (University College London) and sustainable bioenergy (University of Nottingham).

## Commercialisation and development

BBSRC has continued to drive culture change in the HEI sector by encouraging and equipping researchers to realise the potential economic and social impacts from their science.

Departments in twenty universities are competing in the **BBSRC Excellence with Impact** competition, the awards for which will be made in March 2011. This departmental scheme complements our Innovator of the Year programme (see pages 29 and 30).

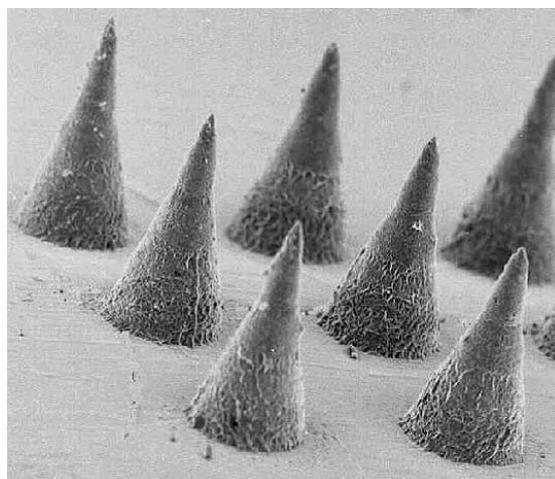
We have met our target to increase the number of PhD and early career scientists obtaining business awareness and entrepreneurial skills through participation in **Biotechnology YES** to over 350 a year. The 2009 Competition attracted 451 participants. In the final, a team of scientists from the University of Cambridge and Imperial College London beat 13 other teams to win with their business plan for a hypothetical company, Gluten Replacement Technologies Ltd. Biotechnology YES is run annually by BBSRC with the University of Nottingham Institute for Enterprise and Innovation. In 2009, for the first time a regional heat was held in the East of England, ahead of the national final.



*The team from the University of Cambridge and Imperial College London that won the 2009 Biotechnology Young Entrepreneurs Scheme (Biotech YES)*

We have increased our support for the BBSRC/Royal Society of Edinburgh **Enterprise Fellowships**, making eight awards in 2009-2010. We have awarded our first Industrial Impact Fellowship to Dr Mark Christie who will be based in Kings College London. He will use his industrial experience and skills to encourage sustainable partnerships between integrative biology researchers and the commercial biotechnology and pharmaceutical sectors.

We have increased to £2.5M our **Follow-on funding** that supports 'proof-of concept' research typically in the region of £80k -£150k for a year. During 2009-2010 we made a total of eighteen Follow-on awards to scientists at University College London (2), Cardiff University (3), Universities of Manchester, Birmingham, Leeds, Queen's University Belfast, University of Reading, Institute of Food Research, Universities of Glasgow, Aberdeen, Warwick, Nottingham, St Andrews, Rothamsted Research and the University of Oxford. These support developments ranging from novel microneedle arrays for transdermal drug delivery (Queen's University Belfast) to lactobacilli to exclude pathogens and improve poultry health (Institute of Food Research) and novel reagents for protein modification (University College London).



*Credit: Ryan F. Donnelly*

*Electron micrograph of laser engineered polymeric microneedle arrays*

We have launched a new **Pathfinder scheme** that enables potential Follow-on funding applicants to secure up to £10k for work on preliminary commercial activities, for example by commissioning expert advice from sector specialists on the best commercial development strategy for a business idea, and completing a market assessment to determine likely potential competition and opportunities.

BBSRC has doubled its funding for **Knowledge Transfer Partnerships (KTPs)** to £400k. KTPs is a UK-wide scheme run by the Technology Strategy Board to help businesses improve productivity and competitiveness through better use of knowledge, technology and skills. A recent example is our support for a KTP that brings together Loughborough University and The Automation Partnership (Cambridge) Ltd. This is aimed at developing small scale bioreactor technology and automation for mammalian cell suspension culture, and other applications of the core technology in bioprocessing.

Many examples of new business opportunities are in areas directly relevant to our strategic priorities in food security and industrial biotechnology and in underpinning health.

- ▶ A licensing agreement with Endura Fine Chemicals in 2009 will enable commercialisation of insecticide encapsulation technology developed from a decade of collaborative research between Rothamsted Research and New South Wales Department of Primary Industry and Investment, Australia. This offers a way of revitalising insecticides to control pests which had previously become resistant to them.



Credit: Rothamsted Research 2009

A magnified image showing the micro-encapsulation formulation of insecticide and synergist into a crystalline structure

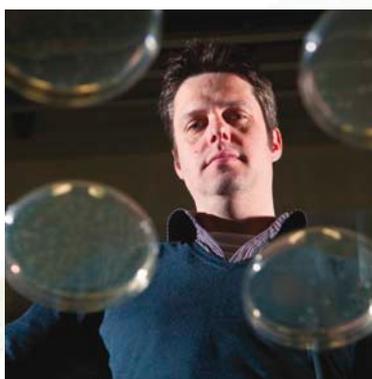
- ▶ The Institute for Animal Health and veterinary diagnostics company Laboratoire Service International launched a virus typing kit for identifying strains of bluetongue virus in blood or tissue culture samples.
- ▶ Bioreactor technology for growing cells in 3-D tissues more similar to *in vivo* conditions than conventional cultures has been developed by Oxford University spin-out company Zyoxel, largely

with Follow-on funding from BBSRC. It offers an estimated \$8billion p.a. saving for drug testing worldwide, and around 10% saving in the use of animals. The company secured £1M from CN Innovations Holdings to commercialise the technology.

- ▶ A rapid technique for making large amounts of candidate vaccine proteins in plants was licensed to Canadian company Medicago in August 2009 enabling them to produce a candidate swine flu vaccine in only two weeks. The technology uses cowpea mosaic virus to express the proteins; it was patented in 2008 from research at the John Innes Centre .
- ▶ Novacta Biosystems Ltd, a spin-out from the John Innes Centre has secured £13M financing from Celtic Pharma and existing investors to develop its technologies for harnessing the specificity and efficiency of biological systems in pharmaceutical applications and in the chemicals industry. This follows previous support from the Rainbow Seed Fund.
- ▶ Crescendo Biologics, a spin-out company from the Babraham Institute raised £4.4M in seed funding from Sofinnova Partners, Aitua, Avlar BioVentures and the Rainbow Seed Fund, for its pioneering technologies for developing therapeutic antibodies. The original research was funded by a Leukemia of America Special Fellowship, MRC, the former Cancer Research Campaign and AFRC (a forerunner of BBSRC), and was taken forward with Follow-on funding from BBSRC.



**Professor Shankar Balasubramanian** won the 2010 BBSRC Innovator of the Year award for his work on Solexa sequencing, the high speed genome sequencing technology that improved cost and speed by 1,000 to 10,000-fold on previous technologies and is the global leader. He and his colleague Professor David Klenerman founded Solexa Ltd in 1998; the company was sold to Illumina for \$600M in 2007. It maintains a large research centre outside Cambridge.



**Dr Michael McArthur** of the John Innes Centre won the new category BBSRC Most Promising Innovator of the Year award for his research into novel antibacterials against drug-resistant bacteria.



As well as the vaccine technology licensed to Medicago, research by **Professor George Lomonosoff** (pictured) and **Dr Frank Sainsbury** of the John Innes Centre contributed to the NanoSmart™ drug delivery technology of Aura Biosciences, which was named a 2010 Technology Pioneer by the World Economic Forum.

Other examples of commercialisation pages 10, 11, 17

## Public engagement



Credit: Greenhall Museum of Rural Life

*Dr Lars Ostergaard of the John Innes Centre contributing to 'A sustainable future – learning from the past', a project funded by the Norwich-based Beacon for Public Engagement, CUE East*

BBSRC funds research in areas of high public interest including, for example, stem cell science, synthetic biology, nanotechnology, crop biotechnology, biofuels and the use of animals in research. We remain committed to: raising public awareness of the research we support and its implications; enabling public participation in shaping our policies and funding strategies; and ensuring that BBSRC-supported scientists are aware of societal issues around their research and address them.

We meet our objectives in part through delivery of the RCUK strategy on public engagement, for example by contributing to major initiatives such as the £9M Beacons for Public Engagement programme ([www.rcuk.ac.uk/per/beacons.htm](http://www.rcuk.ac.uk/per/beacons.htm)). This seeks to embed public engagement in the HEI sector and is funded by RCUK, The Funding Councils and the Wellcome Trust. We also support bilateral and BBSRC projects around specific issues in the biosciences.

During the year we have invested a total of £1.2M in communications and public engagement activities, of which £330k supported RCUK-coordinated programmes in public engagement.

■ The BBSRC Bioscience for Society Strategy (BSS) Panel provides horizon scanning and advice to BBSRC on emerging areas in science and public attitudes where engagement is a particular priority. It provides expert opinion, guidance and oversight of our activities. The Panel has been especially involved in work around synthetic biology, bioenergy and, increasingly, food security.

■ The major public dialogue on synthetic biology (funded by BBSRC, EPSRC and Sciencewise ERC, and delivered by TNS-BRMB) is on schedule for publication of the findings in June 2010. The process is overseen by independent experts, including scientists, social scientists, policymakers and NGOs. The dialogue included structured interviews with a range of stakeholders and a series of public deliberative workshops. The workshops explored attitudes to science and technology, reactions to synthetic biology and views about its potential applications. These were held in urban and rural locations across Britain and were designed to capture a diversity of views. A dissemination programme is being planned to publicise the findings and our response to them.

■ We have established a communications and public engagement group for the BBSRC Sustainable Bioenergy Centre to advise and lead on public involvement and participation. Initially this is using a scenarios-based approach to identify key issues and priorities. The group will work closely with the BSS Panel. BBSRC submitted evidence to the Nuffield Council on Bioethics inquiry into new approaches to biofuels.



**Professor Dave Goulson**, a conservation biologist at the University of Stirling who specialises in bumblebee behaviour and ecology, won a BBSRC Innovator of the Year award for 2010, in the new category Social Innovator of the Year. Professor Goulson established the Bumblebee Conservation Trust which now has a membership of over 7,000 volunteers. The Trust addresses educational, awareness raising and policy matters related to creating bee-friendly habitats.

■ 2009 was the 200th anniversary of the birth of Charles Darwin. BBSRC led the production and management of the RCUK 'Darwin Today' touring interactive exhibition. This was presented, with a range of related activities, at a total of 34 venues across the UK, from the Isles of Scilly to Orkney, and from Belfast to Norwich. It is estimated that this provided access to information and perspectives on how Darwin's ideas continue to influence society today to at least half a million people.



*From schools activities to talks by scientists and discussion events, Darwin Today illustrated the ongoing impact of the theory of natural selection in the sciences and engineering, social sciences and in business and wider aspects of our culture. The science tent at the National Eisteddfod in Bala was among the venues.*

■ BBSRC supported a display by the John Innes Centre at the Royal Society Summer Science Exhibition 2009. This used real plants, high-resolution microscope images and interactive computer simulations to illustrate how new research is revealing the rules that govern the shape and development of snapdragon flowers. BBSRC will fund displays from the Babraham Institute and from Rothamsted Research at the 2010 Exhibition. BBSRC publishes position statements on areas of bioscience that are of particular public interest ([www.bbsrc.ac.uk/organisation/policies/position/public-interest.aspx](http://www.bbsrc.ac.uk/organisation/policies/position/public-interest.aspx)).

We have awarded five grants to BBSRC-supported researchers for activities in 2010. Outputs from the 2009 round of funding include:

- ▶ The University of Bristol School of Biological Sciences worked with the Bristol Botanic Garden to create a range of activities around the garden that focused on bringing Darwin's work to life, including scientist-led tours, science picnics and special sign language events
- ▶ Researchers from the University of Plymouth took a science road-show to the city centre to engage with shoppers (and 200,000 radio listeners) about science's impact on society, covering topics such as genetic testing, diabetes, neuroscience and the nature of research
- ▶ Aimed at inspiring eight to 13 year olds about science, the University of Leeds Discovery Zone used live ant colonies, skeletons and other interactives to illustrate the science behind phenomena such as saliva production and insect defence. The events reached 480 Yorkshire school pupils.



*BBSRC, with the Wellcome Trust, sponsored a public engagement programme to accompany the autumn tour of a new work by Rambert Dance Company, The Comedy of Change, inspired by Darwin's thinking. This brought Darwin's theories to new audiences through: pre-show discussions; schools' workshops, developed with the Teacher Scientist Network, involving almost 2500 children; and a foyer exhibition and programme notes.*



# Communications and Outreach

**We have further integrated our communications activities (e.g. on-line, print, media and events) and improved our information management systems to enable us to communicate rapidly and more efficiently with the research community, and with policymakers, business and industry and other organisations associated with bioscience research and its applications.**

■ We have increased our use of digital media technology. Video and audio sections on the BBSRC website now provide multimedia coverage of the science we support, and we upload video-led features to BBSRC's YouTube channel ([www.youtube.com/user/bbsrcmedia](http://www.youtube.com/user/bbsrcmedia)) which has a total following of around 28,000 viewers, with the majority of viewers in the USA (39%) or UK (17%). We launched the BBSRC 2010-2015 Strategic Plan online, supported by a video webcast by the Chief Executive.

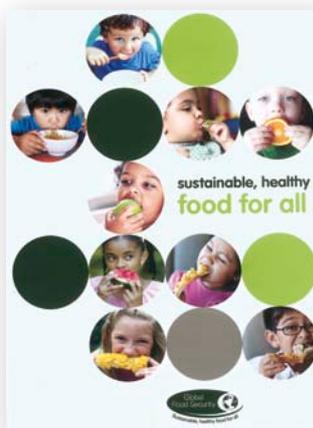
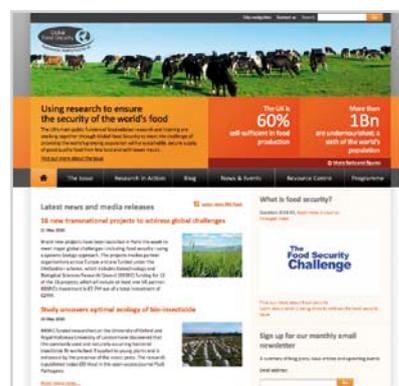
■ We have increased our media relations activities and strengthened collaborative working both across the BBSRC Institutes and with university groups and university press offices. RCUK was a major sponsor of the 2009 World Conference of Science Journalists (WCSJ), which attracted over 1,000 participants and within which BBSRC sponsored a workshop on food security and sustainability, and where speakers included the BBSRC Chief Executive. Conference participants visited several BBSRC Institutes as part of a post-conference tour.



*Dr Angela Karp, a programme leader in the BBSRC Sustainable Bioenergy Centre, describes the use of willows for biomass to international science journalists during their visit to Rothamsted Research in July 2009.*

■ Food security is a major focus. A BBSRC-commissioned video "The Food Security Challenge" was launched as part of an interactive website ([www.foodsecurity.ac.uk](http://www.foodsecurity.ac.uk)), developed initially by BBSRC, which will support communication and public engagement for the multi-partner Global Food Security programme (see page 4). The site has its own Twitter account and RSS news feed to keep interested parties up to date.

*We have published a suite of briefings that highlight the role of research in different aspects of food security. These complement the interactive website.*



■ BBSRC provided presentations and displays of information at a range of public and industry-focused events throughout the year. With Volac, we co-sponsored a study of industry attitudes to scientific research undertaken for, and presented at, the Oxford Farming Conference. The findings complement results of the consultation on research on food security, which BBSRC ran on behalf of RCUK.



BBSRC presented exhibits at the 2009 British Crop Protection Council Congress and at AgriLIVE. BBSRC Director of Innovation and Skills, Dr Celia Caulcott (top) was an invited speaker at Agribusiness 2010, the annual conference of the Agricultural Industries Confederation. BBSRC also presented displays at the 2009 Royal Show and the 2010 annual conference of the National Farmers' Union.

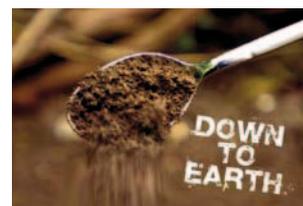
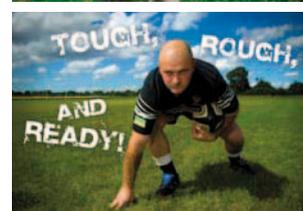
## BBSRC Photo competition

We launched the inaugural BBSRC science photo competition to encourage researchers to communicate bioscience through imaginative and creative photography. Over 120 entries covered topics from soil invertebrates to chicken gut epithelium. The images captured the imagination of the media and were featured in over 35 outlets, including a selection on the image galleries of New Scientist, and the winning image appearing on the TV programme 'Friday Night with Jonathan Ross.'



'Weaver ant carrying heavy weight' by Thomas Endlein, University of Cambridge

To illustrate the impact bioscience has on our daily lives, we launched a 'Bioscience for Life' campaign, based around eight striking images - in poster, postcard and online formats - covering the breadth of BBSRC research. These included research into ageing, soil science, plant and crop science and nutritional, diet and health research, and covered BBSRC-funded research in universities and institutes across the UK. Over 1,000 postcard packs were distributed through science festivals and other public events as well as through individual researchers' engagement with schools and public groups.



### Making our science accessible

	2007-08	2008-09	2009-10
Media releases	47	67	98
Corporate publications	7	9	12
Exhibitions	8	16*	41**
Grants for National Science Week (awarded through RCUK)	9	15	11
Public Engagement Awards	6	10	5
Local Schools Coordinators	20	22	22
Science Communication courses	8***	13	7

\* Includes eight Darwin Today presentations and related public events

\*\* Includes 26 Darwin Today presentations and related public events

\*\*\* Includes two with other Research Councils and two university-led courses



# Corporate Information

## Council

**Council determines BBSRC policies and strategies. It comprises the Chair, the Chief Executive (who is Deputy Chair) and between 10-18 members, at least half of whom are appointed for their qualification in science and engineering. Users of research, in Government and industry, are also represented.**

All members were appointed by the Secretary of State for Business, Innovation and Skills. They are required to abide by a code of practice that covers conflicts of interest and general conduct.

The Council approves the membership of the five Boards that report to it; namely: Appointments, Audit, Institute, Remuneration and Strategy Advisory Boards. The Chair of each Board is required to report regularly on the work of their respective Boards and to take forward specific tasks as directed by Council.

The Council is also expected to ensure that the position of Clerk to the Council, which provides an administration interface between the Chair, Council and the BBSRC Executive, is of an appropriate standing and experience. The Clerk to the Council is a senior official in BBSRC Swindon Office.

Page 45 contains details of related party transactions. Registers of interest for Council, Boards, Panels and Committees can be found at [www.bbsrc.ac.uk](http://www.bbsrc.ac.uk).

