

BIOTECHNOLOGY AND BIOLOGICAL SCIENCES RESEARCH COUNCIL
ANNUAL REPORT & ACCOUNTS 2008 - 2009

Presented to Parliament by the Secretary of State, and by the Comptroller and Auditor General,
in pursuance of Schedule 1, sections 2 [2] and 3 [3] of the Science and Technology Act 1965.

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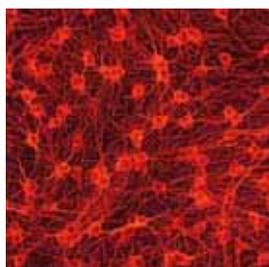
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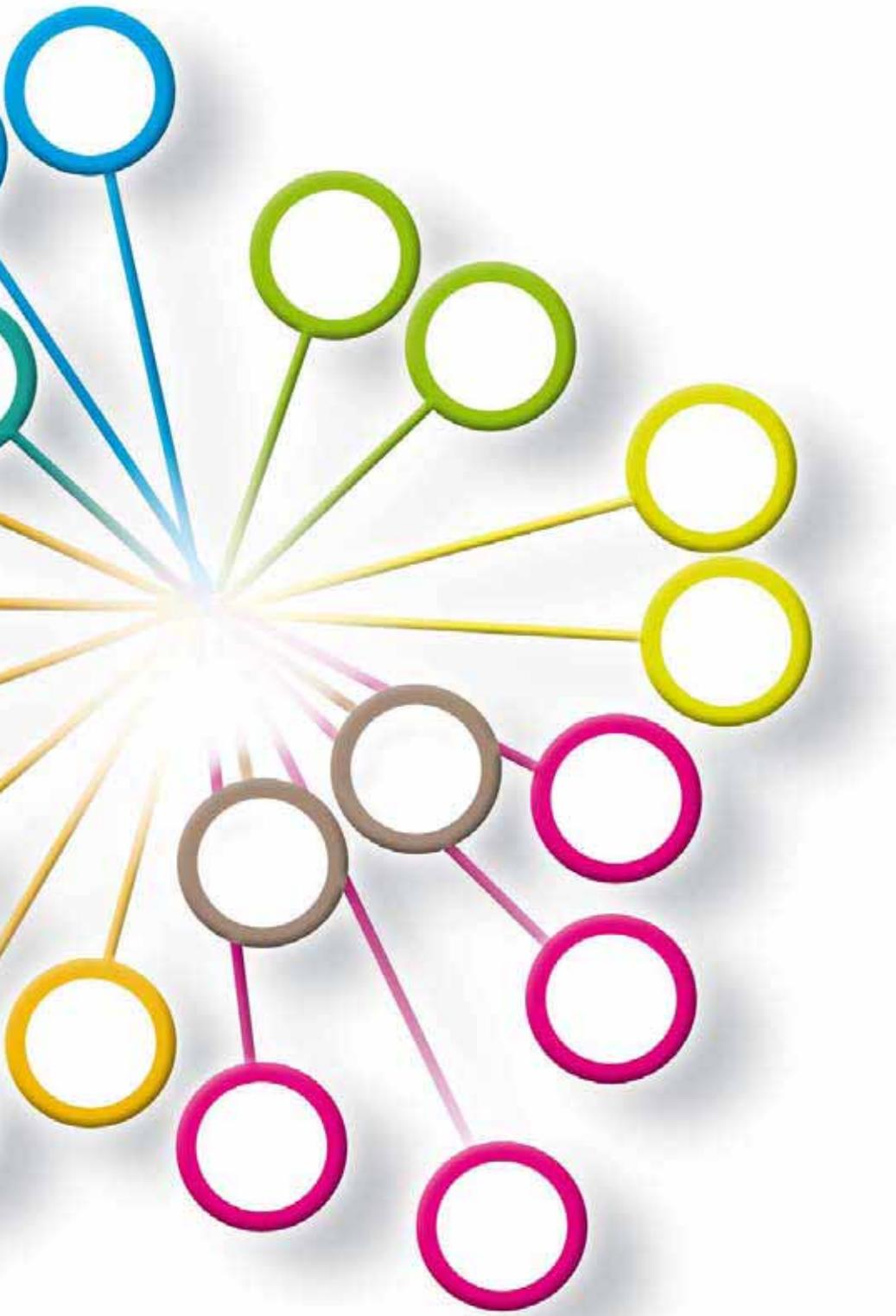
This Annual Report covers the period 1 April 2008 to 31 March 2009.

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 Innovation, Universities and Skills (DIUS).



BBSRC works collaboratively with its sister Research Councils through Research Councils UK (RCUK). This includes: funding for cross-Council programmes of research; collective approaches in areas such as research training and careers development, achieving impact, and public engagement; and administrative harmonisation.



Chairman's statement



Dr Peter S Ringrose

This year has seen a very high level of recognition of the contribution bioscience makes, and will make, to the UK economy and society, and to prosperity globally.

In his Romanes Lecture in Oxford in February 2009, the Prime Minister stressed the centrality of science in tackling the impacts of food and water shortages and infectious and degenerative diseases. He described the benefits to the UK of predicting the arrival of Bluetongue Disease and vaccinating selectively and successfully against it in 2008. The 2009 "Attacking the Recession" report from the National Endowment for Science, Technology and the Arts cited healthcare, green technology and digital media as the key sectors where there will be unprecedented global demand; and emphasised the importance of high-tech start-ups. Government focus on innovation, high value manufacturing and low carbon economy is manifest in the BERR* report on industrial biotechnology (IB) www.berr.gov.uk/files/file51144.pdf. This identified IB as an essential component in creating a low-carbon, knowledge-based economy in the UK; with estimates of a UK market ranging from \$4Bn to £12Bn.

What emerges in the guise of enhanced food production, quality and safety, medical advances, sustainable industrial processes, or environmental protection is often rooted in biological research. We remain committed to supporting underlying basic science, as well as the development of skills and routes for its translation. I was pleased, as BBSRC Chairman and a member of the governing board of the Technology Strategy Board (TSB), to discuss these issues with the Science Minister at the Foundation for Science and Technology in February 2009, and I am heartened by the increasing collaborative investments by BBSRC and TSB described in this Report.

BBSRC Council is committed to optimising the contribution our institutes make to UK science. It is rewarding, therefore, that their critical value to UK agricultural and land-based research has been recognised in an independent report, commissioned by BBSRC and the Higher Education Funding Council for England (www.bbsrc.ac.uk/organisation/policies/reviews/operational/0905_landbased_facilities_report.html). The report identifies twenty-four strategically important resources, over half of which are hosted by BBSRC (or former BBSRC) institutes.

Mr Steve Visscher most capably led BBSRC as Interim Chief Executive from September 2007 to October 2008, and again I record my thanks to him. I am delighted to welcome as Chief Executive, Professor Douglas Kell. His dynamic leadership in research, especially in systems approaches, and his previous service and experience on BBSRC Council, will be enormous assets to BBSRC. I was very pleased to accept an invitation from the Secretary of State to extend my period as Chairman from April 2009 until the end of June 2009, when my successor Professor Sir Tom Blundell FRS takes up the position. I am delighted to pass on to Sir Tom chairmanship of a Research Council that is contributing fully to national research needs and whose value is so widely recognised. I wish him every success. I thank all those who have served on the Council and its committees, and the staff of the BBSRC Executive and institutes, for the dedication and commitment that have enabled BBSRC to have such a successful year.

Dr Peter S Ringrose

June 2009

* Now the Department for Business, Innovation and Skills

Chief Executive's report



Professor Douglas Kell

Overview

In the nine months since I took up the post of Chief Executive, BBSRC has made a step change in activities to ensure that excellent UK bioscience translates into real benefits for the UK economy and society more widely. We have been able to do this by building on the achievements of my predecessors Professor Julia Goodfellow and Steve Visscher, and with the unwavering support of the UK's most vibrant scientific research community which is a genuine world-leader (see page 8). I am delighted that this academic excellence sits alongside innovative new bio-based companies such as those that featured prominently at the Building the Britain of the Future event attended by the Prime Minister, the Secretary of State and the Science Minister in January 2009.