### Council membership (as at April 2010)

Professor Sir Tom Blundell FRS  
Chair

Professor Sir David Baulcombe FRS  
University of Cambridge

Professor John Coggins OBE FRSE  
University of Glasgow

Professor Anne Dell FRS  
Imperial College London

Professor Peter Fryer FEng  
University of Birmingham

Mr Jim Godfrey OBE  
R J & A E Godfrey

Mr David Gregory  
Independent

Professor Peter Grindrod CBE  
University of Reading

Professor Douglas Kell  
BBSRC Chief Executive

Dr David Lawrence  
Syngenta

Professor Keith Lindsey  
Durham University

Professor Quintin McKellar FRSE  
The Royal Veterinary College

Professor Chris Pollock CBE  
Independent

Dr Andy Richards  
Independent

Dr John Stageman  
AstraZeneca

Professor Malcolm Weir  
Heptares Therapeutics Ltd

Mr John Neilson  
Observer for the Secretary of State for Business,  
Innovation and Skills

Council members who also served in 2009-10 were:  
Professor A Jackie Hunter (now CBE), GlaxoSmithKline;  
Dr Peter Ringrose, Chair; Professor Robert Watson, Defra

# Boards, Panels and Committees

(as at 31 March 2010)

## Appointments Board

**Professor Peter Fryer FEng (Chair)**  
University of Birmingham  
BBSRC Council member

**Professor Richard Bardgett**  
Lancaster University  
Chair BBSRC Committee B

**Professor Mary Bownes OBE FRSE**  
University of Edinburgh  
Independent

**Professor Julian Burke**  
Genetix  
Independent

**Professor John Coggins OBE FRSE**  
University of Glasgow  
BBSRC Council member

**Professor Alistair Hetherington**  
University of Bristol  
Chair of BBSRC Strategy Panel

**Professor Jane Hurst**  
University of Liverpool  
Independent

**Professor Chris Rawlings**  
Rothamsted Research  
Independent

## Audit Board

**Professor Quintin McKellar FRSE (Chair)**  
The Royal Veterinary College  
BBSRC Council member

**Dr David Brightman**  
Brightman Farms  
Independent

**Professor Anne Dell FRS**  
Imperial College London  
BBSRC Council member

**Dr Andy Richards**  
Independent  
BBSRC Council member

**Mr Mike Samuel**  
Independent

## Institute Board

**Professor Douglas Kell (Chair)**  
BBSRC Chief Executive

**Professor David Boxer**  
BBSRC Institute Director

**Dr Frances Green**  
Independent

**Professor Keith Gull CBE FRS**  
Member representative of BBSRC  
Institute

**Mr Mike Phipps**  
Independent

**Professor Chris Pollock CBE**  
BBSRC Council member

**Dr John Stageman**  
BBSRC Council member

**Professor Michael Wakelam**  
BBSRC Institute Director

## Remuneration Board

**Professor Sir Tom Blundell FRS (Chair)**  
BBSRC Chairman

**Professor John Coggins OBE FRSE**  
BBSRC Council member

**Professor Peter Fryer FEng**  
BBSRC Council member

**Professor A Jackie Hunter**  
BBSRC Council member

**Professor Douglas Kell**  
BBSRC Chief Executive

**Professor Malcolm Weir**  
BBSRC Council member

## Strategy Advisory Board

**Professor Douglas Kell (Chair)**  
BBSRC Chief Executive

**Dr Bill Angus**  
Independent

**Professor Maggie Dallman**  
Independent

**Professor Anne Dell FRS**  
BBSRC Council member

**Professor Russell Foster FRS**  
Chair, Healthy Organism Strategy Panel

**Professor Chris Gaskell**  
Chair, Sustainable Agriculture  
Strategy Panel

**Professor Simon Gaskell**  
Chair, Tools and Resources Strategy Panel

**Professor Maggie Gill**  
Independent

**Professor Carole Goble**  
Independent

**Professor Alistair Hetherington**  
Chair, Integrative and Systems Biology  
Strategy Panel

**Professor Alan Irwin**  
Chair, Bioscience for Society  
Strategy Panel

**Professor Ottoline Leyser CBE FRS**  
Chair, Bioscience Skills and Careers  
Strategy Panel

**Dr Fiona Marston**  
Independent

**Dr Ruth McKernan**  
Chair, Bioscience for Industry  
Strategy Panel

**Dr Phil New**  
Independent

**Professor Jules Pretty OBE FRSA**  
Independent

**Professor Martin Shirley (now CBE)**  
Independent

**Dr John Stageman**  
BBSRC Council member

## Bioscience for Industry Strategy Panel

**Dr Ruth McKernan (Chair)**  
Pfizer

**Dr Mark Berry**  
Unilever

**Dr Paul Berryman**  
Leatherhead Food Research

**Dr Julian Burke**  
Genetix

**Professor Simon Bright**  
University of Warwick

**Dr Alison Campbell**  
Kings College London Business Ltd

**Dr Mark Carver**  
Avecia Biologics

**Dr Belinda Clarke**  
ERBI Ltd

**Dr Lloyd Czaplowski**  
Prolysis Ltd



Dr Harren Jhoti  
Astex Therapeutics

---

Mr Keith Norman  
Velcourt Ltd

---

Professor Katherine Smart  
University of Nottingham

---

Dr Lewis Smith  
Syngenta

---

Dr Roberto Solari  
GlaxoSmithKline

---

## Bioscience for Society Strategy Panel

Professor Alan Irwin (Chair)  
Copenhagen Business School

---

Professor Louise Archer  
King's College London

---

Ms Wendy Barnaby  
Independent

---

Professor Kenneth Boyd  
University of Edinburgh

---

Professor Derek Burke CBE DL  
Independent

---

Professor Robert Dingwall  
University of Nottingham

---

Dr Richard Dyer OBE  
Independent

---

Sir Roland Jackson  
British Science Association

---

Dr Brian Johnson  
Independent

---

Dr Sandra Knapp  
Natural History Museum

---

Dr Tom MacMillan  
Food Ethics Council

---

Dr Gene Rowe  
Independent

---

Professor Steven Walker  
Campden BRI

---

Professor Vincent Walsh  
University College London

---

## Bioscience Skills and Careers Strategy Panel

Professor Ottoline Leyser CBE FRS  
(Chair)  
University of York

---

Dr David Adams  
Higher Education Academy

---

Professor Louise Archer  
Kings College London

---

Dr Susan Assinder  
Liverpool School of Tropical Medicine

---

Dr Paul Berryman  
Leatherhead Food International

---

Professor David Bogle  
University College London

---

Professor David Boxer  
Institute of Food Research

---

Professor Jean Chambaz  
Universite Pierre et Marie Curie

---

Professor Malcolm McCrae  
University of Warwick

---

Dr Jonathan Powell  
Independent

---

Dr Elizabeth Reynolds  
General Bioinformatics

---

Professor Ian Roberts  
University of Manchester

---

Professor Nicola Spence  
Science City York

---

Mr Chris Warkup  
Biosciences Knowledge Transfer  
Network Edinburgh

---

Mrs Jackie Wilbraham  
AstraZeneca

---

## Healthy Organism Strategy Panel

Professor Russell Foster FRS (Chair)  
University of Oxford

---

Professor Paul Flecknell  
Newcastle University

---

Professor Malcolm Jackson  
University of Liverpool

---

Dr Janette Jones  
Unilever

---

Professor Janet Lord  
University of Birmingham

---

Professor Peter McNaughton  
University of Cambridge

---

Professor Peter Morgan  
Rowett Institute, University of  
Aberdeen

---

Professor Richard Oreffo  
University of Southampton

---

Dr Jonathan Powell  
Independent

---

Dr Roberto Solari  
GlaxoSmithKline

---

Dr David Tattersall  
Pfizer

---

Dr Martin Turner  
Babraham Institute

---

Professor Jane Wardle  
University College London

---

Professor Anne Willis  
University of Nottingham

---

Observers

---

Dr Alison Tedstone  
Food Standards Agency

---

Dr Jana Voigt  
Medical Research Council

---

## Integrative and Systems Biology Strategy Panel

Professor Alistair Hetherington (Chair)  
University of Bristol

---

Professor Tim Benton (Deputy Chair)  
University of Leeds

---

Professor David Bogle  
University College London

---

Professor Ian Booth  
University of Aberdeen

---

Professor Julia Buckingham  
Imperial College London

---

Professor Helen Byrne  
University of Nottingham

---

Professor Julian Dow  
University of Glasgow

---

Dr Stuart John Dunbar  
Syngenta

---

Professor Stephen Emmott  
Microsoft, Cambridge

---

Professor Laurence Hurst  
University of Bath

---

Dr Ursula Klingmüller  
German Cancer Research Center

---

Dr Edda Klipp  
Humboldt University Berlin

---

Professor Martin Kuiper  
Norwegian University of S&T

---

Dr Lee Sweetlove  
University of Oxford

---

Professor Steve Oliver  
University of Cambridge

---

Professor David Rand  
University of Warwick

---

Professor Michael White  
University of Liverpool

---

Observers

---

Dr Gavin Salisbury  
Engineering and Physical Sciences  
Research Council

---

Dr Tom Foulkes  
Medical Research Council

---

## Sustainable Agriculture Strategy Panel

Professor Chris Gaskell (Chair)  
Royal Agricultural College

---

Professor Janet Bainbridge OBE  
Consultant

---

Mr Tim Brigstocke  
Consultant

---

Dr Mike Bushell  
Syngenta

---

Professor Gareth Edwards-Jones  
Bangor University

---

Professor Les Firbank  
Rothamsted Research, North Wyke

---

Professor Julie Fitzpatrick  
Moredun Research Institute

---

Professor Karl Ritz  
Cranfield University

---

Professor Steven Rushton  
Newcastle University

---

Professor Nicola Spence  
Science City York

---

Professor Toni Slabas  
Durham University

---

Professor Chris Tapsell  
KWS UK Ltd

---

Mr Paul Temple  
Farmer, East Yorkshire

---

Professor Jeremy Wilson  
Royal Society for the Protection of Birds,  
Edinburgh

---

Observers

---

Dr Andrew Impey  
Natural Environment Research Council

---

Dr Sue Popple  
Department for Environment, Food and  
Rural Affairs

---

Dr Ron Stagg  
Scottish Government

---

Dr Jonathan Wadsworth  
Department for International  
Development

---

## Tools and Resources Strategy Panel

Professor Simon Gaskell (Chair)  
University of Manchester

---

Dr Ewan Birney  
European Bioinformatics Institute

---

Dr Michael Csukai  
Syngenta

---

Professor Eleanor Dodson  
University of York

---

Professor Paul French  
Imperial College London

---

Professor David Gavaghan  
University of Oxford

---

Professor Steve Homans  
University of Leeds

---

Dr Pete Kaiser  
Institute for Animal Health

---

Dr Helen Ougham  
Aberystwyth University

---

Professor Chris Rawlings  
Rothamsted Research

---

Dr Elizabeth Reynolds  
General Bioinformatics

---

Professor Paul Smith  
Cardiff University

---

Dr Tony Smith  
Ashleworth House Consulting Ltd

---

Professor Saul Tendler  
University of Nottingham

---

Professor Bonnie Wallace  
Birkbeck College

---

Professor Robbie Waugh  
Scottish Crop Research Institute

---

Dr Paul Flicek  
European Bioinformatics Institute

---

Professor Christina Doyle  
Xeno Medical Ltd

---

## Research Grants Committee A

### Animal systems, health and wellbeing

#### Core members

---

Professor Laura Green (Chair)  
University of Warwick

---

Professor Margaret MacLean  
(Deputy Chair)  
University of Glasgow

---

Dr Richard Baines  
University of Manchester

---

Professor John Fabian Brookfield  
University of Nottingham

---

Professor Nicola Clayton  
University of Cambridge

---

Professor Frances Ebling  
University of Nottingham

---

Dr Gary Entrican  
Moredun Research Institute

---

Professor Susan Fleetwood-Walker  
University of Edinburgh

---

Dr Dianne Ford  
Newcastle University

---

Professor Nicholas Hartell  
University of Leicester

---

Professor Robert Honey  
Cardiff University

---

Professor Tom Humphrey  
University of Liverpool

---

Dr Paul Kellam  
University College London

---

Dr Anne King  
University of Leeds

---

Professor Kevin Laland  
University of St Andrews

---

Dr Dawn Mazzatti  
Unilever Corporate Research

---



Professor Anne McArdle  
University of Liverpool

Dr Andrea Munsterberg  
University of East Anglia

Professor Paul O'Higgins  
University of York

Professor James Stewart  
University of Liverpool

Dr Andrea Streit  
King's College London

Dr Mark Wilkinson  
Natural History Museum

## Research Grants Committee B

Plants, microbes, food  
and sustainability

### Core members

Professor Richard Bardgett (Chair)  
Lancaster University

Professor Charles Penn (Deputy Chair)  
University of Birmingham

Dr Elizabeth Baggs  
University of Aberdeen

Dr Ian Blomfield  
University of Kent

Professor Neil Crout  
University of Nottingham

Dr Iain Donnison  
Aberystwyth University

Professor Alan Filloux  
Imperial College London

Professor Andrew James Fleming  
University of Sheffield

Professor Murray Grant  
University of Exeter

Professor Sarah Gurr  
University of Oxford

Dr Julian Hibberd  
University of Cambridge

Professor Andrew Hudson  
University of Edinburgh

Dr Graham King  
Rothamsted Research

Professor Marc Knight  
Durham University

Dr Paula Kover  
University of Manchester

Professor Johnjoe McFadden  
University of Surrey

Professor Guy Poppy  
University of Southampton

Professor Michael Shaw  
University of Reading

Dr Lesley Torrance  
Scottish Crop Research Institute

Professor Simon Turner  
University of Manchester

Dr Peter Urwin  
University of Leeds

## Research Grants Committee C

Technological and  
methodological  
development

### Core members

Professor (now Dame) Athene Donald  
(Chair)  
University of Cambridge

Professor Derek Woolfson  
(Deputy Chair)  
University of Bristol

Dr Alison Elizabeth Ashcroft  
University of Leeds

Dr Alistair Elfick  
University of Edinburgh

Dr Brendan Fish  
GlaxoSmithKline

Professor Alex Gray  
Cardiff University

Dr John Hunt  
University of Liverpool

Professor Marta Kwiatkowska  
University of Oxford

Professor Andrew Lloyd  
University of Brighton

Professor Pedro Mendes  
University of Manchester

Professor Jason Mickelfield  
University of Manchester

Professor Clare Mills  
Institute of Food Research

Professor Conrad Mullineaux  
Queen Mary, University of London

Professor Paul O'Shea  
University of Nottingham

Professor Yvonne Perrie  
Aston University

Dr Andrew Pitt  
University of Glasgow

Professor Jennifer Southgate  
University of York

Professor Darren James Wilkinson  
Newcastle University

Professor Philip Craig Wright  
University of Sheffield

## Research Grants Committee D

Molecules, cells and  
industrial biotechnology

### Core members

Professor Alastair Brown (Chair)  
University of Aberdeen

Professor Melanie Welham  
(Deputy Chair)  
University of Bath

Professor Rudolf Allemann  
Cardiff University

Dr Jeremy Brown  
Newcastle University

Professor Colin Brownlee  
Marine Biological Association

Dr Graham Cook  
University of Leeds

Professor Peter Cullen  
University of Bristol

Professor Shireen-Anne Davies  
University of Glasgow

Professor Colin Dingwall  
King's College London

Professor Helen Griffiths  
Aston University

Dr Simon Hubbard  
University of Manchester

Dr Sophie Jackson  
University of Cambridge

Dr Charles Laughton  
University of Nottingham

**Dr Nicolas le Brun**  
University of East Anglia

---

**Professor Jennifer Littlechild**  
University of Exeter

---

**Dr Cait MacPhee**  
University of Edinburgh

---

**Dr Simon Morley**  
University of Sussex

---

**Professor Andrew Munro**  
University of Manchester

---

**Professor Helen Osborn**  
University of Reading

---

**Dr Christopher Phillips**  
Pfizer Global R&D

---

**Dr Alastair Reith**  
GlaxoSmithKline R&D Ltd

---

**Dr Len Stephens**  
Babraham Institute

---

**Professor Jeremy Turnbull**  
University of Liverpool

---

**Professor Martin Warren**  
University of Kent

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**Professor Michael Paul Williamson**  
University of Sheffield

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## Organisational developments

### Efficiency

This year BBSRC delivered efficiency savings worth £30.1M. Despite over achieving in some categories we marginally fell short of the £31.7M target; this was once again due to the continued decision to retain saleable estate, pending an improvement in market conditions.

We made savings by reducing the proportion that we spend on administration; reprioritising programme spend; through more co-funding of research with industrial and other partners; and by increasing efficiency at our institutes. These savings were delivered through:

- ▶ Reducing the proportion of Research Council Expenditure attributable to administration costs (£1.1M)
- ▶ Demonstrating Effective Reprioritisation of Programme Spend (£7.2M)
- ▶ Increasing the Efficiency of Research Council Institutes (£1.5M)
- ▶ Growing the Level of Co-funding of Research (£20.3M)

BBSRC's administration costs represented 2.21 % of the Science Budget Income (resource and capital including non-cash) for 2009-10. This continues the downward trend achieved over recent periods (2.78 % in 2005-06, 2.67 % in 2006-07, 2.46 % in 2007-08 and 2.26 % in 2008-09) and is once again within target.

We are planning further savings to continue in the next spending review period.

### Risk management

BBSRC utilises a range of techniques to ensure that risk is managed in a manner that ensures a proper balance is struck between prudent management and innovative approaches to issues. We use a formal structure of operational risk registers, longer term strategic risks and business critical projects. We have a corporate risk manager to advise senior management. The corporate risk register is aligned with the Office of Government Commerce approved model. This is regularly reviewed by the executive management of BBSRC and the BBSRC Audit Board, and annually by internal and external auditors. Our procedures are supported by Statements on Internal Control from the Chief Executive, and Group and Institute Directors, which draw on evidence from the work of the Audit Board, the annual report from the Head of Internal Audit, the risk management frameworks developed by BBSRC and its sponsored institutes, responses to external audit management letters which identify where control gaps exist and the Funding Assurance Programme report. In addition, for significant programmes such as the

Pirbright Development, the Office of Government Commerce's Gateway process is used.

### Staff report

On 1 April 2010, 2083 staff were employed in Institutes sponsored by BBSRC and in the BBSRC Office, compared to 2132 in 2009. 972 staff were in the science category as at 1 April 2010, which represents 46.5 % of all staff. Women occupied 24 % of senior posts in BBSRC (pay band PC1-F). The comparable figure for 2008-09 was 21 %.

### Environmental policy

BBSRC and its Institutes are committed to embedding sustainability into their operations and reducing their carbon footprint. We have formalised and strengthened our commitment to promoting environmental best practice and have set our Institutes key energy and environmental objectives to measure and reduce CO<sub>2</sub> emissions, energy consumption and waste. These are reported on annually.

Institutes are working towards achieving the ISO14001 standard for environmental management and one Institute is due to receive ISO14001 accreditation in 2010. Polaris House received the accreditation in 2009.

BBSRC Institutes continuously seek ways of reducing their energy consumption and during 2009 a number of energy efficiency schemes were implemented including new energy efficient plant, virtual computer servers and site metering.

### Diversity and Equality

BBSRC has continued to mainstream diversity into core business activities through the delivery of its Diversity Strategy and 2009-10 Equality and Diversity Action Plan.

We have used feedback from external surveys carried out in 2008 to develop a new, more accessible diversity webpage: [www.bbsrc.ac.uk/organisation/policies/employment/equality-diversity.aspx](http://www.bbsrc.ac.uk/organisation/policies/employment/equality-diversity.aspx)

During the year we also reviewed our equality and diversity guidance for employees, which supports and supplements our core human resources (HR) policies. All our core employment policies have been equality impact assessed and BBSRC Institutes have begun to conduct assessments of their local policies, such as learning and development, housing and chemical standards policies.

Summaries of all equality impact assessments, along with monitoring data, are published in the Equality and Diversity Annual Report, which is available on the BBSRC website.

Following a review of the appointments process, training and membership profile of boards and panels of our Institutes, we have produced guidance for those involved in the appointments process in order to achieve a more diverse and inclusive committee membership profile.

Building on BBSRC's strong track record in child-care schemes and facilities, we reviewed the support available to employees with other caring responsibilities. We will issue additional guidance to ensure that all managers think flexibly about the needs of individuals.

As well as our responsibilities as an employer, we have responsibilities as a funder of research. A cross-functional group has examined in detail the monitoring systems currently in place and the guidance available to those involved in the research grants awarding process. The group has recommended changes to the advice we provide to grant applicants and those involved in peer review and the award processes. In addition we will establish a sub-group to undertake equality impact assessments of BBSRC's core funding activities.

During the year we have continued to work with the UK Resource Centre (UKRC) for Women in Science, Engineering and Technology. In November 2009 BBSRC participated in a jointly run workshop designed to explore best practice in the science research and further education sectors. This included aspects such as culture change, flexible working and career progression. Earlier in the year, BBSRC was the first science Research Council to sign the UKRC's CEO Charter initiative, demonstrating our commitment to supporting women in science.

## Health and Safety

BBSRC recognises good Health and Safety practice as a core requirement within the organisation. Over recent years, the BBSRC workplace and working environment has changed significantly. The delivery of safe and effective health services has become more important as public attitudes to risk, redress, blame and compensation have changed. The key challenge over the next few years is how we continue to make the dynamic research environment of BBSRC compliant with Health and Safety legislation.

Key actions we have taken this year are:

- ▶ the continuation of policy review, including the BBSRC overarching health and safety policy
- ▶ the extension of performance measuring, identify new audit streams
- ▶ development of ongoing safety management processes
- ▶ improvements in communicating safety matters to raise awareness of issues at work
- ▶ reviewing and developing the remits of all Health and Safety Forums to ensure they are working effectively and efficiently
- ▶ the encouragement of near miss reporting.

During 2009-10 there has been a slight increase in both total and reportable number of accidents recorded within the year. However, reportable accidents are still below the HSE national incident rate for our industry.

### Annual Occurrence of Reportable Incident Category (defined as in RIDDOR 1995)

	2008-09	2009-10
Contact with moving machinery or material being machined	0	1
Hit by a moving, flying or falling object	0	0
Hit by a moving vehicle	0	0
Hit by something fixed or stationary	0	0
Injured while handling, lifting or carrying	2	2
Slipped, tripped or fell on the same level	3	5
Fell from a height	1	1
Trapped by something collapsing	0	0
Drowned or asphyxiated	0	0
Exposed to, or in contact with, a harmful substance	0	0
Exposed to fire	0	0
Exposed to an explosion	0	0
Contact with electricity or an electrical discharge	0	0
Injured by an animal	0	2
Physically assaulted by a person	0	0
Another kind of accident	1	3
<b>Total accidents</b>	<b>7</b>	<b>14</b>
Cases of occupational disease	0	0
Dangerous occurrence	2	2
<b>Overall total</b>	<b>9</b>	<b>16</b>

### Sickness absence : BBSRC Office (2009 – 2010)

Number of days lost	
Cold/Flu/Virus	508
Malignancy	20
Mental /Psychiatric	131
Skeletal	175
Hospital appointment/Surgery	208.5
Other	911.5
<b>Total</b>	<b>1,954</b>

Sick absence	
Frequency of absences lasting longer than 28 days	2
Total days of long term sickness	144
Average days of sick absence per person	6.82



## Protected personal data related incidents

There have been no personal data related incidents in 2009-10 requiring reporting to the Information Commissioner's Office. BBSRC will continue to monitor and assess its information risks in order to identify and address any weaknesses, and ensure continuous improvements of its systems.