BBSRC has focused on:

- continued prioritisation for scientific excellence, especially in innovative areas such as e-science and systems approaches;
- increased emphasis on training and skills, to produce the high-calibre individuals needed in the academic and business and industrial sectors;
- an holistic approach to achieving more effective translation of the UK's world-leading bioscience into wealth creation and public good impacts, especially in areas of increasing national strategic importance such as food security and bioenergy.

To deliver these, we have made important changes to our ways of working, across the organisation and at all levels. For example, we have streamlined the roles and strategic capabilities of our institutes by synergistic partnering with universities, and by enabling them to concentrate resources and expertise around fewer, larger and longer term research programmes that address

national priority needs in areas such as animal health and food safety.

At the same time, we have reconstituted our peer review committees to ensure that we support multidisciplinary research whilst maintaining our ability to fund the best science across our wide portfolio, wherever it is to be found. We are developing additional means of engaging with our research community and harnessing its outputs, and started with 'roadshows' at Bristol, Cambridge, Glasgow, London and Manchester in October and November 2008. We are also driving a culture shift in academic research by more explicit cultivation of, and recognition and reward for, excellent research that also delivers innovation and translation into social and economic benefits. Our new Innovator of the Year award (page 22) illustrates this commitment.

Within BBSRC, we have brought together directors in the Swindon

Office and the institutes as a closer team. We have restructured the Swindon Office in order to link up activities in research funding, training & skills, and business & innovation. The new structure also enables a coordinated approach to communications and information management, and increased inter-group project working to deliver key strategic objectives.

Policy development and strategic direction

Bioscience research is central to many of the major challenges facing the world. BBSRC supports research in all the strategic Cross-Research Council programmes that address: Energy; Living with Climate Change; Lifelong Health and Wellbeing; Nano applications; Global Uncertainties; and the Digital Economy.



I chaired BBSRC's review of bioenergy research published in 2006, and was delighted to lead the launch of the £27M BBSRC Sustainable Bioenergy Centre in January 2009 (page 15). The Centre brings together academic and industrial partners and associates. At a launch briefing at the Science Media Centre (left to right: Professor Katherine Smart of the University of Nottingham; Dr Angela Karp of Rothamsted Research; Professor Douglas Kell; and Science Minister Lord Drayson).



Pictured at the Food Security Workshop (from left to right): Pedro Arcuri of Embrapa; Kathy Kahn of the Gates Foundation, Professor Kell, Silvio Crestana of Embrapa and the Government's Chief Scientific Adviser Professor John Beddington. Embrapa is the agribusiness research arm of the Brazilian government.

Throughout the year, national and global food security has emerged as arguably the most fundamental challenge of all. BBSRC has taken a lead in bringing together researchers, funders, policymakers and the agri-food industry from farm to retail to help ensure that we can translate bioscience into practical steps to avoid catastrophic loss of food security nationally and across the world. We were delighted that Professor John Beddington, Chief Scientific Adviser to the Government, who warned of threats of global food and water shortages in his address at GovNet Sustainable Development UK09, gave the opening address at BBSRC's Food Security workshop in February 2009. Discussions at the workshop, which attracted over seventy invited participants, led to a draft 'roadmap' on which we have consulted (page 14).

Some of the same issues were highlighted in our commissioned review of BBSRC research relevant to environmental change, which reported in 2008. The review, chaired by Professor Alistair Hetherington, identified as the most urgent priority research on predicting pests and diseases of farm animals (including zoonoses) and crop plants; and also highlighted crop and livestock breeding and other strategies for enhancing agricultural production sustainably.

Systems approach

Over the past four years BBSRC has invested a total of over £80M to support systems approaches that integrate empirical bioscience research with predictive computational modelling, informatics and other e-sciences. This enables questions about biological processes to be answered at the levels of tissues, organs, organisms and even populations, which is where many of the most pressing challenges are, and where the biggest practical impacts can be made. Systems Biology, and the tools, resources and training to drive it, remain core parts of our science vision.