**TABLE 1: SUMMARY OF PROTECTED PERSONAL DATA RELATED INCIDENTS FORMALLY REPORTED TO THE INFORMATION COMMISSIONERS OFFICE IN 2009-10**

Statement on Information Risk	Not required 2008-09			
Date of incident (month)	Nature of incident	Nature of data involved	Number of people potentially affected	Notification Steps
None	0	0	0	0
Further action on information risk	<p>BBSRC will continue to monitor and assess its information risks in order to identify and address any weaknesses and ensure continuous improvement in its systems.</p> <p>Planned steps for the coming year include:</p> <ul style="list-style-type: none"> <li>■ Implementation of DSO/KPMG recommendations on Information Assurance under the guidance of external body.</li> <li>■ Review and revise as appropriate current Information Security Policy.</li> </ul>			

**TABLE 2: SUMMARY OF OTHER PROTECTED PERSONAL DATA RELATED INCIDENTS IN 2009-10**

Incidents deemed by the Data Controller not to fall within the criteria for report to the Information Commissioner's Office but recorded centrally within the Department are set out in the table below.

Category	Nature of incident	Total
I	Loss of inadequately protected electronic equipment, devices or paper documents from secured Government premises	0
II	Loss of inadequately protected electronic equipment, devices or paper documents from outside secured Government premises	0
III	Insecure disposal of inadequately protected electronic equipment, devices or paper documents	0
IV	Unauthorised disclosure	0
V	Other	3

**TABLE 3: YEAR-ON-YEAR TOTAL NUMBERS OF PROTECTED PERSONAL DATA RELATED INCIDENTS PRIOR TO 2008-09**

Total number of protected personal data related incidents formally reported to the Information Commissioner's Office, by category number							Total number of other protected personal data related incidents, by category number						
	I	II	III	IV	V	Total		I	II	III	IV	V	Total
2009-10	0	0	0	0	0	0	2009-10	0	0	0	0	3	3
2008-09	0	0	0	0	0	0	2008-09	0	0	0	0	0	0
2007-08	0	0	0	0	0	0	2007-08	0	0	0	0	0	0

### Public Sector Information Holder

BBSRC does not sell data and therefore is not making a statement with regard to the requirements set out in HM Treasury and Office of Public Sector Information guidance.

# Financial review

## Financial highlights

- ▶ As part of the second year of the three year Comprehensive Spending Review 2007 allocation, grant-in-aid funding from the Department for Business Innovation and Skills (BIS) increased by £58.5M to £470.8M for the 2009-10 year. In 2009-10 BBSRC had a working budget of £486.2M. This comprised £365.4M resource and £120.8M Capital. Actual outturn was £361.3M resource and £121.1M capital.
- ▶ Non-BIS net parliamentary funding for the year also increased by £2.7M to £19.3M. This represents a net increase in a variety of collaborative grants. The most notable of these was the capacity building awards for integrative mammalian biology at the University of Glasgow that BBSRC leads, with co-funding totalling £1.8M received in 2009-10 from HEFCE, MRC, Scottish Funding Council and the British Pharmacology Society.
- ▶ The increased grant funding contributed toward a rise in research and capital grant expenditure of £38.1M to £402.8M. Expenditure on training and fellowship awards rose by £3.2M to £53.7M. In total, net expenditure for the year increased by £43.3M to £492.2M.
- ▶ Other operating costs rose by £3M. The most significant being SSC operating costs which rose by £3.2M in the year to £4.3M and is offset in part by a decrease in management and consultancy fees of £900K. Further decreases in retained costs will accrue in future as BBSRC transfers further services.
- ▶ Swindon Office staff costs rose by £1.1M to £11.4M, reflected by an increase in average Full Time Equivalent (FTE) staff from 304.7 to 335.6 together with significant employers pension contribution increases. The increase in FTEs is associated with the transition to the Shared Services Centre and the graduate intern programme. The number of FTEs will reduce following the completion of the SSC project, currently scheduled for end March 2011.
- ▶ During 2008-09, the former BBSRC-sponsored Roslin Institute transferred to the University of Edinburgh, including the transfer of two sites with a net book value of £0.2M. As part of the transfer, BBSRC agreed to contribute to the cost of any redundancies that arise as a direct result of the transfer. The actual amount of BBSRC's contribution is dependent on both the total redundancy cost and when these redundancies take place. BBSRC also agreed to provide indemnity for any potential costs that arise as a result of the past actions of the institute and indemnity for any potential reduction in grant income of the Neuropathogenesis Unit as a result of the transfer. The potential costs to BBSRC are unknown therefore a provision for these costs has not been made in these accounts and the agreement has been disclosed as a contingent liability in note 23. There were no claims from the university during 2009-10.
- ▶ The net book value of BBSRC's tangible fixed asset base rose by £19.7M through a combination of additions to assets under construction at the Institute for Animal Health (IAH) Pirbright, Babraham Institute and the Shared Services Centre totalling £26.5M and some downward revaluation of institute occupied land and buildings.
- ▶ The capital work on the Biological Support Unit (BSU) at Babraham was completed in July 2009 and the asset was reclassified from an asset under construction. At 31 March 2010 the BSU was revalued to £19.4M before indexation.
- ▶ During 2009-10 capital redevelopment work at IAH Pirbright continued totalling £41.8M. Additions consisted of £8.6M on the SAP4 building, £3.9M on the ISO 8 incinerator, £7.9M on the IAH Development Programme Phase 1 and £2.9M to close the PSRP. £880k of work was carried out on the Babraham Maia building to give a total value of buildings under construction at 31 March 2010 of £41.8M.
- ▶ Capital commitment at 31 March 2010 rose to £239M covering a variety of new building projects, including the continuing development of new facilities at the Easter Bush Research Centre near Edinburgh, redevelopment of facilities at IAH Pirbright and the redevelopment of buildings at IBERS.
- ▶ Grant commitments at 31 March 2010 increased by £128.7M to £583.8M. This is due to increases in commitments in Responsive Mode Grants including Agri-food, Animal sciences and Biomolecular sciences.

## Shared Services Centre (SSC)

In 2007-08 the seven Research Councils agreed to establish a Shared Services Centre (SSC) in Swindon. The SSC will provide finance, grants, human resources, information systems, procurement and payroll operational services to each of the Councils and their institutes. The aim of the SSC is to reduce spend on administration through sharing and standardising processes.

There is a phased implementation plan for transferring the councils' services. During 2009-10 the SSC provided strategic procurement, IT and recruitment services to BBSRC office, HR services migrated in March 2010. Finance services were commencing in April 2010, payroll in August 2010, and grants processing towards the end of 2010. Service charges from the SSC for 2009-10 totalled £4.3M; however this recognises the cost of the infrastructure in place in readiness for transfer of services.



During 2008-09 EPSRC acted as host for the SSC project on behalf of all Councils contracted for the development and establishment of the SSC. This transferred to the RCUK SSC Ltd on 1 May 2009.

The Councils have agreed to share all the setup costs and BBSRC's agreed share is 20.54%. BBSRC began incurring expenditure on the project during 2007-08. Thus far set-up costs have been recognised as assets in course of construction. In 2009-10 these were £2.05M (£9.7M to date). £1.623M has been accounted for as Investment Assets in a Joint Venture under IAS 31 £4.3M expensed (£10.6M to date) and £585k as provisions for redundancy and system termination costs.

The transition to the Shared Services Centre is regarded as a business critical project and is referred to in our Statement of Internal Control.

The SSC was incorporated during 2007-08 as RCUK Shared Services Centre Limited. Each of the seven Councils holds one 'A' ordinary share, purchased in 2007-08, for voting purposes. During 2008-09, BBSRC invested £1.6M in 'B' ordinary shares within the SSC. 'B' shares convey ownership rights to the holder, including any distributions or proceeds from the sale of the SSC.

## Developments since 31 March 2010

On 5 June 2009, the Government announced the creation of a new Department for Business, Innovation and Skills (BIS) whose key role will be to build Britain's capabilities to compete in the global economy. The Department was created by merging the Department for Business Enterprise and Regulatory Reform (BERR) and the Department for Innovation, Universities and Skills (DIUS). The sponsorship responsibility for the Council passed to BIS on that date.

There is no reason to believe that these changes are likely to impact upon the Council's going concern assertion. However, the Coalition Government has announced a £6.2Bn saving measure, of which the BBSRC contribution is £2.7M in 2010-11.

The present spending review period ends on 31 March 2011. Thereafter, BBSRC has now received its allocation as part of the 2010 Comprehensive Review which provides for funding from 2011-12 until 2014-15. Although this allocation represents a small reduction in our programme budget, it remains an excellent settlement given other constraints imposed on public spending.

## Creditor payment policy

BBSRC adheres to the principles of the Prompt Payers' Code, and makes every effort to ensure compliance with the agreed terms of payment of creditors' invoices. Furthermore in November 2008 a new prompt payment target of 10 days was introduced for the public sector. BBSRC adopted this target from this date. During 2009-10 50% of payments were made within 10 days. During 2009-10 91% of payments were made within 30 days (2008-09: 87%). The Late

Payment of Commercial Debts Regulations (2002) provides all businesses, irrespective of size, with the right to claim statutory interest for the late payment of commercial debts. No such claims were received during the reporting year.

## Council

Council determines BBSRC policies and strategies. It comprises the Chair, the Chief Executive and between 10-18 other members, at least half of whom are appointed for their qualification in relevant science. Users of research, in Government and industry, are also represented.

All members are appointed by the Secretary of State for Business Innovation and Skills. They are required to abide by a code of practice that covers conflicts of interests and general conduct.

The Council approves the membership of the five Boards that report to it, namely Appointments, Audit, Institute, Remuneration and Strategy Advisory Boards. The Chair of each Board is required to report regularly on the work of their respective Boards and to take forward specific tasks as directed by Council.

The Council is also expected to ensure that the position of Clerk to Council, which provides an administration interface between the Chair, Council and the BBSRC Executive, is of an appropriate standing and experience. The Clerk to the Council is a senior official in BBSRC Swindon Office.

Page 45 contains details of related party transactions. Registers of interest for Council, Boards and Committees can be found at [www.bbsrc.ac.uk](http://www.bbsrc.ac.uk).

## Audit Board

The Chair and at least three non-executive committee members of BBSRC's Audit Board are appointed by the Council, being members independent of management and free of any relationship that, in the opinion of the Council, would interfere with the exercise of independent judgement as Board members. Audit Board meets at least three times a year to monitor standards of risk management, corporate governance, internal control reports from the Research Councils' Internal Audit Service, external audit reports and to review BBSRC's Accounts.

## Auditors

BBSRC's Accounts are audited by the Comptroller and Auditor General in accordance with Section 2(2) of the Science and Technology Act 1965. The audit fee for the year was £76,000, which represents £65,075 (2008-09: £65,175) for the audit of the financial statements and £10,925 (2008-09: £6,900) for the audit of the financial statements as at 31 March 2009 under International Financial Reporting Standards (IFRS). No non-audit work was performed by the Auditors during the year. In so far as the Accounting Officer is aware, there is no relevant audit information of which BBSRC's auditors are unaware, and the Accounting Officer has taken all the steps that he ought to have taken to make himself aware of any relevant audit information and to establish that the BBSRC's auditors are aware of that information.

# Remuneration report

## Council Chair and Council Members except Chief Executive

### Policy (unaudited information)

Remuneration rates are the same across the Research Councils and are reviewed each year by the Department for Business Innovation and Skills. In considering the revisions to the rates, the Department may take into account any increase given to the senior civil service. The Department consults with the Research Councils and any changes are implemented in October.

Appointments are non-pensionable and there is no entitlement to compensation for loss of office. No fee is payable in respect of Civil Servants, employees of Research Councils and their institutes and other Non-Departmental Public Bodies and Agencies.

### Remuneration (audited information)

The standard fee paid to Council members was:

	From 1 October 2009 £	Until 30 September 2009 £	
Council Chair	16,430	16,180	per annum
Council Members who also chair Committees	9,110	8,970	per annum
Council Members	6,850	6,740	per annum

### The actual remuneration paid was:

	Appointments		Remuneration £000s	
	From	To	2009-10	2008-09
Chair – Professor Sir Tom Blundell FRS	01/07/2009	30/06/2013	12	0
Chair - Dr Peter Ringrose	01/05/2003	30/06/2009	4	16
Deputy Chair and CE - Professor Douglas Kell	01/10/2008	30/09/2012	0	0

### Council Members

Professor Robert Watson	01/12/2007	30/11/2009	0	0
Professor John Coggins FRSE	01/04/2008	31/03/2012	7	0
Mr Jim Godfrey OBE	01/04/2009	31/03/2013	7	0
Professor Peter Fryer FREng	01/05/2006	31/03/2012	9	8
Professor Sir David Baulcombe FRS	01/04/2009	31/03/2013	7	0
Professor Peter Grindrod CBE	01/04/2009	31/03/2010	7	0
Professor Jackie Hunter	01/04/2004	31/03/2010	7	7
Dr David Lawrence	01/04/2008	31/03/2012	0	0
Professor Quintin McKellar FRSE	01/04/2005	31/03/2011	9	9
Professor Christopher Pollock	01/04/2008	31/03/2012	7	0
Dr Andrew Richards	01/04/2008	31/03/2012	7	0
Professor Anne Dell CBE FRS	01/04/2007	31/03/2014	7	0
Dr John Stageman	01/04/2008	31/03/2012	2	0
Dr Malcolm Weir	01/04/2005	31/03/2011	7	7

The total emoluments of the Chairmen were honoraria of £12,135 for Professor Sir Tom Blundell and £4,045 Dr Peter Ringrose totalling £16,180 for 2009-10 (2008-09: £15,980). The Chairman's appointment is non-pensionable and there is no entitlement to compensation for loss of office. Dr Peter S Ringrose was appointed Chairman of BBSRC initially for a period of four years from 1 May 2003. This was subsequently extended by a further two years with his appointment ending 30 June 2009. Professor Sir Tom Blundell was appointed as BBSRC Chair of Council by BIS from 1 July 2009. The role of Deputy Chair was filled by Professor Kell following his appointment as BBSRC Chief Executive on 1 October 2008.

As noted in the policy section above, no fees are payable to Professor Kell, or Professor Watson. Dr Lawrence elected not to receive remuneration for his role on BBSRC Council.



## Committee Chairs and Members (unaudited information)

	2009-10	2008-09	
Committee Chairman	£230	£230	per day
Committee Members	£170	£170	per day

Committee remuneration rates are reviewed every two years by the Research Councils' Finance Directors Group. It was decided to maintain the remuneration rates at their current level for 2009-10.

## Research Directors of Sponsored Institutes (unaudited information)

Details of sponsored research institute Directors' emoluments are published in the statutory company and charity accounts prepared by each institute.

## Chief Executive and BBSRC Directors (unaudited information)

### Remuneration Committee

The Chief Executive's remuneration is determined by the Permanent Secretary of the Department for Business, Innovation and Skills. The Permanent Secretary is advised by a Remuneration Committee chaired by the Director General Science and Innovation, and the Chair of BBSRC is consulted as a part of this process.

### BBSRC Remuneration Board

The remuneration of BBSRC Directors and Directors of sponsored institutes is reviewed annually by the Council Remuneration Board. Any adjustment is agreed in this process, but will also be consistent with central Government advice. Directors pay comprises a basic element and a performance related element which emphasises the requirement for successful delivery of value adding objectives. The Board is chaired by the Chair of Council and other membership comprises the Chief Executive and three Council Members, at least one of whom must have an industry background. Members of the Remuneration Board are listed on page 35.

The BBSRC Remuneration Board review performance against a series of objectives, categorised between fundamental, value-added or breakthrough, in determining each Director's annual basic salary level and performance related elements. The Board will also take account of public sector pay constraints, relativities, job weight and any special factors. Any increases are normally awarded from 1 July annually.

As a part of the Coalition Government's deficit reduction programme they have announced a public sector pay freeze (with separate arrangements for those earning below £21,000). The freeze is in place for the two years 2010-11 and 2011-12; BBSRC has implemented this pay freeze.

### Contractual policy

Professor Douglas Kell was appointed BBSRC Chief Executive on 1 October 2008 on a four year fixed term contract, with the option for extension. Professor Kell is employed with BBSRC for four days a week and continues to be employed one day a week with the University of Manchester. The total emoluments of Professor Kell are detailed overleaf, there were no receipts or benefits in kind for Professor Kell.

BBSRC Directors are members of the BBSRC Executive Group. The Directors are on indefinite contracts, similar to the majority of BBSRC staff, with notice periods of three months. Directors' remuneration for 2009-10 is detailed overleaf and no Director is in receipt of benefits in kind.

	Director of Corporate Policy and Strategy	Director of Communications and Information Management	Deputy Chief Executive and Chief Operating Officer	Acting Director of Human Resources From 12 October 2009*	Director of Human Resources Until 11 October 2009	Chief Executive	Director of Innovation and Skills	Director of Research	Director of Finance
	Mr Paul Burrows	Mr Paul Gemmill	Mr Steve Visscher	Ms Janet Juillerat	Mr Peter Swinburne	Professor Douglas Kell	Dr Celia Caulcott	Professor Janet Allen	Mr David Parfrey
Date of appointment	From 1 July 2009	From 1 Nov 2008	From 1 Oct 2008		From 1 Oct 2002	From 1 Oct 2008	From 15 Sept 2008	From 1 Oct 2008	From 1 Nov 2008
Salary and allowances in 2009-10	£66,000	£90,950	£141,700	£68,691	£91,916	£134,140	£107,000	£104,000	£81,120
Salary and allowances in 2008-09	£60,527	£94,695	£157,907	£50,000	£93,085	£64,000	£54,444	£50,000	£32,500
Real increase in pension and lump sum at age 60	£15,000-17,500	£0-2,500	£20,000-25,000	£2,500-2,750	£5,250-5,000	£3,000-3,250	£4,500-4,750	£36,000-36,250	£1,500-1,750
Total accrued pension and lump sum at age 60 as at 31 March 2010/leaving date	£95,000-100,000	£5,000-10,000	£245,000-250,000	£185,000-190,000	£65,000-70,000	£0-5,000	£5,000-10,000	£35,000-40,000	£10,000-15,000
Cash equivalent transfer value as at 31 March 2009	£338,000	£102,000	£1,134,000	£195,000	£510,050	£24,310	£14,585	£15,774	£142,502
Cash equivalent transfer value as at 31 March 2010	£462,000	£138,000	£1,385,000	£255,000	£597,000	£74,000	£75,000	£576,000	£190,000
Real increase in cash equivalent transfer value 2009-10	£78,000	£21,000	£113,000	£33,000	£61,000	£42,000	£29,000	£260,000	£26,000

\*During Director's absence on sick leave.

The average gross increase in annual salary for all the above senior employees who were in BBSRC full-time employment throughout 2009-10 was 2%.

## Salary and Allowances

Salary and allowances covers both pensionable and non-pensionable amounts and includes: gross salaries; performance pay or bonuses; over-time; allowances and any ex-gratia payments. It does not include amounts which are a reimbursement of expenses directly incurred in the performance of an individual's duties.

## Benefits in Kind

The monetary value of benefits in kind covers any benefits provided by the employer and treated by HM Revenue and Customs as a taxable emolument.

## Cash Equivalent Transfer Value (CETV)

A Cash Equivalent Transfer Value (CETV) is the actuarially assessed capitalised value of the pension scheme benefits accrued by a member at a particular point in time. The benefits valued are the member's accrued benefits and any contingent spouse's pension payable from the scheme. A CETV is a payment made by a pension scheme or arrangement when the member leaves a scheme and chooses to transfer the benefits accrued in the former scheme. The pension figures shown relate to the benefits that the individual has accrued as a consequence of their total membership of the pension scheme, not just their service in a senior capacity to which disclosure applies. The CETV figures include the value of any pension benefit in another scheme or arrangement which the individual has transferred to the Research Councils' pension arrangement and for which the RCPS has received a transfer payment commensurate with the additional pension liabilities being assumed. They also include any additional pension benefit accrued to the member as a result of their purchasing additional years of pension service in the scheme at their own cost.

## Real increase in the value of the CETV

The real increase in the value of the CETV reflects the increase effectively funded by the employer. It takes account of the increase in accrued pension due to inflation, contributions paid by the employee (including the value of any benefits transferred from another pension scheme or arrangement) and uses common market valuation factors for the start and end of the period.