We are beginning to see the fruits of the systems approach not only in advancing conceptual thinking but also in providing a basis for practical action. For example, computer modelling by engineers and scientists at the Nottingham-based BBSRC Centre for Plant Integrative Biology helped to reveal surprising new insights into root hair growth which are directly relevant to food security by suggesting new approaches to improving crop uptake of nutrients and water (page 14).

BBSRC spends around £19M a year on projects in the emerging area of Synthetic Biology and related research areas. With the Engineering and Physical Sciences Research Council

(EPSRC) we have established seven research networks to advance multidisciplinary and develop a 'common language' between bioscience and engineering research groups (page 13).

Systems and Synthetic Biology exemplify the opportunities afforded by our ability to interpret huge amounts of biological data. The capability to represent whole organisms as computer models of how their components interact ('digital organisms') is coming within reach. BBSRC has established The Genome Analysis Centre in Norwich specifically to exploit the opportunities available from 'next-generation' sequencing technologies, and to contribute to this new level of knowledge and understanding, particularly in plant and microbial science.



The Genome Analysis Centre is an example of the scientific community, research funders and local authorities working together to ensure that excellence in expertise and facilities benefits a wide range of commercial and policy end-users and regional development as well as researchers (page 16).

Supporting the research community

Peer review

In the first change to the structure of our peer review system in over a decade, we have reduced the number of our peer review committees from seven to four. This helps to ensure that multidisciplinary work does not 'fall between committees'. Each Committee comprises a Chair, Deputy Chair and core members. To provide the flexibility to cover the breadth of BBSRC's science and rapidly emerging areas, additional members are selected from a 'pool' to provide specialist expertise in those areas of research being considered at individual meetings. This 'core-plus-pool' approach combines the benefits of continuity and corporate memory with the availability of expertise most closely tailored to the proposals under review.

The new Committees are:

- Animal Systems, Health & Wellbeing
- Plants, Microbes, Food & Sustainability
- Technological & Methodological Development
- Molecules, Cells & Industrial Biotechnology

LONGER-LARGER grants

We have reviewed the LOLA scheme that we introduced in 2006 to encourage the academic community to work strategically on substantial scientific problems through multi- and inter-disciplinary research. The grants provide support for up to five years for projects costing £2 - 5M. The scheme achieved its expectation of supporting up to 20% of our responsive mode budget. Topics supported include: understanding the molecular basis of pain, improving gene exchange in crop breeding, and new computational tools for determining protein structures.

Considering the review's findings at its meeting in February 2009, BBSRC Council decided that an additional objective be added, viz. the awards should develop research closely aligned to BBSRC's strategic scientific priorities and address skills and capability needs as well as the scientific challenge. In a revised scheme, Strategic Longer Larger Grants will commence in 2009.

Communication and information management

The opportunities offered by social networking and Web 2.0 apply very strongly to both scientific research and to the effective working of organisations such as BBSRC. We are carrying out a major survey of modern information management technologies for improving the management and dissemination of the information we have or can access. In addition, I am probably the first CEO of a major research funder to have started a blog (<http://blogs.bbsrc.ac.uk/>), while both I (@dbkell) and BBSRC (@bbsrc) disseminate shorter pieces of news ('tweets') via Twitter.



BBSRC's new senior management team (left to right): Professor Martin Shirley (IAH); Mr David Parfrey; Professor Ian Crute (RRes); Mr Peter Swinburne; Professor Chris Lamb (JIC); Dr Celia Caulcott; Professor Douglas Kell; Dr Jane Rogers (TGAC); Professor David White (formerly IFR); Professor David Boxer (IFR); Mr Paul Gemmill; Professor Michael Wakelam (BI) and Mr Steve Visscher. Professor Janet Allen, who joined BBSRC as Director of Research in October 2008, is absent from the photograph. During 2008-09, Professor Nigel Brown, former Director of Science and Technology, left BBSRC to take up the post of Vice-Principal and Head of the College of Science and Engineering at the University of Edinburgh; and Dr Doug Yarrow, former Director of Corporate Science, retired.

We have continued to develop our institute-based science, around the principles described in the Chief Executive's report in the 2007-08 Annual Report. We have moved from single grants to institutes to small numbers of strategic programme grants to each institute. These allow Directors to focus resources around major scientific themes where institutes are internationally competitive.

Institute Strategic Programme Grants (ISPGs)



Babraham Institute (BI)

Signalling
Immunology
Epigenetics and Chromatin



Institute for Animal Health (IAH)

Improved Control of Avian Infectious Diseases
Understanding and Control of Livestock Infectious Diseases
National and International Foot-and-Mouth Disease Control through Integrated Research and Surveillance
Vector-borne Diseases



Institute of Food Research (IFR)

Integrated Biology of the Gastrointestinal Tract
Food Structure and Health
Biology and Complexity of Foodborne Bacterial Pathogens
Plant Natural Products and Health



John Innes Centre (JIC)

Plant Growth and Development: Traits and Mechanisms
Plant Perception and Response to the Environment
Understanding and Exploiting Plant and Microbial Metabolism



North Wyke Research (NWRes)

(formerly part of the Institute of Grassland and Environmental Research)
Sustainable Soil Function
Delivering Multifunctional Landscapes



Rothamsted Research (RRes)

Bioenergy and Climate Change
Crop Genetic Improvement
Ecological Processes in Multifunctional Landscapes
Mathematical and Computational Biology
Sustainable Pest and Disease Management

We also make ISPGs to the Institute of Biological, Environmental and Rural Sciences at Aberystwyth University and The Roslin Institute at the University of Edinburgh.

Institute for Animal Health

As reported in the previous Annual Report, we established a small expert group to review science at the Institute for Animal Health. The group, chaired by Professor Chris Gilligan of the University of Cambridge, reported in June 2008 (www.bbsrc.ac.uk/organisation/policies/reviews/operational/0806_iah_science_subgroup.html). The group recommended a single-site institute with specialist core experimental and containment facilities, including high level (SAPO 4) facilities for large animals, described as 'in the national

interest.' In February 2009, BBSRC confirmed its commitment to a new national research facility in animal health, in line with recommendations of the report to Government by Sir Iain Anderson (archive.cabinetoffice.gov.uk/fmdreview/documents/fmd_2007_review_full.pdf), and announced plans for developing IAH as a single-site institute based at Pirbright around the scientific vision outlined in the Gilligan Report. Longer term, research will transfer from IAH's Compton site to Pirbright.

I am delighted to record BBSRC's gratitude to Dr Peter Ringrose for the leadership, counsel and support he has given us as Chairman, and to UK bioscience in general, and to welcome his successor. Sir Tom Blundell was an inspirational first Chief Executive of BBSRC and I look forward to working with him.

Professor Douglas Kell
Deputy Chairman and Chief Executive
July 2009

Key funding data

Research funding: Analysis of gross expenditure

£M	Universities	BBSRC institutes	Other organisations	Total
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	10,019	63,905
Training Awards and Fellowships	44,815	3,697	1,998	50,510
Total	260,445	125,170	32,357	417,972

Summary of grant applications and success rates

	2005-06	2006-07	2007-08	2008-09
Number of applications	2,179	2,240	1,983	2,033
Success rate by number (%)	28	30	29	21
Equivalent success rate by value (%)	29	30	28	23

Applications and success rates by gender

Percentage of successful applications from total applications

	2006		2007		2008	
	Male	Female	Male	Female	Male	Female
Project grants	27.2	23.0	25.6	23.2	18.3	12.9
Programme grants	41.3	45.7	44.8	55.1	44.4	43.9
New investigators	31.7	35.0	36.7	30.6	24.8	14.8
Fellowships	16.7	9.1	12.5	13.6	14.4	6.7

Percentage of female applicants for peer-reviewed funding

	2006	2007	2008
Project grants	21.9	19.7	22.8
Programme grants	18.1	12.6	21.6
New investigators	27.8	24.8	28.9
Fellowships	42.3	37.9	23.6

Analysis of final reports

	2006-07	2007-08	2008-09
Research grants delivering high-class work adding significantly to knowledge in the field (%)	79	85	82

Transferring Knowledge (BBSRC-sponsored institutes)