**Professor Douglas Kell**  
Chief Executive and Accounting Officer

Date: 29 November 2010

## BBSRC Institutes and Centres

- **Babraham Institute**
- **Institute for Animal Health**
- **Institute of Biological, Environmental and Rural Sciences**
- **Institute of Food Research**
- **John Innes Centre**
- **Roslin Institute**
- **Rothamsted Research**
- **North Wyke Research** (formerly part of the former Institute of Grassland and Environmental Research) became part of the operations of Rothamsted Research during 2009-10
- **The Genome Analysis Centre** (in partnership with EEDA and Norfolk local authorities, opening in July 2009)
- **BBSRC Sustainable Bioenergy Centre** (focused on six research hubs of academic and industrial partners, based at each of the Universities of Cambridge, Dundee and York and Rothamsted Research and two at the University of Nottingham. Another 7 universities and institutes are involved together with 15 industrial partners).
- **Centre for Integrated Systems Biology of Ageing and Nutrition** (Newcastle University)
- **Centre for Integrative Systems Biology at Imperial College** (Imperial College, London)
- **Manchester Centre for Integrative Systems Biology** (University of Manchester)
- **Centre for Systems Biology at Edinburgh** (University of Edinburgh)
- **Centre for Plant Integrative Biology** (University of Nottingham)
- **Oxford Centre for Integrative Systems Biology** (University of Oxford)

*The BBSRC Systems Biology Centres are also supported by the Engineering and Physical Sciences Research Council (EPSRC).*

## Acronyms

AHRC	Arts and Humanities Research Council	HSE	Health and Safety Executive
BBSRC	Biotechnology and Biological Sciences Research Council	IBERS	Institute of Biological, Environmental and Rural Sciences
BIS	Department for Business, Innovation and Skills	IBTI	Integrated Biorefining Research and Technology Club
BRIC	Bioprocessing Research Industry Club	IFR	Institute of Food Research
BSBEC	BBSRC Sustainable Bioenergy Centre	INRA	Institut National de la Recherche Agronomique
CIDLID	Combating Infectious Diseases in Livestock for International Development	JIC	John Innes Centre
CPD	Continuing Professional Development	MRC	Medical Research Council
Defra	Department for Environment, Food and Rural Affairs	NC3R	The National Centre for the Replacement, Refinement and Reduction of Animals in Research
DFID	Department for International Development	NERC	Natural Environment Research Council
DRINC	Diet and Health Research Industry Club	NGO	Non-Governmental Organisation
EEDA	East of England Development Agency	NFU	National Farmers Union
EMIDA	Emerging and Major Infectious Diseases of Livestock	RCUK	Research Councils UK
ESRC	Economic and Social Research Council	RELU	Rural Economy and Land Use Programme
EPSRC	Engineering and Physical Sciences Research Council	SCRI	Scottish Crop Research Institute
FMD	Foot and Mouth Disease	SSC	Shared Services Centre
FSA	Food Standards Agency	STFC	Science and Technology Facilities Council
GDP	Gross Domestic Product	TGAC	The Genome Analysis Centre
HEFCE	Higher Education Funding Council for England	TSB	Technology Strategy Board
HEI	Higher Education Institution	WT	Wellcome Trust

# Annual Accounts 2009-2010

## Statement of Responsibilities of Council and Chief Executive as Accounting Officer

Under Section 2(2) of the Science and Technology Act 1965, the Secretary of State with the consent of the Treasury, has directed BBSRC to prepare for each financial year a statement of accounts in the form and on the basis set out in the Accounts Direction. The accounts are prepared on an accruals basis and must give a true and fair view of the state of affairs of BBSRC and of its net expenditure, changes in taxpayers' equity and cash flows for the financial year.

In preparing the Accounts, the Accounting Officer is required to comply with the requirements of the Government Financial Reporting Manual ([www.financial-reporting.gov.uk](http://www.financial-reporting.gov.uk)) and in particular to:

- ▶ observe the Accounts Direction issued by the Secretary of State including the relevant accounting and disclosure requirements, and apply suitable accounting policies on a consistent basis;
- ▶ make judgements and estimates on a reasonable basis;
- ▶ state whether applicable accounting standards as set out in the Government Financial Reporting Manual have been followed, and disclose and explain any material departures in the financial statements; and
- ▶ prepare the financial statements on a going concern basis, unless it is inappropriate to presume that the Council will continue to operate.

The Secretary of State has designated the Chief Executive as Accounting Officer of BBSRC. The responsibilities of an Accounting Officer, including responsibility for the propriety and regularity of the public finances for which the Accounting Officer is answerable, for keeping proper records and for safeguarding BBSRC's assets, are set out in the NDPB Accounting Officers' Memorandum issued by the HM Treasury and published in '*Managing Public Money*'.



## Statement By Chief Executive on Internal Control

### 1. Scope of Responsibility

As Accounting Officer, I have responsibility for maintaining a sound system of internal control that supports the achievement of BBSRC's policies, aims and objectives, whilst safeguarding the public funds and department assets for which I am personally responsible, in accordance with the responsibilities assigned to me and disclosed in 'Managing Public Money'.

The BIS Accounting Officer has designated me as the Accounting Officer of BBSRC, responsible for the effective, safe and efficient operation of the Council in accordance with the Management Statement.

### 2. The Purpose of the System of Internal Control

The system of internal control is designed to manage risk to a reasonable level rather than eliminate all risk of failure to achieve policies, aims and objectives; it can therefore only provide reasonable and not absolute assurance of effectiveness. The system of internal control is based on an ongoing process designed to identify and prioritise the risks to the achievement of BBSRC's policies, aims and objectives, to evaluate the likelihood of those risks being realised and the impact should they be realised, and to manage them efficiently, effectively and economically. The system of internal control has been in place in BBSRC for the year ended 31 March 2010 and up to the date of approval of the annual report and accounts, and accords with HM Treasury guidance.

### 3. Capacity to Handle Risk

Overall responsibility for risk management in BBSRC rests with the Chief Executive, who as the BBSRC Accounting Officer signs this annual statement on Internal Control as part of the audited Annual Accounts. The task of implementing and maintaining the risk management policy and strategy is delegated to the Director of Finance who fulfils the role of the Director responsible for risk. However all BBSRC Directors share the responsibility to ensure the effective application of BBSRC's risk management strategy and policy. Within this established structure, BBSRC gives leadership to the process by a number of means, including:

- 1) setting out a risk management policy and strategy and defining the BBSRC level risk appetite;
- 2) signing up to risk management assurance statements at the most senior levels within BBSRC and its sponsored institutes;
- 3) updating and reviewing the register of key risks at least quarterly by senior management and at every Audit Board meeting;
- 4) reinforcing risk management at staff level through the development and implementation of group-level risk registers in support of those at corporate level;
- 5) appointing risk "owners" for all risks identified. These will typically be middle/senior managers within BBSRC who will be responsible for the day to day management of risk. They will lead on the development of appropriate risk management plans and ensuring that risk response actions are carried out as required;
- 6) A formal PRINCE 2 based project management approach with embedded risk management is used for major activities, including the business critical projects listed below;
- 7) hosting the RCUK Internal Audit Service which is responsible for providing an assessment of internal control to Chief Executives, through a carefully determined and managed internal audit programme. In BBSRC this programme forms a key part of an overall "Assurance Map", which brings activities, risks and assurance together;
- 8) hosting the RCUK Assurance unit which is responsible for managing and undertaking the Research Councils Funding Assurance Programme (FAP).

The interests of key stakeholders and operational partners are also considered.

BBSRC actively encourages a culture of effective risk management; this recognises that effective risk management is an essential component of successful business operations, rather than simple risk avoidance.

### 4. The Risk and Control Framework

Risk management and internal control are considered on a regular basis by BBSRC Executive and Audit Board during the year. The Audit Board meets at least three times a year and plays an important role in overseeing the internal control arrangements for BBSRC and its sponsored institutes. The Board reviews the external audit management letters arising from BBSRC and from BBSRC sponsored-institutes, and approves the internal audit programme plan for the year in the light of the key risks identified as part of the risk management framework. In particular, business critical projects are picked out for special assessment by the BBSRC Executive and Audit Board on an ongoing basis.

The activities of the Research Councils' Internal Audit Service (RCIAS) in respect of BBSRC and its sponsored institutes are reviewed by Audit Board and the scope of the internal audit plan for the coming year, which is based on the overall assessment of risk, is agreed. With this overarching view of audit activities, Audit Board plays a pivotal role in evaluating and reviewing the evidence supporting the Chief Executive's assurance statement on internal control.

The Council's role, in terms of risk management, is to oversee the work of Audit Board through review of Audit Board minutes and key risks highlighted by the Audit Board Chair.

BBSRC Executive Group and Audit Board regularly review the strategic and operational risk management registers and framework and receive reports on business critical projects pertaining through the year.

The business critical projects at 31 March 2010 were:

1. Pirbright redevelopment and IAH long term sustainability. The project is planned to replace the current facilities with state of the art flexible facilities including areas with the highest level of bio-security. This unit will be able to respond to future national threats such as outbreaks of the Bluetongue virus.

2. Governance changes. To introduce improved clarity and modern good practice in governance arrangements for each of the BBSRC sponsored institutes.
3. Deliver a Shared Services Centre (SSC) for all back-office transactional services for BBSRC, whilst minimising the risk to BBSRC core business.

The SSC implementation project will deliver a single administrative support service for all UK Research Councils. RCUK Shared Services Ltd (SSC Ltd) is now providing recruitment, procurement, finance and IT services in year to 31 March 2010 with grants processing following in the year ending 31 March 2011. This project is business critical for BBSRC, as it fundamentally changes the way back-office services are provided, effectively through outsourcing them to the new SSC organisation.

The SSC project operates across all seven Councils and is directed by a Project Board comprised of representatives of each Council, SSC Ltd and a number of independent members. The Board is chaired by David Delpy, CEO of EPSRC. The principal risks for the Project, and therefore for the seven Councils, are the potential for cost and time overruns and these are a clear focus for the Project Board.

SSC Ltd has a Board of Directors and Audit Committee which provides a corporate governance framework in line with statutory and best practice requirements. As the shareholders, Research Councils have retained rights to each appoint one "Nominee" Non-Executive Director. BBSRC has appointed its Director of Human Resources.

As a stakeholder in the SSC Project, BBSRC has its own group who manages its participation and associated risks in the Project. The high level risks and mitigation strategies are regularly scrutinised by BBSRC's Executive Management Group. Governance arrangements are regularly monitored by BBSRC's Audit Board.

Directors' Assurance Statements on Internal Control (DASIC) are completed by each BBSRC Institute Director and Swindon Office Group Director. The DASIC provides assurance to the BBSRC Chief Executive that a sound system of internal control has been in place throughout the BBSRC and its sponsored institutes for the year.

On behalf of RCUK, BBSRC hosts the Research Councils Assurance unit which reviews the regularity of expenditure on Research Council grants at universities and other research organisations. The programme examines the control environment and is an important element of the risk management framework. RCUK Assurance produces an annual report for the Accounting Officers on their activities for the year which now covers a review of the costing methodology used by research organisations as a result of the implementation of full economic costing.

BBSRC has made substantial progress developing its information assurance practices and aligning these with the Cabinet Office's Security Policy Framework and associated regulations and standards. The programme of work began in 2009-10 and is gradually being extended to include its own delivery partners. An audit by the Research Council Internal Audit service, that included some of BBSRC's major delivery partners has helped to highlighted areas of focus for the current year, whilst reinforcing the considerable progress BBSRC has achieved to date.

As disclosed within the related parties note on page 81 of the annual accounts, Professor Kell, Chief Executive and Accounting Officer for BBSRC, retains an interest in the Manchester Interdisciplinary Biocentre (MIB), which forms part of the University of Manchester. Professor Kell continues to work one day a week for MIB and to avoid any conflict of interest, abstains from any BBSRC discussions relating to the University of Manchester.

## 5. Review of Effectiveness

As Accounting Officer, I have responsibility for reviewing the effectiveness of the system of internal control. My review of the effectiveness of the system of internal control is informed by the work of the internal auditors, and the Executive Directors within BBSRC who have responsibility for the development and maintenance of the internal control framework, and comments made by the external auditors in their management letter and other reports. I have been advised on the implications of the result of my review of the effectiveness of the system of internal control by Council and Audit Board and a plan to address weaknesses and ensure continuous improvement of the system is in place.

The principal elements of support for the Accounting Officer's assurance statement are the work of the Audit Board and the BBSRC Executive, including the review of Business Critical projects, the annual report from the Head of RCIAS, the DASIC, the risk management frameworks developed by BBSRC and its sponsored institutes and responses to external management letters which identify where control gaps exist.

BBSRC received a substantial assurance rating from the Director of Internal Audit for 2009/10. The audit covers the operations of both BBSRC and the sponsored institutes. The 2009/10 audit included reviews of Financial Transaction Testing, Payroll, SSC Transition Assurance and Readiness, HR and Forecasting and Budgets for External Funding. The RCIAS plan for 2010-11 includes audits for Leadership, Management and Development, Institute Governance Changes, H&S, Business Continuity Planning Risk Management and Strategic and Operational Procurement.

The BBSRC-sponsored Institutes have their own Risk Management Assurance Framework as part of the accounting requirements within the charity sector and to underpin BBSRC's approach.

The internal control system provides confirmation that the risk is managed to a reasonable level and I can provide assurance that it supports the achievement of the BBSRC's policies, aims and objectives.

**Professor Douglas Kell**  
Chief Executive and Accounting Officer

Date: 29 November 2010



## The Certificate of The Comptroller and Auditor General to The Houses Of Parliament

I certify that I have audited the financial statements of the Biotechnology and Biological Sciences Research Council for the year ended 31 March 2010 under the Science and Technology Act 1965. These comprise the Operating Cost Statement, the Statement of Financial Position, the Statement of Cash Flows, the Statement of Changes in Taxpayers' Equity and the related notes. These financial statements have been prepared under the accounting policies set out within them. I have also audited the information in the Remuneration Report that is described in that report as having been audited.

### Respective responsibilities of the Council and Chief Executive and auditor

As explained more fully in the Statement of Responsibilities of Council and Chief Executive as Accounting Officer, the Accounting Officer is responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view. My responsibility is to audit the financial statements in accordance with applicable law and International Standards on Auditing (UK and Ireland). Those standards require me and my staff to comply with the Auditing Practices Board's Ethical Standards for Auditors.

### Scope of the audit of the financial statements

An audit involves obtaining evidence about the amounts and disclosures in the financial statements sufficient to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or error. This includes an assessment of: whether the accounting policies are appropriate to the Biotechnology and Biological Science Research Council's circumstances and have been consistently applied and adequately disclosed; the reasonableness of significant accounting estimates made by the Biotechnology and Biological Science Research Council; and the overall presentation of the financial statements.

In addition, I am required to obtain evidence sufficient to give reasonable assurance that the expenditure and income reported in the financial statements have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them.

### Opinion on Regularity

In my opinion, in all material respects the expenditure and income have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them.

### Qualified Opinion arising from disagreement on accounting treatment for the Biotechnology and Biological Sciences Research Council Institutes

The Biotechnology and Biological Sciences Research Council has not complied with the financial reporting framework as it has not consolidated the results of two sponsored Institutes over which it has control as required by *IAS 27 Consolidated and Separate Financial Statements*. I am unable to quantify precisely the impact on the financial statements because the Biotechnology and Biological Sciences Research Council has not maintained the records or obtained the information required to comply with the financial reporting framework in this respect. However, in my opinion, the Council has omitted a material value of assets and liabilities from its Statement of Financial Positions as at 1 April 2008, 31 March 2009 and 31 March 2010. There is also consequential misstatement of the Operating Cost Statements for 2008-09 and 2009-10.

Except for the financial effects arising as a result of the failure to properly apply IAS 27, in my opinion:

- ▶ the financial statements give a true and fair view of the state of the Biotechnology and Biological Sciences Research Council's affairs as at 31 March 2010 and of its net expenditure, changes in taxpayers' equity and cash flows for the year then ended; and
- ▶ the financial statements have been properly prepared in accordance with the Science and Technology Act 1965 and Secretary of State directions issued thereunder with the approval of Treasury.

## Opinion on other matters

In my opinion:

- ▶ the part of the Remuneration Report to be audited has been properly prepared in accordance with directions issued by the Secretary of State with the approval of Treasury under the Science and Technology Act 1965; and
- ▶ the information given in the Management Commentary for the financial year for which the financial statements are prepared is consistent with the financial statements.

## Matters on which I report by exception

I have nothing to report in respect of the following matters which I report to you if, in my opinion:

- ▶ adequate accounting records have not been kept; or
- ▶ the financial statements are not in agreement with the accounting records or returns; or
- ▶ I have not received all of the information and explanations I require for my audit; or
- ▶ the Statement by the Chief Executive on Internal Control does not reflect compliance with HM Treasury's guidance.

## Report

My report on pages 54 to 55 provides further detail of my qualified audit opinion on the financial statements.

Amyas CE Morse  
Comptroller and Auditor General  
Date: 24 March 2011

National Audit Office  
157-197 Buckingham Palace Road  
Victoria  
London SW1W 9SP



# Report of the Comptroller and Auditor General to the Houses of Parliament

## Introduction

1. The Biotechnology and Biological Sciences Research Council (BBSRC) is an Executive non-departmental government body established by Royal Charter in 1993, sponsored by the Department for Business, Innovation and Skills.
2. The Council is the UK's principal funder of basic and strategic biological research. To deliver its mission, BBSRC supports research and postgraduate training in higher education institutions and research centres throughout the UK, including BBSRC-sponsored Institutes, and promotes knowledge transfer from research to applications in business, industry and policy, and public engagement in the biosciences.
3. In 2009-10, of the Council's £402.8 million of expenditure for research and capital grants, total grants of £141.2 million were made to these Institutes, to fund research, capital developments and training in support of the Council's key objectives. The Institutes deliver innovative, world class bioscience research and training, leading to wealth and job creation, generating high returns for the UK economy. They have strong links with business, industry and the wider community, and support policy development. The governance arrangements for the Institutes have been subject to review in recent years, with the intention of increasing their independence from BBSRC.
4. The Council has prepared its 2009-10 financial statements applying International Financial Reporting Standards (IFRS) for the first time, with a transition date of 1 April 2008. In my view, the governance arrangements for two of the Institutes (the Institute of Food Research and the Babraham Institute) mean that the BBSRC had the right to exercise control over the financial and operating policies of those bodies at 31 March 2010. Therefore under the terms of IAS 27 Consolidated and Separate Financial Statements, these two bodies should be viewed as subsidiaries of the BBSRC and be consolidated into the 2009-10 financial statements.

## Purpose of Report

5. The financial statements on the following pages represent the results of the BBSRC for the period from 1 April 2009 to 31 March 2010. The financial statements do not include the consolidated results of the two sponsored Institutes that I believe should be treated as subsidiaries of the BBSRC. The purpose of this Report is to explain the background to the qualification of my audit opinion.

## My obligations as auditor

6. Under the Science and Technology Act 1965, I am required to examine, certify and report on the financial statements that I receive. I am required, under International Standards on Auditing (UK and Ireland), to obtain evidence to give reasonable assurance that the BBSRC financial statements are free from material misstatement. In forming my opinion I examine, on a test basis, evidence supporting the disclosures in the financial statements and assess the significant estimates and judgements made in preparing them. I also consider whether the accounting policies are appropriate, consistently applied and adequately disclosed. I am required to satisfy myself that, in all material respects, the expenditure and income of the Council have been applied to the purposes intended by Parliament and conform to the authorities that govern them.

## Audit opinion

7. I have qualified my audit opinion on the 2009-10 financial statements, owing to disagreement over the accounting policy for, and accounting treatment of, two of the Council's sponsored Institutes which should, in my view, be treated as subsidiaries, but which, in accordance with the previous accounting policy applied to all BBSRC-sponsored Institutes, have not been consolidated into the Council's financial statements. This reflects a change arising from the first time implementation of IFRS.

## Explanation of Qualified Audit opinion

8. The governance arrangements for the Institutes have been subject to review in recent years (the Follett Review), and actions have been taken with a view to increasing the independence of these bodies from BBSRC. In 2008-09 the Institute of Grassland and Environmental Research and Roslin Institute became fully independent of BBSRC as they were transferred to the Universities of Aberystwyth and Edinburgh respectively. The most recent addition to the Institute portfolio, the Genome Analysis Centre, was created in July 2009, with a governance structure designed to be fully independent of BBSRC.
9. From 1 April 2011, the governance of the five remaining Institutes is also planned to move to a more Independent model, as proposed by the Follett review. The Institutes are constituted as charitable companies, limited by guarantee. Each Institute was incorporated on a different date, and each has a slightly different governance structure, with differing numbers of Trustees on the Boards and different mechanisms for the appointment and the removal of those Trustees.
10. I have considered the governance arrangements for these Institutes in the context of the requirements of IFRS, and specifically of IAS 27. This standard states that the circumstances where control exists include when there is power to appoint or remove the majority of the members of the board of directors or equivalent governing body.
11. Under the existing arrangements, the Council has control over the appointment and/or removal of the Board of Trustees for the Institute of Food Research and the Babraham Institute. In practice BBSRC does not seek to influence the operations of its Institutes; however, clauses in the Articles of Association have not yet been amended by BBSRC to reflect actual practice. The Council's intentions are not relevant to the control considerations under IAS 27, and therefore these two Institutions are deemed to be subsidiaries. Both bodies prepare accounts in accordance with the reporting requirements for Charities which does not require them to apply IFRS. The Council accepts in principle that these bodies should be consolidated, but has not considered it cost-effective to make the necessary accounting adjustments to consolidate the bodies into its 2009-10 financial statements, given the changes it expects to make to the governance arrangements in the near future.
12. The total net results for the year for the Babraham Institute in its 2009-10 audited accounts are £2.4 million, and net assets were £61.2 million. Figures for the Institute of Food Research are £1.3 million and £5.9 million respectively. If the two Institutes were to be accounted for as subsidiaries, the Council would need to prepare Group accounts which presented the accounts of the Group as those of a single entity.
13. The above figures are an indicative estimate of the overall impact on the Council's accounts. In practice, the Council would need to adjust the transactions for any changes to make the accounting policies consistent across the Group; eliminate the inter-entity balances, and adjust for transactions in the accounts that were common between the bodies. This would include fixed assets owned by BBSRC with related valuations in the Babraham Institute accounts. As none of the necessary adjustments have been considered by BBSRC, it is not possible for me to estimate the precise impact on the Council's accounts of consolidating the bodies.

## Action being taken by the Biotechnology and Biological Sciences Research Council

14. The Council intends to move all Institutes to a governance structure that is independent of BBSRC from April 2011, and would therefore expect to remove the accounting requirement to consolidate the Institute of Food Research and the Babraham Institute Institutes under IFRS from 2011-12. The Council will also review whether it is possible in the meantime to amend the Memorandum and Articles of Association for both bodies in relation to those clauses that give it the ability to control the appointment and removal of Trustees.

*\*Independent Review of Governance of BBSRC-sponsored Institutes for the Biotechnology and Biological Sciences Research Council, undertaken by Sir Brian Follett, September 2006.*

Amyas CE Morse  
Comptroller and Auditor General  
Date: 24 March 2011

National Audit Office  
157-197 Buckingham Palace Road  
Victoria  
London SW1W 9SP

## Operating Cost Statement for the year ended 31 March 2010

		2009-10	2008-09
	NOTE	£'000	£'000
<b>EXPENDITURE</b>			
Research and Capital Grants	2	402,837	364,667
Training Awards and Fellowships	2	53,694	50,510
Staff costs	3	11,391	10,284
Other operating costs	5	19,120	16,159
Research Institute staff restructuring	8	4,015	3,045
Depreciation and amortisation	12, 14	8,421	9,006
Loss on disposals and demolition of property, plant and equipment	10	25	257
Impairment	13	505	-
Loss on Joint Venture	11	383	-
<b>TOTAL EXPENDITURE</b>		<b>500,391</b>	<b>453,928</b>
<b>INCOME</b>			
Other Operating Income		(4,690)	(1,197)
Recovery of IT service to institutes		(2,888)	(3,109)
Other recoveries	6	(604)	(691)
<b>TOTAL OPERATING INCOME</b>		<b>(8,182)</b>	<b>(4,997)</b>
<b>NET OPERATING COSTS</b>		<b>492,209</b>	<b>448,931</b>
Notional Cost of Capital		8,307	8,094
		<b>8,307</b>	8,094
<b>NET EXPENDITURE FOR THE YEAR</b>		<b>500,516</b>	<b>457,025</b>
<b>REVERSAL OF COST OF CAPITAL</b>		<b>(8,307)</b>	<b>(8,094)</b>
<b>NET EXPENDITURE FOR THE YEAR AFTER REVERSAL OF COST OF CAPITAL</b>		<b>492,209</b>	<b>448,931</b>

All activities are regarded as continuing

The notes on page 60 to 87 form part of these accounts

## Statement of Financial Position as at 31 March 2010

		31 March 2010 £'000	31 March 2009 £'000	1 April 2008 £'000
	NOTE	_____	_____	_____
<b>NON CURRENT ASSETS</b>				
Property, plant and equipment	12	240,873	221,160	222,164
Intangible assets	14	413	431	380
Financial assets	11	536	536	536
Investment in Joint Venture	11	1,240	1,623	-
Non current Receivables	16ii	14,280	17,629	17,161
<b>TOTAL NON CURRENT ASSETS</b>		<b>257,342</b>	<b>241,379</b>	<b>240,241</b>
<b>CURRENT ASSETS</b>				
Assets classified as held for sale		-	-	2,000
Trade and other receivables	16i	48,867	30,339	29,398
Cash and cash equivalents	19ii	2,904	725	8,239
<b>TOTAL CURRENT ASSETS</b>		<b>51,771</b>	<b>31,064</b>	<b>39,637</b>
<b>TOTAL ASSETS</b>		<b>309,113</b>	<b>272,443</b>	<b>279,878</b>
<b>CURRENT LIABILITIES</b>				
Trade and other payables	17	(48,092)	(35,168)	(23,708)
Provisions	9	(4,022)	(4,572)	(7,894)
<b>TOTAL CURRENT LIABILITIES</b>		<b>(52,130)</b>	<b>(39,740)</b>	<b>(31,602)</b>
<b>NON CURRENT ASSETS LESS CURRENT LIABILITIES</b>		<b>256,983</b>	<b>232,703</b>	<b>248,276</b>
<b>NON CURRENT LIABILITIES</b>				
Provisions.	9	(7,353)	(7,043)	(6,210)
<b>ASSETS LESS LIABILITIES</b>		<b>249,646</b>	<b>225,660</b>	<b>242,066</b>
<b>Financed by:</b>				
<b>Equity</b>				
Revaluation reserve		199,383	181,345	182,647
Income and expenditure reserve		50,263	44,315	59,419
<b>TOTAL TAXPAYERS EQUITY</b>		<b>249,646</b>	<b>225,660</b>	<b>242,066</b>

The financial statements on pages 49 to 87 were approved by the board and signed on its behalf by:

**Professor Douglas Kell**  
Chief Executive and Accounting Officer

Date: 29 November 2010

## Statement of Cash Flows for the year ended 31 March 2010

		31 March 2010		31 March 2009
	NOTE	£'000	£'000	£'000
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>				
Net (Expenditure) for year after cost of capital		(492,209)		(448,931)
Reversal of depreciation and impairment charge		8,421		9,006
Reversal of impairment charge		505		-
Reversal of loss on Joint Venture		383		-
Reversal of loss on disposals and demolition of property, plant and equipment		25		257
Increase in provision for liabilities and charges		(240)		(2,489)
Increase in trade and other receivables excluding those for property, plant and equipment		(15,179)		(2,107)
Increase in trade and other payables excluding those for property, plant and equipment		12,924		6,532
<b>NET CASH (OUTFLOW) FROM OPERATING ACTIVITIES</b>			<b>(485,370)</b>	<b>(437,732)</b>
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>				
Payments to acquire property, plant and equipment	19(vi)	(2,548)		(720)
Purchase of financial assets		-		(1,191)
Receipts from sale of property, plant and equipment		-		3,150
<b>NET CASH (OUTFLOW)/INFLOW FROM INVESTING ACTIVITIES</b>			<b>(2,548)</b>	<b>1,239</b>
<b>NET CASH (OUTFLOW) BEFORE FINANCING</b>			<b>(487,918)</b>	<b>(436,493)</b>
<b>CASH FLOWS FROM FINANCING ACTIVITIES</b>				
Grant in Aid	18	470,766		412,343
Funding from other bodies	18a	19,331		16,636
<b>NET CASH INFLOW FROM FINANCING ACTIVITIES</b>			<b>490,097</b>	<b>428,979</b>
<b>INCREASE/(DECREASE) IN CASH AND CASH EQUIVALENTS IN THE YEAR</b>			<b>2,179</b>	<b>(7,514)</b>
<b>CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE YEAR</b>			<b>725</b>	<b>8,239</b>
<b>CASH AND CASH EQUIVALENTS AT THE END OF THE YEAR</b>	19 (i)		<b>2,904</b>	<b>725</b>

## Statement of Changes in Tax payers equity as at 31 March 2010

		Revaluation Reserve	Income and Expenditure Reserve	Total Government Funds
	NOTE	£'000	£'000	£'000
<b>At 1 April 2009</b>		181,345	44,315	225,660
Net Expenditure for year after reversal of cost of capital		-	(492,209)	(492,209)
Net Parliamentary Funding from BIS	18	-	470,766	470,766
Net Funding from other bodies	18a	-	19,331	19,331
Valuation additions	12	24,131	-	24,131
Transfer to match depreciation		(6,060)	6,060	-
Professional revaluation- gains	12	1,967	-	1,967
Reserves realignment		(2,000)	2,000	-
<b>At 31 March 2010</b>		<b>199,383</b>	<b>50,263</b>	<b>249,646</b>

		Revaluation Reserve	General Reserve	Total Government Funds
	NOTE	£'000	£'000	£'000
<b>At 1 April 2008 under UK GAAP</b>		182,647	59,755	242,402
Changes in accounting policy	1(iii)	-	(336)	(336)
<b>At 1 April 2008 under IFRS</b>		182,647	59,419	242,066
Net Expenditure for year after reversal of cost of capital		-	(448,931)	(448,931)
Net Parliamentary Funding from DIUS	18	-	412,343	412,343
Net Parliamentary Funding from other bodies	18a	-	16,636	16,636
Valuation additions	12	20,362	-	20,362
Transfer to match depreciation		(6,465)	6,465	-
Transfer to match disposals		333	(333)	-
Professional revaluation-gains	12	3,900	-	3,900
Professional revaluation-losses	12	(20,716)	-	(20,716)
Realignment of reserves		1,284	(1,284)	-
<b>At 31 March 2009</b>		<b>181,345</b>	<b>44,315</b>	<b>225,660</b>

## Notes to the Financial Statements

### 1. ACCOUNTING POLICIES

#### a) Basis of Accounting

- i) These financial statements have been prepared in accordance with the Accounts Direction issued by the Secretary of State, pursuant to Section 2(2) of the Science and Technology Act 1965 and in accordance with the 2009-10 Government Financial Reporting Manual (FReM). The accounting policies contained in the FReM apply International Financial Reporting Standards (IFRS) as adapted or interpreted for the public sector context.

Where the FReM permits a choice in accounting policy, the accounting policy judged to be the most appropriate to the particular circumstances of BBSRC for the purpose of giving a true and fair view have been selected. The particular policies adopted by BBSRC are described below. They have been applied consistently in dealing with items that are considered material to the accounts.

- ii) BBSRC is dependent on funding from BIS to meet liabilities falling due within future years. BBSRC has now received its allocation as part of the 2010 Comprehensive Spending Review which provides for funding until 2014-15. Although this allocation represents a small reduction in our programme budget, it remains an excellent settlement given constraints imposed elsewhere on public spending. The allocation of over £1.5Bn over four years demonstrates the government's recognition of the role of bioscience in tackling future major challenges.

#### iii) Transition to adopted IFRSs

The Council has applied IFRS 1 in preparing these financial statements. The Council's transition date is 1 April 2008. The Council prepared its opening IFRS balance sheet at that date.

The Council prepared its financial statements for the year ending 31 March 2010 as its first full financial statements under IFRS. As a result the 31 March 2009 financial statements will become its comparatives and have been converted from UK GAAP to IFRS.

The balance sheet was previously prepared in accordance with the generally accepted accounting principles in the United Kingdom (UK GAAP) until 31 March 2008. UK GAAP differs in some areas from IFRS as adopted by the FReM. In preparing the statement of financial position under IFRS, management has amended certain accounting and valuations applied in the previous UK GAAP financial statements to comply with IFRS.

The impact of the implementation of IFRS is considered in detail in Note 27.

#### Adoption of standards effective in 2009-10

The following revised standards and interpretations have been applied by the Council from 1 April 2009:

International Financial Reporting Standards (IFRS/IAS)		Effective date
IFRS 7	Amendments to IAS 39 and IFRS 7: reclassification of financial assets	1 July 2008
IFRS 7	Update to amendments to IAS 39 and IFRS 7: reclassification of financial assets	1 July 2008
IFRS 7	Amendment to IFRS 7 – improving disclosures about financial instruments	1 January 2009
IFRS 8	Operating Segments	1 January 2009
IAS 23	Borrowing Costs	1 January 2009
IAS 1	Presentation of Financial Statements	1 January 2009
IFRS 1	Amendments to IFRS 1: First-time adoption of IFRS and IAS 27: Consolidated and Separate Financial Statements	1 January 2009
IAS 39	Amendments to IFRIC 9 and IAS 39: Embedded derivatives	30 June 2009
IFRS 1	Revised version of IFRS 1 with improved structure	1 July 2009
IFRS 3	Business Combinations	1 July 2009
IAS 27	Consolidated and Separate Financial Statements	1 July 2009
IAS 39	Amendment to IAS 39 Financial Instruments: Eligible hedged items	1 July 2009
<b>International Financial Reporting Interpretations Committee (IFRIC)</b>		
IFRIC 17	Distribution of Non-Cash Assets to Owners	1 July 2009
IFRIC 18	Transfers of Assets from Customers	1 July 2009

### IFRS effective in 2009-10 but not relevant

The following amendments were mandatory for accounting periods beginning on or after 1 April 2009 but were not relevant to the operations of the Council:

International Financial Reporting Standards (IFRS/IAS)		Effective date
IFRS 2	Share-based Payment (amendment)	1 January 2009
IAS 32	IAS 32 Financial Instruments: Presentation and IAS 1 Financial Instrument Presentation Amendments – Puttable Financial Instruments and Obligations Arising on Liquidation	1 January 2009
International Financial Reporting Interpretations Committee (IFRIC)		
IFRIC 15	IFRIC 15: Agreements for the construction of Real Estate	1 January 2009
IFRIC 16	IFRIC 16: Hedges of a Net Investment in a Foreign operation	1 October 2008

### Standards, interpretations and amendments to published standards which are not yet effective

The IASB and IFRIC issued the following standards and interpretations with an effective date after the date of these financial statements. They have not been adopted early by the Council and the directors do not anticipate that the adoption of these standards and interpretations will have a material impact on the Council's reported income or net assets in the period of adoption.

Effective for the Council in future years:

International Financial Reporting Standards (IFRS/IAS)		Effective date
IFRS 1	Amendment to IFRS 1 – additional exemptions for first-time adopters	1 October 2010
IFRS 2	Amendment to IFRS 2 – group cash-settled share-based payment transactions	1 October 2010

## b) Measurement convention

These financial statements have been prepared under the historical cost convention modified to account for the revaluation of land and buildings and other fixed assets. Non-current assets held for sale are stated at the lower of previous carrying amount and fair value less costs to sell.

The financial statements are presented in pounds sterling, BBSRC's functional currency, and all amounts have been rounded to the nearest thousand unless otherwise stated.

## c) Non current assets

### i) Intangible Assets

Intangible Assets comprise purchased and developed specialist computer software and the BBSRC website and are carried at fair value. Intangibles are given definite useful lives and are amortised on a straight line basis over the useful life of the asset from the date of use based on nil residual value. The average expected useful life is 5 years for software and 3 years for website costs.

Intangible assets are reviewed for impairment whenever events or circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised in the operating cost statement based on the amount by which the carrying amount exceeds the recoverable amount.

### ii) Land and Buildings

Land and buildings are carried at valuation at the reporting date. The basis of valuation for specialised scientific buildings is depreciated replacement cost and at open market value for non- specialised buildings. Valuations are adjusted annually at the reporting date by using the appropriate published indices and statistics. A full revaluation of land and buildings is carried out at least every five years except for buildings under construction or sites being prepared for sale.

Some buildings with similar remaining lives have been grouped together for valuation and depreciation purposes.



The council owns land and buildings which are leased to a number of grant aided institutes, all of whom are constituted as companies limited by guarantee and as registered charities and who prepare separate audited accounts. Additions to these assets may be funded wholly or in part from sources other than the BBSRC. Any funding contribution made by the BBSRC, in the form of capital grants is included within Research Grants in the operating cost statement.

Where institutes carry out development that results in a material change in the value of the Council's owned assets, this is disclosed as a fixed asset valuation addition within these accounts based on a professional valuation at the Statement of Financial Position date.

### iii) Information technology, plant and equipment

Capital expenditure includes purchases valued at £3,000 or more. Assets are included in the statement of financial position at depreciated historical cost which approximates to fair value.

### iv) Revaluation

Increases in valuation are credited to the revaluation reserve.

Losses on revaluation are debited to the revaluation reserve to the extent of the gains previously recorded and then to the Operating Cost Statement.

In the opinion of BBSRC, there is no material difference between the historic cost of equipment, fixtures and fittings and their current cost. Accordingly these assets have not been revalued and this position is kept under review.

### v) Depreciation

Provision is made for depreciation on all non-current assets at rates calculated to write off the valuation of each asset (or group of assets) to its estimated residual value evenly over its expected useful life from the date the asset is brought into use. An expected useful life is assessed at each location by the valuer.

Expected useful lives are as follows:

Freehold Land	-	not depreciated
Depreciated replacement cost buildings	-	up to 60 years
Agriculture buildings	-	up to 60 years
Dwellings	-	up to 60 years
Office and computing equipment	-	3 to 5 years
System Software	-	5 years
BBSRC website	-	3 years
Motor vehicles	-	up to 4 years
Assets under construction	-	not depreciated until available for use

Increased depreciation charges arising from revaluation are matched by annual transfers from the revaluation reserve to the general reserve. On disposal of a revalued asset, that element of the revaluation reserve that becomes realised as a result is also transferred to the general reserve.

## d) Financial assets

Investments are financial assets and are carried at cost less provision for any impairment in value.

## e) Joint Ventures

Those investments that are held as Joint Ventures are accounted for under the equity method.

## f) Investment Properties

Properties that BBSRC subleases to other Councils are not deemed to be investment properties. In its capacity as host of the Joint Building and Office Services unit (JBOS), BBSRC leases buildings for administration space on behalf of the Research Councils and recovers the full cost from them.

Assets leased to institutes are deemed not to be investment properties as the assets are provided to fulfil the BBSRC business principle to further science. If the assets were not provided to the institutes, BBSRC would incur additional grant expenditure to fund the institutes' rent of properties commercially. Accordingly the asset is held for the business of sponsoring research rather than for capital appreciation.

## Impairment

The carrying amounts of the Council's assets are reviewed at each statement of financial position date to determine whether there is any indication of impairment; an asset is considered to be impaired if objective evidence indicates that one or more events have had a negative effect on the estimated future cash flows of that asset. If any such indication exists, the asset's recoverable amount is estimated.

An impairment loss is recognised whenever the carrying amount of an asset or its cash-generating unit exceeds its recoverable amount. Impairment losses are recognised in the Operating Cost Statement.

## g) Non current assets held for sale

Where a non current asset's carrying amount will be recovered principally through a sales transaction rather than through continuing use, is available for immediate sale in its present condition and its sale is highly probable, then the asset is classified as held for sale.

A sale is highly probable where there is evidence of management commitment to sell, there is an active programme to locate a buyer, the asset is actively marketed for sale at a reasonable price, and the sale will be completed within 12 months from the date of classification.

The asset is measured at the lower of carrying amount and fair value less costs to sell unless the asset is outside the measurement provisions of IFRS 5 'Non current Assets Held for Sale and Discontinued Operations'.

Depreciation ceases on assets classified as held for sale from the date the re-classification is made.

## h) Derivatives and Financial Instruments

The council is not exposed to the same level of risk as many business entities and the financial assets and liabilities at the reporting date are included at amortised cost. Where the time value of money is material, the amount of the asset or liability will be the present value of the expenditures/income expected to be required to settle the obligation. The discount rate used will be the real discount rate set by HM Treasury, currently at 3.5%.

### Trade receivables

Trade receivables are not interest bearing and are carried at original invoice amount less allowance for impairment. Provision for impairment is established when there is objective evidence that the Council will not be able to collect all amounts due according to the original terms of the receivable. The amount of provision is the difference between the carrying amount and recoverable amount and is recognised in the Operating Cost Statement.

### Trade and other payables

Trade and other payables are recognised in the period in which related money, goods or services are received or when a legally enforceable claim against the Council is established or when the corresponding assets or expenses are recognised.

## i) Cash and Cash Equivalents

Cash and cash equivalents comprise cash balances and call deposits.

## j) Employee Benefits

Under IAS 19 'Employee Benefits' an entity is required to recognise short term employee benefits when an employee has rendered service in exchange for those benefits. Included in the financial statements under other accruals is an accrual for the outstanding employee holiday and flexitime entitlement at the year end on an undiscounted basis.

## k) Pension Scheme and Retirement Costs

The employees of the Council are members of the Research Councils' Pension Scheme (RCPS) which is a defined benefit scheme funded from annual grant-in-aid on a pay as you go basis. The benefits are by analogy to the Principal Civil Service Pension Scheme, except that while the schemes provide retirement and related benefits based on final emoluments, redundancy and injury benefits are administered and funded by the Council. As permitted by paragraph 31 of IAS 19, the Company has recorded the pension contributions payable for the period as its charge to the Operating Cost Statement.

## l) Provisions

Provisions are recognised when: the Council has a present legal or constructive obligation as a result of past events; it is more likely than not that an outflow of resources will be required to settle the obligation; and the amount can be reliably estimated.

When BBSRC has taken a decision to fund a programme of redundancies, then the associated costs are provided for. The provision for the ongoing Annual Compensation Payments is transferred from the Major Institute Restructuring provision and any remaining balance released once the redundancies are complete.

Provisions have been made in accordance with IAS 37 for redundancy costs and system termination fees arising from the transition to the Shared Services Centre.

Where the time value of money is material, the amount of the provision will be the present value of the expenditures expected to be required to settle the obligation. The discount rate used will be the real discount rate set by HM Treasury, currently 3.5%.

Provisions are reviewed at the end of each reporting period and adjusted to reflect the current best estimate.



#### **m) Contingent Liabilities**

Contingent liabilities, including letters of comfort and financial guarantees, where obligations due cannot be measured reliably are not recognised as liabilities in the financial statements but are disclosed by way of a note in accordance with IAS 37.

#### **n) Leases**

Operating lease rental payments are charged to the operating cost statement on a straight line basis over the term of the lease. BBSRC holds no finance leases.

#### **o) Foreign Currencies**

Transactions in foreign currencies are translated at the foreign exchange rate ruling at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies at the Statement of Financial Position date are translated at the foreign exchange rate ruling at that date. Foreign exchange differences arising on translation are recognised in the operating cost statement. Non-monetary assets and liabilities that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction. Non-monetary assets and liabilities denominated in foreign currencies that are stated at fair value are translated at foreign exchange rates ruling at the dates the fair value was determined.

#### **p) Value Added Tax**

As the Council is partially exempt for VAT purposes, all expenditure and fixed asset additions are shown inclusive of VAT where applicable. Residual input tax reclaimable by the application of the partial exemption formula is taken to the operating cost statement as other operating income. Income is shown net of VAT.

#### **q) Notional Cost of Capital**

A charge reflecting the cost of capital utilised by the Council is included in operating costs. The charge is calculated at the real rate set by HM Treasury, currently 3.5%, (2008-09: 3.5%) on the average of opening and closing assets less liabilities, except for balances with HM Paymaster General.

#### **r) Ownership of Equipment Purchased with BBSRC Research Grants**

Equipment purchased by an institution with research grant funds supplied by the Council belong to the institution and are not therefore the equipment of the Council. Through the Conditions of Grant applied to funded institutions, the Council reserves the right to determine how such equipment shall be disposed of and how any disposal proceeds are to be utilised.

#### **s) Grant-in-Aid**

Grant-in-aid for revenue purposes is recognised as a financing flow and thus credited to the Income and Expenditure reserve.

#### **t) Research Grants**

Research grants are charged to the operating cost statement in the period to which they relate.

#### **u) Insurance**

In line with Government policy, BBSRC carries its own risk in respect of employment of staff, buildings and equipment, except where there is a statutory requirement to insure.

## v) Critical accounting estimates and judgements

The Council makes estimates and assumptions that affect the reported amounts of assets and liabilities in each financial year. Estimates and judgements are continually evaluated and based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances at the reporting date.

The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amount of assets and liabilities within the next financial year are discussed below.

### Estimates

The useful life of each of the Council's items of property, plant and equipment and intangibles is estimated based on the period over which the asset is expected to be available for use. Such estimation is based on experiences with similar assets and practices of similar businesses. The estimated useful life of each asset is reviewed periodically and updated if expectations differ from previous estimates due to physical wear and tear, technical or commercial obsolescence or legal or other limits on the use of an asset. An increase in the estimated useful life of any item of property, plant and equipment and intangibles would decrease the recorded operating expenses and increase non current assets.

### Judgments

Asset impairment – IFRS requires that an impairment review be performed when certain impairment indicators are present. Property, plant and equipment, intangible assets and financial assets are subject to an annual impairment test or whenever there is a strong indication that the asset will be impaired. Management is required to make estimates and assumptions to determine the future cash flows to be generated from the continued use and ultimate disposal of these assets in order to determine the value of the assets. While the council believes that the assumptions used are reasonable and appropriate, these estimates and assumptions can materially affect the financial statements. Future adverse events may cause the management to conclude that the assets are impaired and may have a material impact on the financial condition and results of operations of the council. There was one asset impairment in 2009.

## w) Capital and reserves

In preparing the opening IFRS statement of financial position, the Council has adjusted amounts reported previously in financial statements prepared in accordance with the old basis of accounting ( UK GAAP). An explanation of how the transition from UK GAAP to IFRS has affected the Council's financial position, financial performance and cash flows is set out in note 27.

## 2. ANALYSIS OF RESEARCH & CAPITAL GRANTS AND TRAINING AWARDS AND NON CURRENT ASSETS BY BUSINESS SEGMENT

The primary format used for segmental reporting is grant expenditure, where the key funding data is split between research funding of Universities, BBSRC institutes, Training and other organisations as is used for reporting by internal management. The Council's assets and liabilities are shared across all the operating segments and consequently it is not possible to separately identify which segment they relate to.

### Universities

The purpose of funding research through universities is to promote and support high quality basic, strategic and applied research relating to the understanding and exploitation of biological systems. To advance knowledge and technology (including the promotion and support of the exploitation of research outcomes) which meets the need of users and beneficiaries (including the agriculture, bioprocessing, chemical, food, healthcare, pharmaceutical and other biotechnological related industries), thereby contributing to the economic competitiveness of the United Kingdom and the quality of life.

### BBSRC Institutes

The Institutes of BBSRC conduct long term, mission oriented research using specialist facilities. They have strong interactions with industry, Government departments and other end users of their research.

### Training

BBSRC supports post graduate training to help ensure the flow of highly qualified people into research careers and seeks to optimise the quality, volume and style of postgraduate and postdoctoral training to the needs of academia and industry and other user communities.

### Other Organisations/Unallocated

Under IAS 8 'Operating Segments', an entity may combine information about operating segments that do not meet the quantitative thresholds set out in IAS 8 to produce a reportable segment. In this instance BBSRC has called the operating segment Other Organisations/Unallocated. This is for reportable segments that do not fall under Universities, BBSRC Institutes or Training and individually the reporting segments' revenue is less than 10% of the revenue of the combined operating segments, the profit and loss is less than 10% of all operating segments' profit and loss and the assets are less than 10% of the combined assets of all operating segments.

### At 31 March 2010

	Universities	BBSRC Institutes	Training	Other Organisations/Unallocated	Total
	£'000	£'000	£'000	£'000	£'000
Responsive Research Grants	140,651	12,372	-	12,430	165,453
Core Strategic Grants	-	51,354	-	-	51,354
Research Initiatives	51,970	7,973	-	6,246	66,189
Equipment and Facilities	6,489	51	-	2,632	9,172
Capital and Buildings	8,895	69,484	-	32,290	110,669
<b>Total research and capital grants</b>	<b>208,005</b>	<b>141,234</b>	<b>-</b>	<b>53,598</b>	<b>402,837</b>
<b>Training awards and fellowships</b>					
Studentships	-	-	46,712	-	46,712
Fellowships	-	-	6,982	-	6,982
<b>Total research and capital grants, Training awards and fellowships</b>	<b>208,005</b>	<b>141,234</b>	<b>53,694</b>	<b>53,598</b>	<b>456,531</b>
Other expenditure and income:					
Staff costs	-	-	-	11,391	11,391
Other operating costs	-	-	-	19,120	19,120
Research Institute staff restructuring	-	4,015	-	-	4,015
Depreciation, amortisation and impairment	-	8,326	-	95	8,421
Impairment	-	505	-	-	505
Loss on Joint Venture	-	-	-	383	383
Notional Cost of Capital	-	-	-	8,307	8,307
Reversal of notional cost of capital	-	-	-	(8,307)	(8,307)
Other Operating Income	-	-	-	(4,690)	(4,690)
Recovery of IT service to institutes	-	(2,888)	-	-	(2,888)
Other recoveries	-	-	-	(604)	(604)
Loss on disposals and demolition of fixed assets	-	25	-	-	25
<b>Net Expenditure for the Year</b>	<b>208,005</b>	<b>151,217</b>	<b>53,694</b>	<b>79,293</b>	<b>492,209</b>

## At 31 March 2009

	Universities	BBSRC Institutes	Training	Other Organisations/ Unallocated	Total
	£'000	£'000	£'000	£'000	£'000
Responsive Research Grants	141,101	12,145	-	10,488	163,734
Core Strategic Grants	-	56,326	-	2,178	58,504
Research Initiatives	56,417	6,842	-	5,746	69,005
Equipment and Facilities	10,186	200	-	1,928	12,314
Capital and Buildings	7,926	45,960	-	7,224	61,110
<b>Total research and capital grants</b>	<b>215,630</b>	<b>121,473</b>	<b>-</b>	<b>27,564</b>	<b>364,667</b>
<b>Training awards and fellowships</b>					
Studentships	-	-	44,239	-	44,239
Fellowships	-	-	6,271	-	6,271
<b>Total research and capital grants, Training awards and fellowships</b>	<b>215,630</b>	<b>121,473</b>	<b>50,510</b>	<b>27,564</b>	<b>415,177</b>
Other expenditure and income:					
Staff costs	-	-	-	10,284	10,284
Other operating costs	-	-	-	16,159	16,159
Research Institute staff restructuring	-	3,045	-	-	3,045
Depreciation, amortisation and impairment	-	8,288	-	718	9,006
Gain on disposals and demolition of fixed assets	-	257	-	-	257
Notional Cost of Capital	-	-	-	8,094	8,094
Other Operating Income	-	-	-	(1,197)	(1,197)
Recovery of IT service to institutes	-	(3,109)	-	-	(3,109)
Other recoveries	-	-	-	(691)	(691)
Reversal of Notional Cost of Capital	-	-	-	(8,094)	(8,094)
<b>Net Expenditure for the Year</b>	<b>215,630</b>	<b>129,954</b>	<b>50,510</b>	<b>52,837</b>	<b>448,931</b>



### 3. STAFF COSTS

For BBSRC Office, Bioscience IT Services (BITS) and hosted Research Councils' Joint Services.

	<b>2009-10</b>	2008-09
	<b>£'000</b>	£'000
Salaries and wages	<b>10,726</b>	9,596
Social Security costs	<b>834</b>	749
Pension costs	<b>2,120</b>	1,882
Other fees and honoraria	<b>321</b>	324
	<b>14,001</b>	12,551
Less UK paid Joint Services staff	<b>(2,643)</b>	(2,322)
Less overseas paid staff	<b>(212)</b>	(188)
Administrative and BITS staff on payroll	<b>11,146</b>	10,041
Temporary Administration and BITS agency staff	<b>245</b>	243
<b>TOTAL</b>	<b>11,391</b>	10,284

### AVERAGE STAFF NUMBERS

	<b>Full Time Equivalents (FTE)</b>	
	<b>2009-10</b>	2008-09
Administrative	<b>202.9</b>	189.9
BITS	<b>39.1</b>	40.6
Administrative and BITS staff on payroll	<b>242.0</b>	230.5
UK paid Joint Services staff	<b>72.1</b>	58.6
Overseas paid staff	<b>4.0</b>	4.0
Staff on payroll	<b>318.1</b>	293.1
Temporary agency staff	<b>17.5</b>	11.6
	<b>335.6</b>	304.7

BBSRC host the Research Council Internal Audit Services, Joint Business Office Services and Joint Superannuation Services teams on behalf of all of the Research Councils. The costs of these joint services are recharged in total to all of the Research Councils, including BBSRC.

An exercise was carried out in 2007-08 to identify staff as being 'in-scope' for moving to the employment of the RCUK SSC Ltd under the transfer of undertakings (protection of employment) (TUPE) regulations.

Included within the average administrative staff numbers are 8.3 FTE staff who have been TUPE transferred to the RCUK SSC Ltd and immediately seconded back to BBSRC. £234k is included within the staff cost for 2009/10 for these staff members.

These secondments will end when the posts permanently migrate to the SSC. This will occur when the activities for which these staff are employed, become performed by the SSC.

No staff costs have been capitalised in 2009-10 or in 2008-09.

## 4. SUPERANNUATION

The employees of the Council are members of the Research Councils' Pension Schemes (RCPS) which are defined benefit schemes funded from annual grant-in-aid on a pay-as-you-go basis. The benefits are by analogy to the Principal Civil Service Pension Scheme, except that while the schemes provide retirement and related benefits based on final or average emoluments, redundancy and injury benefits are administered and funded by the Council. The scheme is administered by the Research Councils' Joint Superannuation Service with the associated grant-in-aid managed by BBSRC. The schemes' accounts are prepared by BBSRC, on behalf of the BBSRC Chief Executive as the Accounting Officer for the RCPS. Separate accounts are published for the Pension Schemes. Employees' contributions vary between 1.5% and 3.5%. The employer's contribution is agreed by the RCPS Board of Management on the recommendation of the Government Actuary's Department (GAD) and is set at 21.3% of pensionable pay.

The RCPS is an unfunded multi-employer defined benefit scheme. The Council is unable to identify its share of the underlying assets and liabilities of the scheme on a consistent and reasonable basis and therefore, as required by IAS 19 'Retirement Benefits', accounts for the scheme as if it were a defined contribution scheme. As a result, the amount charged to the Operating Cost Statement represents the contributions payable to the scheme in respect of the accounting period. The actuarial valuation was carried out as at 31 March 2006 by a qualified independent actuary. The draft report for 31 March 2006 is available and from 1 April 2010 there is an increase in the employer contribution rate to 25.6% from 21.3%, effective from 1 April 2010. The employers' contribution rate of 21.3% therefore applies to these accounts. The full actuarial valuation is carried out every 4 years, with the next valuation to be calculated as at 31 March 2010. Details are available in the accounts of the RCPS, which can be found at [www.bbsrc.ac.uk](http://www.bbsrc.ac.uk).

For 2009-10, employers' contributions of £2,120k were payable to the RCPS (2008-09 £1,882k) at 21.3% of pensionable pay, based on the salary bands. Employer contributions are to be reviewed every four years following a full scheme valuation by GAD. The contribution rates reflect benefits as they are accrued, not when the costs are actually incurred, and reflect past experience of the scheme.

## 5. OTHER OPERATING COSTS

	2009-10 £'000	2008-09 £'000
Maintenance, repairs and cleaning	673	634
Rent, rates and insurance	145	330
External audit	76	56
Internal audit	285	264
Office supplies	391	405
Computing expenses	490	611
Travel, subsistence and hospitality	1,458	1,203
Professional fees and management consultancy	1,647	2,528
Central Purchasing by BITS	3,410	3,420
Shared Service Centre operating costs	4,290	1,136
Shared Service Centre set-up costs	4,529	3,970
Other	1,726	1,602
	<b>19,120</b>	16,159

## 6. OTHER RECOVERIES

	2009-10 £'000	2008-09 £'000
Recovery of hosting joint service units	568	537
Other recoveries	36	154
	<b>604</b>	691

## 7. NOTIONAL COST OF CAPITAL

	2009-10 £'000	2008-09 £'000
	<b>8,307</b>	8,094

This notional cost is included in the accounts to reflect a cost for the use of capital in the business in the year, as the Council has no specific interest bearing debt. In accordance with Treasury guidance, the calculation is based on a 3.5% (2008-09: 3.5%) rate of return on average net assets employed at cost or valuation. The net assets were £237.4M (2008-09: £231.2M) excluding the average cash balance with the Paymaster General of £0.3M (2008-09: £2.9M).

The reported notional cost is subsequently reversed in the Operating Cost Statement in accordance with Government Financial Reporting Manual. Notional Interest as Cost of Capital is, however, reported in the Council's Departmental Expenditure Limit (DEL) under Resource Accounting and Budgeting where it forms part of Council's Resource control envelope account to Treasury.

## 8. RESEARCH INSTITUTE STAFF RESTRUCTURING

	2009-10 £'000	2008-09 £'000
Annual Compensation Payments (ACP)	2,790	2,956
Redundancy payments	2,888	690
Early Retirement Lump Sums (ERLS)	523	822
Pension transfer costs	-	3,520
Other costs	5	138
	<b>6,206</b>	<b>8,126</b>
Recoverable ACP and redundancy payments	<b>(1,541)</b>	<b>(1,332)</b>
Recoverable ERLS	<b>(410)</b>	<b>(1,236)</b>
Provided for (see note 9)	<b>(2,189)</b>	<b>(3,663)</b>
	<b>2,066</b>	<b>1,895</b>
Increase provision for ACP and restructuring cost (see note 9)	<b>4,275</b>	<b>3,855</b>
Release from existing restructuring provisions (see note 9)	<b>(2,326)</b>	<b>(2,705)</b>
<b>Net Cost</b>	<b>4,015</b>	<b>3,045</b>

During 2008-09, BBSRC contributed £3.5M toward the bulk transfer pension cost of members leaving the Research Councils' Pensions Schemes as a result of the transfer of the former BBSRC-sponsored IGER and Roslin Institutes to the university sector. There have been no bulk transfers in 2009-10.

The total number of redundancies during 2009-10 was 79 (2008-09: 42)

## 9. PROVISIONS FOR LIABILITIES AND CHARGES

### PROVISIONS

	Annual Compensation Payments £'000	Major Institute Restructuring £'000	Shared Services Centre (See Note 9b) £'000	Total 31 March 2010 £'000	Total 31 March 2009 £'000
At 1 April 2009	6,262	4,540	813	11,615	14,104
Amount provided in year	1,011	3,059	205	4,275	3,879
Amount released in year		(2,208)	(118)	(2,326)	(2,705)
Amount expended in year	(1,732)	(141)	(316)	(2,189)	(3,663)
<b>Total Provisions At 31 March 2010</b>	<b>5,541</b>	<b>5,250</b>	<b>584</b>	<b>11,375</b>	<b>11,615</b>

### PROVISIONS

	Annual Compensation Payments £'000	Major Institute Restructuring £'000	Shared Services Centre (See Note 9b) £'000	Total 31 March 2009 £'000
At 1 April 2008	5,452	7,863	789	14,104
Amount provided in year	1,505	2,350	24	3,879
Amount released in year		(2,705)	-	(2,705)
Transfers between provisions	990	(990)	-	-
Amount expended in year	(1,685)	(1,978)	-	(3,663)
<b>Total Provisions At 31 March 2009</b>	<b>6,262</b>	<b>4,540</b>	<b>813</b>	<b>11,615</b>

Annual Compensation Payments (ACP) are payments to early retirees in advance of their pension entitlements under the Research Councils' Pension Schemes.

Institute related provisions include; redundancies following revision of scientific strategies £2.5M (31 March 2009: £0.2M), provision for associated accommodation expenditure £1.9M (31 March 2009: £1.9M) and legal costs £0.6M (31 March 2009: £2.5M).

Following the payment of the final compensation lump sum, provision for on-going annual compensation payments (ACP) associated with the specific institute restructuring programme is transferred from the major restructuring provision to the ACP provision.

## 9a. TOTAL PROVISION

	<b>31 March 2010</b>	<b>31 March 2009</b>
	<b>£'000</b>	<b>£'000</b>
Restructuring	11,375	11,615
	<b>11,375</b>	<b>11,615</b>
Split as follows:		
Current Provision	4,022	4,572
Non current provision	7,353	7,043
	<b>11,375</b>	<b>11,615</b>

Analysis of expected timing of cash flows

	<b>Annual Compensation Payments £'000</b>	<b>Major Institute Restructuring £'000</b>	<b>Shared Services Centre (See Note 9b) £'000</b>	<b>Total £'000</b>
Within one year	377	3,061	584	4,022
Between 2011 and 2016	5,164	300	-	5,464
Between 2017 and 2021	-	1,889	-	1,889
	<b>5,541</b>	<b>5,250</b>	<b>584</b>	<b>11,375</b>

## 9b. PROVISIONS FOR SHARED SERVICES CENTRE:

The Research Councils and the RCUK Shared Services Centre Ltd are in the process of developing a Shared Services Centre to carry out the central functions of HR, Finance, Procurement and IS across the councils. As a result some research councils will incur redundancy costs, particularly where existing staff live a distance from Swindon where the Centre will be situated.

The Research Councils have collectively agreed that they will be jointly liable for all necessary redundancies. The Councils have calculated their likely redundancy liabilities in order to make a 2009-10 provision. A funding allocation model was developed and agreed by all the Research Councils and this identified the proportion of SSC project spend and liability that each individual Council would incur. The total provision for redundancies has been apportioned using this model.

The table below shows, for each council the amount that they need to provide for redundancies of their own staff. Some Councils will incur a cost for terminating their existing systems, and these costs are also being shared. It then notes the proportion of the total liability it will incur and the amount that that represents. The figure below this denotes the contributions that an individual Council has from the other Research Councils. The bottom line shows the net provision that has been recorded in each Council's accounts.

### At 31 March 2010

	AHRC £'000	BBSRC £'000	ESRC £'000	EPSRC £'000	MRC £'000	NERC £'000	STFC £'000	TOTAL £'000
Opening provision required for the council's own redundancies	68	<b>431</b>	-	-	1,276	909	520	3,204
Opening provision required for system termination fee	-	-	-	-	753	-	-	753
Opening total provision	68	<b>431</b>	-	-	2,029	909	520	3,957
Net movement in provisions	(15)	<b>(229)</b>	(20)	(91)	(300)	(229)	(229)	(1,113)
Requested total provision before sharing	53	<b>202</b>	(20)	(91)	1,729	680	291	<b>2,844</b>
% of liability to be borne by each Council	1.33%	<b>20.54%</b>	1.83%	8.24%	26.98%	20.54%	20.54%	100%
Provision required to be borne by each Council	39	<b>584</b>	52	234	767	584	584	2,844

This note has been replicated in each Research Council Annual Report and Accounts

## At 31 March 2009

	AHRC £'000	<b>BBSRC</b> <b>£'000</b>	ESRC £'000	EPSRC £'000	MRC £'000	NERC £'000	STFC £'000	TOTAL £'000
Opening provision required for the council's own redundancies	68	<b>152</b>	-	-	999	1,620	-	2,839
Opening provision required for system termination fee	-	-	-	-	1,000	-	-	1,000
Opening total provision	68	<b>152</b>	-	-	1,999	1,620	-	3,839
Net movement in provisions	-	<b>279</b>	-	-	31	(711)	520	119
Requested total provision before sharing	68	<b>431</b>	-	-	2,030	909	520	<b>3,958</b>
% of liability to be borne by each Council	1.33%	<b>20.54%</b>	1.83%	8.24%	26.98%	20.54%	20.54%	100%
Provision required to be borne by each Council	53	<b>813</b>	72	326	1,068	813	813	3,958

This note has been replicated in each Research Council Annual Report and Accounts



## 10. LOSS ON DISPOSAL OF PROPERTY, PLANT AND EQUIPMENT

	2009-10 £'000	2008-09 £'000
Receipts on disposals of property, plant and equipment	-	2,452
Less: Net Book Value of assets sold/demolished	(25)	(2,709)
Loss on disposals of property, plant and equipment	(25)	(257)

## 11. FINANCIAL ASSETS

	PBL £'000	SSC £'000	Total £'000
Valuation/cost at 1 April 2009	536	1,623	2,159
SSC loss at 31 March 2010	-	(383)	(383)
<b>Net Book Value At 31 March 2010</b>	<b>536</b>	<b>1,240</b>	<b>1,776</b>

	PBL £'000	SSC £'000	Total £'000
Valuation/cost at 1 April 2008	536	-	536
Additions	-	1,623	1,623
<b>Net Book Value At 31 March 2009</b>	<b>536</b>	<b>1,623</b>	<b>2,159</b>

### Plant Bioscience Ltd (PBL)

110 ordinary shares at 10p each, representing one third of the issued share capital of Plant Bioscience Ltd  
Plant Bioscience Ltd is incorporated in England and Wales. [www.pbstechnology.com](http://www.pbstechnology.com)

### RCUK Shared Service Centre (SSC Ltd)

In 2008-09 the council increased its share in the RCUK Shared Services Centre Limited (SSC Limited) through the acquisition of £1623k of 'B' ordinary shares. 'B' ordinary shares convey ownership rights to the holder, including any distributions or proceeds from the sale of SSC. The seven Research Councils each acquired an 'A' ordinary share, carrying a vote per share, in 2007-08. SSC Ltd has been operating a shared services centre, delivering services to the Research Councils, since May 2008. For the period ended 31 March 2010 the draft financial statements of RCUK Shared Services Limited show revenue at £64.8M (31 March 2009: £25.8M) and administration costs of £65.3M (31 March 2009: £27.2M) resulting in a loss for the year of £0.5M (31 March 2009: £1.4M). The balance sheet totals are £7 'A' shares and £7.9M 'B' shares issued to Research Councils and £5.2M cash (31 March 2009: £7.1M). All Councils have included the investment of SSC as a Joint Venture and accounted for it under equity accounting as permitted by IAS 31 'Interests in joint ventures'. The principal place of business for the SSC is North Star House, North Star Avenue, Swindon, Wiltshire, SN2 1FF.

### Roslin BioCentre Ltd (RBL)

49 Ordinary Shares at 100p each representing 49 per cent of the issued share capital of Roslin BioCentre Ltd fully paid.

Roslin BioCentre Ltd is incorporated in Scotland. [www.roslinbiocentre.co.uk](http://www.roslinbiocentre.co.uk)

### Rainbow Seed Fund

Partner's capital fund investment of £92. Independently managed evergreen venture capital fund established in 2001 by the Office of Science and Innovation to invest in technologies developed from publically funded research. [www.rainbowseedfund.com](http://www.rainbowseedfund.com)

## 12. PROPERTY, PLANT AND EQUIPMENT

	Completed Land and Buildings excluding Dwellings £'000	Dwellings £'000	Buildings Under Construction £'000	SSC Assets Under Construction £'000	Information Technology £'000	Plant & Equipment £'000	Fixtures & Fittings £'000	TOTAL £'000
<b>Cost or Valuation</b>								
At 1 April 2009	258,073	29,341	31,436	7,721	2,908	525	19	330,023
Additions	-	-	-	2,053	237	97	-	2,387
Valuation additions	-	-	24,131	-	-	-	-	24,131
Reclassification	13,731	-	(13,731)	-	188	(260)	-	(72)
Disposals	-	-	-	-	(1,079)	(58)	-	(1,137)
Revaluation	(18,387)	(869)	-	-	-	-	-	(19,256)
<b>At 31 March 2010</b>	<b>253,417</b>	<b>28,472</b>	<b>41,836</b>	<b>9,774</b>	<b>2,254</b>	<b>304</b>	<b>19</b>	<b>336,076</b>
<b>Depreciation and Impairment</b>								
At 1 April 2009	106,351	-	-	-	2,155	347	10	108,863
Provided during the year	7,643	280	-	-	271	45	-	8,239
Impairment	505	-	-	-	-	-	-	505
Reclassification	-	-	-	-	146	(192)	-	(46)
Disposals	-	-	-	-	(1,079)	(56)	-	(1,135)
Revaluation	(20,943)	(280)	-	-	-	-	-	(21,223)
<b>At 31 March 2010</b>	<b>93,556</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,493</b>	<b>144</b>	<b>10</b>	<b>95,203</b>
<b>Net Book Value</b>								
<b>At 31 March 2010</b>	<b>159,861</b>	<b>28,472</b>	<b>41,836</b>	<b>9,774</b>	<b>761</b>	<b>160</b>	<b>9</b>	<b>240,873</b>
At 1 April 2009	151,722	29,341	31,436	7,721	753	178	9	221,160

	Completed Land and Buildings excluding Dwellings £'000	Dwellings £'000	Buildings Under Construction £'000	SSC Assets Under Construction £'000	Information Technology £'000	Plant & Equipment £'000	Fixtures & Fittings £'000	TOTAL £'000
<b>Cost or Valuation</b>								
At 1 April 2008	287,649	28,745	11,150	3,224	2,908	214	22	333,912
Additions	-	-	-	4,497	-	465	-	4,962
Valuation additions	76	-	20,286	-	-	-	-	20,362
Disposals	(3,624)	-	-	-	-	(154)	(3)	(3,781)
Revaluation	(26,028)	596	-	-	-	-	-	(25,432)
<b>31 March 2009</b>	<b>258,073</b>	<b>29,341</b>	<b>31,436</b>	<b>7,721</b>	<b>2,908</b>	<b>525</b>	<b>19</b>	<b>330,023</b>
<b>Depreciation and Impairment</b>								
At 1 April 2008	109,469	-	-	-	2,155	114	10	111,748
Provided during the year	8,121	292	-	-	-	387	-	8,800
Disposals	(2,915)	-	-	-	-	(154)	-	(3,069)
Revaluation	(8,324)	(292)	-	-	-	-	-	(8,616)
<b>31 March 2009</b>	<b>106,351</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2,155</b>	<b>347</b>	<b>10</b>	<b>108,863</b>
<b>Net Book Value</b>								
<b>31 March 2009</b>	<b>151,722</b>	<b>29,341</b>	<b>31,436</b>	<b>7,721</b>	<b>753</b>	<b>178</b>	<b>9</b>	<b>221,160</b>
At 1 April 2008	178,180	28,745	11,150	3,224	753	100	12	222,164

Except for two sites that were being prepared for sale, the land and buildings were professionally valued as at 31 March 2006 by external valuers, Powis Hughes Chartered Surveyors, in accordance with SAVP and RICS guidance notes. In between formal professional valuations, management have used appropriate indices to revalue the land and buildings. In addition to this valuation, Polaris House was revalued as at 31 March 2010 by Powis Hughes, as part of a valuation carried out by NERC.

The SSC Assets Under Construction represents the Council's individual share of the Shared Services Centre currently being developed by the seven Research Councils.

## 13. IMPAIRMENT

During the year, there was an impairment of several tangible assets at the institutes which amounted to £3,030,500 (2008-09: £394,500). The impairment was on revalued assets and £2,525,000 (2008-09: £394,500) of the impairment loss was recognised through the revaluation reserves as per IAS 36 'Impairment of Assets' and the remaining £505,500 (2008-09: £nil) was impaired through the operating cost statement.

## 14. INTANGIBLE ASSETS

	Website £'000	Computer Software £'000	Total £'000
<b>Cost or Valuation</b>			
At 1 April 2009	92	1,489	1,581
Additions	-	161	161
Reclassification	-	72	72
Disposals	-	(299)	(299)
<b>At 31 March 2010</b>	<b>92</b>	<b>1,423</b>	<b>1,515</b>
<b>Depreciation and Impairment</b>			
At 1 April 2009	20	1,130	1,150
Provided during the year	30	152	182
Disposals	-	(276)	(276)
Reclassification	-	46	46
<b>At 31 March 2010</b>	<b>50</b>	<b>1,052</b>	<b>1,102</b>
<b>Net Book Value</b>			
<b>At 31 March 2010</b>	<b>42</b>	<b>371</b>	<b>413</b>
At 1 April 2009	72	359	431
	Website £'000	Computer Software £'000	Total £'000
<b>Cost or Valuation</b>			
At 1 April 2008	34	1,290	1,324
Additions	58	199	257
<b>31 March 2009</b>	<b>92</b>	<b>1,489</b>	<b>1,581</b>
<b>Depreciation and Impairment</b>			
At 1 April 2008	6	938	944
Provided during the year	14	192	206
<b>31 March 2009</b>	<b>20</b>	<b>1,130</b>	<b>1,150</b>
<b>Net Book Value</b>			
<b>31 March 2009</b>	<b>72</b>	<b>359</b>	<b>431</b>
At 1 April 2008	28	352	380

All additions to intangible assets arose from external purchases and services that were bought in. No element of intangible assets is internally generated or acquired as part of a business acquisition.

## 15. ASSETS CLASSIFIED AS HELD FOR SALE

	<b>2009-10</b>	2008-09	2007-08
	<b>£'000</b>	£'000	£'000
<b>1 April</b>	-	2,000	-
Additions and capital improvement	-	-	2,000
Disposals	-	(2,000)	-
<b>31 March</b>	<b>-</b>	<b>-</b>	<b>2,000</b>

As at 31 March 2010 there are no non current assets that are classed as assets held for sale. The site that was held as a non current asset held for sale at 31 March 2008 was a site that became surplus to requirements as was no longer needed for institute research. A valuation of the site was carried out in late 2007 and it was established that planning consent would probably not be achieved. The site was valued at £2 million at 31 March 2008. The site was marketed towards the end of 2007-08 and a sale was completed on 1 October 2008 for £2.5 million. The gain on sale of the asset was £452k.

## 16. TRADE AND OTHER RECEIVABLES BY TYPE

	<b>31 March 2010</b>	31 March 2009	1 April 2008
	<b>£'000</b>	£'000	£'000
i) Current:			
Trade receivables	<b>6,640</b>	5,629	9,133
Other receivables	<b>22,092</b>	7,175	2,492
Repayment of Early Retirement Lump Sums*	<b>1,484</b>	1,513	967
	<b>30,216</b>	14,317	12,592
Prepayments and accrued income:			
- Research grants	<b>4,704</b>	3,251	4,645
- Training awards	<b>10,715</b>	9,725	9,024
- Other	<b>3,232</b>	3,046	3,137
	<b>18,651</b>	16,022	16,806
	<b>48,867</b>	30,339	29,398
ii) Non current:			
Repayment of Early Retirement Lump Sums*	<b>3,453</b>	4,545	4,972
Other debtors**	<b>10,827</b>	13,084	12,189
	<b>14,280</b>	17,629	17,161
	<b>63,147</b>	47,968	46,559

\* Cash received from Research Councils' Pension Scheme (RCPS) at 31 March 2010 in repayment of Early Retirement Lump Sums (ERLS) was £1,513,439 (31 March 2009: £1,116,136)

\*\* Other debtors due after one year include a £10.3M loan to Babraham Bioscience Technologies for the development of Babraham BioPark. BBT are repaying the loan into an escrow account over a six year period to 2011-12. BBSRC will receive the funds from the escrow account in 2011-12.

### 16a. TRADE AND OTHER RECEIVABLES BY SOURCE

	<b>31 March 2010</b>	31 March 2009	1 April 2008
	<b>£'000</b>	£'000	£'000
i) Current:			
Other central government bodies	<b>12,300</b>	11,300	10,600
Bodies external to government	<b>36,567</b>	19,039	18,798
Total	<b>48,867</b>	30,339	29,398
ii) Non current:			
Other central government bodies	-	-	4,972
Bodies external to government	<b>14,280</b>	17,629	12,189
Total	<b>14,280</b>	17,629	17,161



## 17. TRADE AND OTHER PAYABLES BY TYPE

	<b>31 March 2010</b>	31 March 2009	1 April 2008
	<b>£'000</b>	£'000	£'000
Trade payables	<b>12,334</b>	156	105
Deferred income	<b>9,794</b>	720	1,941
Shared Service Centre capital costs	<b>7,721</b>	7,721	3,224
Other payables	<b>148</b>	115	408
	<b>29,997</b>	8,712	5,678
Accruals:			
- Research grants	<b>11,839</b>	15,768	10,706
- Other	<b>6,256</b>	10,688	7,324
	<b>18,095</b>	26,456	18,030
	<b>48,092</b>	35,168	23,708

### 17a. TRADE AND OTHER PAYABLES BY SOURCE

	<b>31 March 2010</b>	31 March 2009	1 April 2008
	<b>£'000</b>	£'000	£'000
Current:			
Other central government bodies	<b>19,100</b>	13,000	11,597
Bodies external to government	<b>28,992</b>	22,168	12,111
Total	<b>48,092</b>	35,168	23,708

## 18. NET PARLIAMENTARY FUNDING

	<b>2009-10</b>	2008-09
	<b>£'000</b>	£'000
Amount provided by the Department for Business, Innovation and Skills	<b>470,694</b>	412,218
Animal Licences	<b>72</b>	125
<b>Net Parliamentary Funding</b>	<b>470,766</b>	412,343

### 18a. NET FUNDING FROM OTHER BODIES

	<b>2009-10</b>	2008-09
	<b>£'000</b>	£'000
From other Research Councils	<b>18,340</b>	9,373
From other Government Departments	<b>991</b>	5,661
From other bodies	<b>-</b>	1,602
	<b>19,331</b>	16,636

## 19. NOTES TO THE CASHFLOW STATEMENT

	<b>31 March 2010</b>	31 March 2009	
<b>i) Reconciliation of movement in cash to movement in net funds</b>	<b>£'000</b>	£'000	
Cash as at 1 April	725	8,239	
Increase/(decrease) in cash in the year	2,179	(7,514)	
<b>Cash as at 31 March</b>	<b>2,904</b>	725	
	<b>31 March 2010</b>	31 March 2009	1 April 2008
<b>ii) Breakdown of cash balances</b>	<b>£'000</b>	£'000	£'000
HM Paymaster General	294	241	5,647
Barclays Bank plc	3,146	1,020	3,286
Less Held for third parties (see(iii))	(536)	(536)	(694)
	<b>2,904</b>	725	8,239
	<b>31 March 2010</b>	31 March 2009	1 April 2008
<b>iii) THIRD PARTY ASSETS: Cash held on behalf of Institutes to cover unforeseen losses</b>	<b>£'000</b>	£'000	£'000
At 1 April	536	694	453
Net Outflow	-	(158)	241
<b>At 31 March</b>	<b>536</b>	536	694

The BBSRC and its sponsored institutes follow the public sector policy of not taking out commercial insurance and look to self-insure through maintaining an appropriate level of general reserves to protect against potential unforeseen losses. Alongside this, the sponsored-institutes contribute to a fund, held by BBSRC, to assist financially with any unforeseen losses of the institutes (and not BBSRC), which might otherwise have been covered by a commercial insurance policy. The fund was designated to address unforeseen losses with a financial value of less than 2% of the institutes' recurrent income. A panel of members consisting of BBSRC and institute representatives decide which 'claims' are appropriate to pay from this fund.

The fund is held by BBSRC for the sole usage by the institutes for such needs. Ultimately any remaining amounts in this fund will be returned to the institutes. As such, these funds have been identified as held as a third party asset.

	<b>31 March 2010</b>	31 March 2009
<b>vi) Movement in trade and other payables and payments for property, plant, equipment and intangibles</b>	<b>£'000</b>	£'000
Property, plant, equipment and intangible additions	2,548	5,218
Purchase of financial assets	-	1,191
Add decrease in property, plant and equipment payables	-	(4,497)
Payments to acquire property, plant and equipment	<b>2,548</b>	1,912
	<b>31 March 2010</b>	31 March 2009
<b>v) Movement in trade and other receivables and receipts for property, plant and equipment</b>	<b>£'000</b>	£'000
Property, plant and equipment receivables	-	-
Other receivables	63,147	47,968
Total receivables (see Note 16)	<b>63,147</b>	47,968
Receipts on disposals of property, plant and equipment (see Note 10)	-	2,452
Decrease in property, plant and equipment receivables	-	698
Cash received from sale of property, plant and equipment	-	3,150

## 20. FORWARD COMMITMENTS ON APPROVED RESEARCH GRANTS

	<b>2009-10</b>	2008-09
	<b>£M</b>	£M
2009-10	-	205.9
2010-11	238.3	141.8
2011-12	169.5	73.8
2012-13	108.0	23.2
2013-14	44.9	10.4
After 2013-14	23.1	-
	<b>583.8</b>	<b>455.1</b>

## 21. CAPITAL COMMITMENTS

The majority of capital expenditure funded by BBSRC is on contracts let by sponsored institutes. Capital commitments as at 31 March, for which no provision has been made, are as follows:

	<b>2009-10</b>	2008-09	2007-08
	<b>£'000</b>	£'000	£'000
Shared Services Centre	<b>1,702</b>	3,512	4,930
Authorised for contracts to be let, subject to full business case	<b>216,796</b>	113,198	28,150
Funding approved in principle:			
- BBSRC contribution to Pirbright redevelopment	-	-	16,536
- BBSRC contribution to IAH business continuity and compliance	<b>5,410</b>	-	22,223
- Babraham works	<b>15,320</b>	16,210	-
- North Wyke science redevelopment	-	1,970	-
- BBSRC contribution to Easter Bush Research Centre	-	-	37,000
- Other	-	-	24,295
	<b>239,228</b>	134,890	133,134

The SSC capital commitment represents the Council's individual share of the future committed spend on the Shared Services Centre. Costs incurred to 31 March 2010 have been recognised through the Operating Cost Statement and the SSC Assets in the Course of Construction.

## 22. OPERATING LEASE COMMITMENTS

BBSRC has annual operating lease commitments under non cancellable agreements in respect of properties where the lease term expires as follows:

	<b>2009-10</b>	2008-09
	<b>£'000</b>	£'000
Within 1 year	<b>112</b>	112
Between 2 and 5 years	<b>112</b>	222
	<b>224</b>	334

The total of future minimum subleases payments expected to be received at 31 March 2010 is £66K. This is in respect of office accommodation not occupied by BBSRC.

## 23. CONTINGENT LIABILITIES

The former BBSRC sponsored IGER institute transferred to the University of Aberystwyth on 31 March 2008. As part of the transfer, BBSRC agreed to contribute toward any redundancy costs should the university experience a fall in programme grant income as a result of the transfer, between 1 April 2008 and 31 March 2014. BBSRC's contribution to any directly attributable redundancy costs is dependent upon both the level and year of income reductions. There was one claim for redundancy costs in 2009-10. A provision of £2.3M has been made for known redundancies due for payment in 2010-11 which has arisen as part of this transfer.

The former BBSRC sponsored Roslin institute transferred to the University of Edinburgh on 13 May 2008. Should the university experience a fall in programme grant income between the transfer date and May 2015, BBSRC agreed to contribute to the cost of any redundancies that arise as a direct result of the transfer. The level of BBSRC's contribution is dependent upon both the size and year of income reduction. BBSRC also agreed to provide indemnity for any potential costs that arise as a result of past actions of the institute and indemnity for any fall in grant income of the Neuropathogenesis Unit as a result of the transfer. The proportion of settlement BBSRC will fund declines on an annual basis and is limited to claims up to May 2023. There were no claims from the university during 2009-10 and provision for one known claim to be paid in 2010-11 has been at the Statement of Financial Position date.

## 24. RELATED PARTY TRANSACTIONS

The BBSRC is a Non-Departmental Public Body sponsored by the Department for Business, Innovation and Skills (BIS).

For the purposes of IAS 24, BIS is regarded as a related party. During the year, the BBSRC has had various material transactions with BIS and entities for which BIS is regarded as the parent department, viz.: Arts and Humanities Research Council, Economic and Social Research Council, Engineering and Physical Sciences Research Council, Medical Research Council, Natural Environment Research Council, Science Technology and Facilities Council, Technology Strategy Board.

Professor Douglas Kell was appointed BBSRC Chief Executive and Accounting Officer on 1 October 2008 and attends BBSRC Council as the Deputy Chair. Professor Kell continues to work one day a week with the Manchester Interdisciplinary Biocentre (MIB), which is part of the University of Manchester and abstains from any discussions with relation to the University of Manchester while working for BBSRC. All BBSRC grants where Professor Kell was the principle investigator were transferred from Professor Kell prior to his employment with BBSRC, with the exception of one grant where the final payment of £48k was paid on receipt of the final report, which occurred after 1 October 2008.

The accounts provide disclosure of all material transactions with those who are recognised as key management personnel as per IAS 24 'Related Parties'. This is taken to be those members of staff who are included under directors remuneration in the Remuneration Report and all Council members.

During the year BBSRC did not undertake any material transactions with any Directors, however during the year, the following **material** payments with Council members' organisations took place in respect of research and training grants funded by the BBSRC:

	Awards	£
Professor Douglas Kell	-	-
Professor John Coggins FRSE	1	27,151
Professor Anne Dell FRS	2	294,957
Professor Sir David Baulcombe FRS	3	366,127
Professor Sir Tom Blundell FRS	3	717,673
Professor Peter Fryer FREng	2	31,669

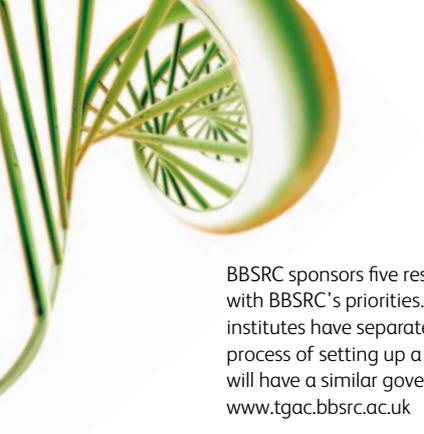
The following Council members held positions on the Governing Bodies of sponsored research institutes:

Dr David Lawrence Rothamsted Research

Registers of interest for Council, Boards and Committees can be found at [www.bbsrc.ac.uk](http://www.bbsrc.ac.uk)

The following Council staff held positions on the Governing Bodies of sponsored institutes and centres

Mr Swinburne	Institute for Animal Health
Mr Gemmill	Institute for Animal Health
Mr Stapley	North Wyke Research Centre



BBSRC sponsors five research institutes, which conduct long-term, mission-orientated research using specialist facilities that are in line with BBSRC's priorities. BBSRC provide Strategic Programme Grants to the institutes to fund specific research programmes. The sponsored institutes have separate charitable status and an independent governing body oversees the institutes' activities. BBSRC is currently in the process of setting up a new national facility, The Genome Analysis Centre, as a centre of excellence for genomics and bioinformatics, which will have a similar governance model to the existing sponsored institutes. Further details on The Genome Analysis Centre can be found at [www.tgac.bbsrc.ac.uk](http://www.tgac.bbsrc.ac.uk)

The BBSRC sponsored IGER and Roslin Institutes formally transferred to the University of Aberystwyth and the University of Edinburgh respectively. The IGER institute transferred on 31 March 2008, while the Roslin Institute's transfer date was 13 May 2008.

Between 2004 and 2006 BBSRC invested £2M for one third of the issued share capital of Plant Biosciences Ltd. Details are shown in Note 11.

Each of the seven Research Councils owns a joint share of the RCUK Shared Services Centre Ltd. The investment is classified as 'other investment'. Details are shown in Note 11.

## Related Party Transactions

	Grants		Receivables (including loans)		Payables		Major Provision In Year	
	09-10 £M	08-09 £M	09-10 £M	08-09 £M	09-10 £M	08-09 £M	09-10 £M	08-09 £M
<b>Transactions with BBSRC-sponsored Institutes:</b>								
Babraham Institute*	29.6	32.2	0.3	0.5	-	0.1	-	-
Institute for Animal Health*	46.5	34.2	0.8	1.2	0.1	2.1	-	-
Institute of Food Research*	15.3	12.1	0.4	0.4	-	0.2	-	-
John Innes Centre	29.6	24.3	2.3	2.6	-	0.5	-	-
Rothamsted Research	27.2	22.4	4.1	4.1	0.3	0.3	-	-
The Genome Analysis Centre	0.7	3.8	0.0	-	-	-	-	-
	<b>148.9</b>	<b>129.0</b>	<b>7.9</b>	<b>8.8</b>	<b>0.4</b>	<b>3.2</b>	<b>-</b>	<b>-</b>
<b>Transactions with former BBSRC-Sponsored Institutes:</b>								
Institute of Grassland and Environmental Research	6.1	10.0	-	-	-	-	2.3	0.2
Roslin Institute	8.8	11.6	-	-	-	-	0.1	-
	<b>14.9</b>	<b>22.6</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2.4</b>	<b>0.2</b>
<b>Transactions with other related parties:</b>								
Plant Biosciences Ltd	-	0.2	-	-	-	-	-	-
RCUK Shared Services Centre Ltd	-	1.1	1.6	-	10.0	1.3	-	-
	<b>-</b>	<b>1.3</b>	<b>1.6</b>	<b>-</b>	<b>10.0</b>	<b>1.3</b>	<b>-</b>	<b>-</b>
<b>Total</b>	<b>163.8</b>	<b>152.9</b>	<b>9.5</b>	<b>8.8</b>	<b>10.4</b>	<b>4.5</b>	<b>2.4</b>	<b>0.2</b>

\* Institutes occupying BBSRC owned estate at peppercorn rents.

	Receivables		Payables	
	2009-10 £M	2008-09 £M	2009-10 £M	2008-09 £M
<b>Non-Institute:</b>				
<b>Within the WGA Boundary:</b>				
Other Research Councils	5.2	3.0	2.3	11.0
Other Government Organisations	0.8	2.2	5.9	0.7
Research Councils' Pensions Schemes	5.0	6.1	-	-
<b>Non WGA:</b>				
Babraham Bioscience Technologies Ltd	10.3	10.3	-	-
Other Debtors (including Universities)	32.3	17.6	29.4	18.2
	<b>53.6</b>	<b>39.2</b>	<b>37.6</b>	<b>29.9</b>
BBSRC-sponsored institutes & other related parties	9.5	8.8	10.4	4.5
	<b>63.1</b>	<b>48.0</b>	<b>48.0</b>	<b>34.4</b>

## 25. DERIVATIVES AND OTHER FINANCIAL INSTRUMENTS

IFRS 7, Financial Instruments: Disclosures, requires disclosure of the role which financial instruments have had during the year in creating or changing the risks an entity faces in undertaking its activities. Due the non-trading nature of its activities and the way in which BBSRC are financed, BBSRC is not exposed to the degree of financial risk faced by business entities. Moreover, financial instruments play a much more limited role in creating or changing risk than would be typical of the listed companies to which IFRS 7 and IAS 32 and 39 mainly applies. BBSRC has very limited powers to borrow or invest surplus funds and financial assets and liabilities are generated by day-to-day operational activities and are not held to change the risks facing the Council in undertaking its activities.

Debtors and creditors which mature or become payable within 12 months from the Statement of Financial Position date have been omitted from the currency profile.

### **Liquidity risk**

The BBSRC's net revenue resource requirements are financed by resources voted annually by Parliament, and administered as Grant-in-aid through BIS, just as its capital expenditure largely is. BBSRC is not therefore exposed to significant liquidity risks. As disclosed in note 1a, BBSRC is dependent on funding from BIS to meet liabilities falling due in future years, but there is no reason to believe that this funding will not be forthcoming.

### **Interest-rate risk**

None of the Council's financial assets or liabilities is subject to interest, therefore the Council is not exposed to interest rate risk.

### **Currency Profile**

At the Statement of Financial Position date BBSRC held no significant foreign currency assets or liabilities.

### **Foreign currency risk**

The BBSRC's exposure to foreign currency risk is insignificant. Foreign currency income is nil and foreign currency expenditure at less than 0.1 per cent of total expenditure is also negligible.

## 26. POST STATEMENT OF FINANCIAL POSITION EVENTS

IAS10 Events after the the reporting period require the disclosure of the date on which the financial statements were "authorised for use" and who gave that authorisation.

Following the Chancellor's announcement on 24th May 2010 regarding spending cuts within the public sector, BBSRC has had a reduction in administrative spend of £2.7M for 2010-11. BBSRC expect to generate saving through applying spending controls.

There were no other Post Statement of Financial Position events between the Statement of Financial Position date and 24 March 2011, the date when the Accounting Officer approved the accounts. The Financial Statements do not reflect events after this date.

## 27. EXPLANATION OF TRANSITION TO IFRS

The transition to IFRS resulted in certain changes to the council's previous accounting policies (referred to as UK GAAP). The comparative figures for the 2007-08 financial statements were restated to reflect the changes in accounting policies.

Summarised below are the effects of adoption of IFRS on statement of financial position as of 1 April 2008 and 31 March 2009, operating cost statement and statement of cash flows for the year ended 1 April 2008 and 31 March 2009.

### Statement of Financial Position

	Notes	31 March 2009		
		UK GAAP	Effect of transition to IFRS	IFRS
		£'000	£'000	£'000
<b>NON CURRENT ASSETS</b>				
Property, plant and equipment	a, b	221,520	(360)	221,160
Intangible assets	b	-	431	431
Financial assets		2,159	-	2,159
Non current Receivables	c	-	17,629	17,629
<b>TOTAL NON CURRENT ASSETS</b>		<b>223,679</b>	<b>17,700</b>	<b>241,379</b>
<b>CURRENT ASSETS</b>				
Assets classified as held for sale	a	-	-	-
Trade and other receivables	c	47,968	(17,629)	30,339
Cash and cash equivalents		725	-	725
<b>TOTAL CURRENT ASSETS</b>		<b>48,693</b>	<b>(17,629)</b>	<b>31,064</b>
<b>TOTAL ASSETS</b>		<b>272,372</b>	<b>71</b>	<b>272,443</b>
<b>CURRENT LIABILITIES</b>				
Trade and other payables	d	(34,783)	(385)	(35,168)
Provisions	c	-	(4,572)	(4,572)
<b>TOTAL CURRENT LIABILITIES</b>		<b>(34,783)</b>	<b>(4,957)</b>	<b>(39,740)</b>
<b>NON CURRENT ASSETS LESS CURRENT LIABILITIES</b>		<b>237,589</b>	<b>(4,886)</b>	<b>232,703</b>
<b>NON CURRENT LIABILITIES</b>				
Provisions.	c	(11,615)	4,572	(7,043)
<b>ASSETS LESS LIABILITIES</b>		<b>225,974</b>	<b>(314)</b>	<b>225,660</b>
<b>TOTAL TAXPAYERS EQUITY</b>				
Equity				
Revaluation reserve	e	181,739	(394)	181,345
General reserve	b, d, e	44,235	80	44,315
<b>TOTAL TAXPAYERS EQUITY</b>		<b>225,974</b>	<b>(314)</b>	<b>225,660</b>

				1 April 2008		
		Notes	UK GAAP	Effect of transition to IFRS	IFRS	
			£'000	£'000	£'000	
<b>NON CURRENT ASSETS</b>						
Property, plant and equipment	a, b		224,516	(2,352)	222,164	
Intangible assets	b		-	380	380	
Financial assets			536	-	536	
Non current Receivables	c		-	17,161	17,161	
<b>TOTAL NON CURRENT ASSETS</b>			<b>225,052</b>	<b>15,189</b>	<b>240,241</b>	
<b>CURRENT ASSETS</b>						
Assets classified as held for sale	a		-	2,000	2,000	
Trade and other receivables	c		46,559	(17,161)	29,398	
Cash and cash equivalents			8,239	-	8,239	
<b>TOTAL CURRENT ASSETS</b>			<b>54,798</b>	<b>(15,161)</b>	<b>39,637</b>	
<b>TOTAL ASSETS</b>			<b>279,850</b>	<b>28</b>	<b>279,878</b>	
<b>CURRENT LIABILITIES</b>						
Trade and other payables	d		(23,344)	(364)	(23,708)	
Provisions	c		-	(7,894)	(7,894)	
<b>TOTAL CURRENT LIABILITIES</b>			<b>(23,344)</b>	<b>(8,258)</b>	<b>(31,602)</b>	
<b>NON CURRENT ASSETS LESS CURRENT LIABILITIES</b>			<b>256,506</b>	<b>(8,230)</b>	<b>248,276</b>	
<b>NON CURRENT LIABILITIES</b>						
Provisions.	c		(14,104)	7,894	(6,210)	
<b>ASSETS LESS LIABILITIES</b>			<b>242,402</b>	<b>(336)</b>	<b>242,066</b>	
<b>TOTAL TAXPAYERS EQUITY</b>						
Equity						
Revaluation reserve			182,647	-	182,647	
General reserve	b, d		59,755	(336)	59,419	
<b>TOTAL TAXPAYERS EQUITY</b>			<b>242,402</b>	<b>(336)</b>	<b>242,066</b>	

## 27. EXPLANATION OF TRANSITION TO IFRS CONTINUED

### Operating Cost Statement

				For the Year Ended 31 March 2009		
	Notes	UK GAAP	Effect of transition to IFRS	IFRS		
		£'000	£'000	£'000		
<b>EXPENDITURE</b>						
Research and Capital Grants		367,462	-	367,462		
Training Awards and Fellowships		50,510	-	50,510		
Staff costs	d	10,262	22	10,284		
Other operating costs	b	16,217	(58)	16,159		
Research Institute staff restructuring		3,045	-	3,045		
Depreciation, amortisation and impairment	b, e	9,386	(380)	9,006		
Notional Cost of Capital		8,094	-	8,094		
<b>TOTAL OPERATING COST FOR THE YEAR</b>		<b>464,976</b>	<b>(416)</b>	<b>464,560</b>		
<b>INCOME AND OTHER ADJUSTMENTS</b>						
Reversal of Notional Cost of Capital		8,094	-	8,094		
Other Operating Income		1,197	-	1,197		
Recovery of IT service to institutes		3,109	-	3,109		
Other recoveries		3,486	-	3,486		
Loss on disposals and demolition of fixed assets		(257)	-	(257)		
		<b>15,629</b>	<b>-</b>	<b>15,629</b>		
<b>NET EXPENDITURE FOR THE YEAR</b>		<b>449,347</b>	<b>(416)</b>	<b>448,931</b>		

### Tax Payers Equity

				31 March 2009		
	Notes	UK GAAP	Effect of transition to IFRS	IFRS		
		£'000	£'000	£'000		
Revaluation reserve	e	181,739	(394)	181,345		
General reserve	b, d, e	44,235	80	44,315		
<b>TOTAL TAXPAYERS EQUITY</b>		<b>225,974</b>	<b>(314)</b>	<b>225,660</b>		
				1 April 2008		
	Notes	UK GAAP	Effect of transition to IFRS	IFRS		
		£'000	£'000	£'000		
Revaluation reserve		182,647	-	182,647		
General reserve	b, d	59,755	(336)	59,419		
<b>TOTAL TAXPAYERS EQUITY</b>		<b>242,402</b>	<b>(336)</b>	<b>242,006</b>		

### Statement of Cash Flows

				31 March 2009		
	Notes	UK GAAP	Effect of transition to IFRS	IFRS		
		£'000	£'000	£'000		
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>						
Net Expenditure for year after cost of capital	b, d, e	(457,441)	8,510	(448,931)		
Reversal of depreciation and impairment charge	b, e	9,386	(380)	9,006		
Reversal of net loss on disposals and demolition of property, plant and equipment		257	-	257		
Increase in provision for liabilities and charges		(3,299)	-	(3,299)		
Increase in trade and other receivables excluding those for fixed assets		(2,107)	-	(2,107)		
Increase in trade and other payables excluding those for fixed assets	d	6,510	22	6,532		
Increase in financial liabilities		810	-	810		
<b>NET CASH OUT FLOW FROM OPERATING ACTIVITIES</b>		<b>(445,884)</b>	<b>8,152</b>	<b>(437,732)</b>		

	Notes	1 March 2009		
		UK GAAP	Effect of transition to IFRS	IFRS
		£'000	£'000	£'000
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>				
Payments to acquire property, plant and equipment	b	(662)	(58)	(720)
Purchase of financial assets		(1,191)	-	(1,191)
Receipts from sale of property, plant and equipment		3,150	-	3,150
<b>NET CASH INFLOW FROM INVESTING ACTIVITIES</b>		<b>1,297</b>	<b>(58)</b>	<b>1,239</b>
<b>NET CASH (OUTFLOW)/INFLOW BEFORE FINANCING</b>		<b>(444,587)</b>	<b>8,094</b>	<b>(436,493)</b>
<b>CASH FLOWS FROM FINANCING ACTIVITIES</b>				
Grant in Aid		412,343	-	412,343
Funding from other bodies		16,636	-	16,636
<b>NET CASH INFLOW FROM FINANCING ACTIVITIES</b>		<b>428,979</b>	<b>-</b>	<b>428,979</b>
<b>(DECREASE) IN CASH AND CASH EQUIVALENTS IN THE YEAR</b>		<b>(15,608)</b>	<b>8,094</b>	<b>(7,514)</b>
<b>CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE YEAR</b>		<b>8,239</b>	<b>-</b>	<b>8,239</b>
<b>CASH AND CASH EQUIVALENTS AT THE END OF THE YEAR</b>		<b>(7,369)</b>	<b>8,094</b>	<b>725</b>

a IFRS 5, "Non-current Assets Held for Sale and Discontinued Operations"

IFRS 5 requires assets that meet the criteria to be classified as assets held for sale to be measured at the lower of carrying amount and fair value less cost to sell and the depreciation on such assets to cease. These held for sale noncurrent assets shall be presented separately on the face of the statement of financial position.

Adoption of IFRS 5 has resulted in the reclassification of assets with a carrying value of £2.0M as of 1 April 2008 from property, plant and equipment to assets held for sale.

b IAS 38, "Intangibles" and SIC 32, "Intangible Assets - Website Costs"

IAS 38 requires that when the software is not an integral part of the related hardware, computer software is treated as an intangible asset. In the case of internally generated intangibles, SIC allows the capitalisation website costs that contributes to the delivery of services to the public and provide indirect benefits through for example internal efficiencies.

Adoption of IAS 38 has resulted in the reclassification of software and licenses with a carrying value of £360k and £380k as of 31 March 2009 and 1 April 2008, respectively from property, plant and equipment to intangible assets. Adoption of SIC 32 decreased 2009 net expenditure by £50k and increased general reserves as of 1 April 2008 by £28k.

c IAS 1, "Presentation of Financial Statements"

IAS 1 provides a framework within which an entity assesses how to present fairly the effects of transactions and other events; which includes proper classification of assets and liabilities as current and non-current.

Adoption of the standard resulted in reclassification of receivables due in more than 12 months of £17.6M and £17.2M as of 31 March 2009 and 1 April 2008, respectively as non-current assets.

Adoption of IAS 1 also resulted in the reclassification of provisions due in 12 months of £4.6M and £7.9M as of 31 March 2009 and 1 April 2008, respectively as current liabilities.

IAS 39, "Financial Instruments"

Under the financial instruments standards, IAS 39 to be implemented for the 2008-09 financial year, once contracts for retirement have been agreed and signed, ACP's will no longer be classified as a provision and should be recognised as a financial instrument liability, split between under one year and over one year as appropriate.

d IAS 19, "Employee Benefits"

IAS 19 requires the entity to recognise short-term employee benefits in the period the benefit is earned by the employee, rather than when it is paid or made payable.

As a result of the adoption of this standard, the cost of the accumulating short-term compensated absences were accumulated and accrued in 2008 and 2009. The change decreased the 2009 net expenditure by £22k and decreased general reserve as of 31 March 2009 and 1 April 2008 by £385k and £364k, respectively. Liabilities as of 31 March 2009 and 1 April 2008 increased by £385k and £364k, respectively.

e IAS 16, "Property, Plant and Equipment"

IAS 16 requires that an impairment loss on revalued asset shall be treated as a revaluation decrease. Adoption of IAS 16 resulted in reallocation of impairment amounting to £394k from the 2009 net expenditure to general reserves.



## ACCOUNTS DIRECTION GIVEN BY THE SECRETARY OF STATE (WITH THE APPROVAL OF HM TREASURY) IN ACCORDANCE WITH SECTION 2 (2) OF THE SCIENCE AND TECHNOLOGY ACT 1965

This direction applies to the Biotechnology and Biological Sciences Research Council (BBSRC).

BBSRC shall prepare accounts for the financial year ended 31 March 2010 and subsequent financial years in compliance with the accounting principles and disclosure requirement of the edition of the Government Financial Reporting Manual issued HMR Treasury ("the FReM") which is in force for the financial year for which the accounts are being prepared.

The accounts shall be prepared so as to:

- a) give a true and fair view of the state of affairs at 31 March 2010 and subsequent financial year-ends, and of the income and expenditure, recognised gains and losses, and cash flows for the financial year then ended; and
- b) provide disclosure of any material expenditure or income that has not been applied to the purposes intended by Parliament or material transactions that have not conformed to the authorities which govern them; and
- c) treat grants and grant-in-aid from the Department for Innovation, Universities and Skills as financing (as required by FReM) i.e. credited to reserves and not treated as income.

Compliance with the requirements of the FReM will, in all but exceptional circumstances, be necessary for the accounts to give a true and fair view. If, in these exceptional circumstances, compliance with the requirements of the FReM is inconsistent with the requirement to give a true and fair view, the requirement of the FReM should be departed from only to the extent necessary to give a true and fair view. In such cases, informed and unbiased judgement should be used to devise an appropriate alternative treatment which should be consistent with both the economic characteristics of the circumstances concerned and the spirit of the FReM. Any material departure from the FReM should be discussed with the Department for Innovation, Universities and Skills and with HM Treasury.

This direction supersedes the direction dated 27 November 2001.

Signed for and on behalf of the Secretary of State

R Louth

Dated 5 April 2007







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