	2005-06	2006-07	2007-08	2008-09
Industrial income (£k)	8,829	7,979	7,618	5,746
Income from intellectual property (£k)	415	551	455	563
Patents awarded	19	15	10	27
Commercial licensing agreements	37	41	53	36
Spin-out companies trading	16	17	16	16
Refereed publications co-authored with industry	65	82	71	55

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	17.97
2 Cambridge	15.35
3 Edinburgh	11.05
4 Imperial College, London	10.29
5 Glasgow	10.13
6 Nottingham	10.06
7 Oxford	9.64
8 Newcastle	7.19
9 University College, London	7.15
10 Bristol	6.94
11 Sheffield	6.28
12 Leeds	6.04
13 Warwick	5.65
14 Birmingham	5.14
15 Liverpool	4.90
16 King's College, London	4.26
17 York	4.17
18 East Anglia	3.61
19 Aberdeen	3.59
20 Dundee	3.09
21 Leicester	2.88
22 Southampton	2.58
23 St Andrews	2.56
24 Sussex	2.55
25 Durham	2.32

Institute funding (£M)

	BBSRC CSG	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	2.5	0.0	0.1	2.5	0.2	3.7	20.8	17.9
Institute for Animal Health	9.5	5.1	7.8	0.1	0.4	1.0	5.0	28.9	19.6
Institute of Food Research	9.1	1.3	0.9	0.4	0.7	2.1	0.5	15.0	1.7
John Innes Centre	13.6	8.3	0.9	0.0	1.0	1.6	2.6	28.0	2.4
North Wyke Research**	1.2	0.0	2.2	0.0	0.0	0.1	0.2	3.7	0.5
Rothamsted Research	11.2	5.7	3.1	1.8	1.1	0.8	1.7	25.4	3.8
TOTAL	56.4	22.9	14.9	2.4	5.7	5.8	13.7	121.8	45.9
2007-08 Comparatives	57.9	20.8	13.7	3.2	5.8	6.1	13.9	121.4	38.0

* Including charities and Government Departments

** North Wyke Research is scheduled to transfer to Rothamsted Research during 2009-10

Publications from BBSRC institutes

	2006-07	2007-08	2008-09
Referred publications per scientist	2.1	2.4	2.5
Total publications per scientist	4.5	4.3	4.3

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

Delivering Excellence with Impact

UK bioscience research leads the world, in 2008 topping the citation impact index for biological science papers in the G8 nations*. It underpins major industries and businesses in the UK. The food and farming area is the UK's largest manufacturing sector with a turnover of around £82Bn. The biotechnology and pharmaceuticals sector traditionally provides around a quarter of the business R&D employment in the UK, and is an example of the high value manufacturing sector that requires highly skilled and trained individuals, and which will increasingly determine the UK's competitiveness as the world recovers from economic recession.

Bioscience will play a central role in tackling many of the most serious challenges facing the world – ensuring food production and supply in changing economic and environmental conditions, prolonging healthspan as people live longer, and protecting humans and other animals from deadly new diseases. Again, the excellence of the UK science base is clear: Britain tops the citations per paper index for plant and animals sciences for the decade to December 2008**.

During the year, we have renewed our commitment to support the highest-quality curiosity-driven research, while at the same time increasing the social and economic impacts arising from the science. With the other Research Councils we announced that, from April 2009, applicants for funding must consider and explain how they will achieve impact. Grantholders will have autonomy and flexibility but we have indicated behaviours for achieving impact that we expect them to adopt (www.bbsrc.ac.uk/funding/apply/grants_guide.html).



Our science impacts on many broad areas that interact dynamically. For example, scientific advancement generates new knowledge that often leads to new technologies and products delivered through new companies. It also informs policy-making and implementation in areas as diverse as environmental sustainability and interventions for healthy old age. Skills development underpins the generation of new knowledge, wealth creation and jobs. Scientists' constructive engagement with societal issues is important in creating an environment where research and innovation can flourish, just as is state-of the art equipment.

On pages 9-31 of this Report we give examples of the impacts of BBSRC's activities and the science it funds. Page links enable cross-referencing and reflect BBSRC's joined-up approach to delivering Excellence with Impact.

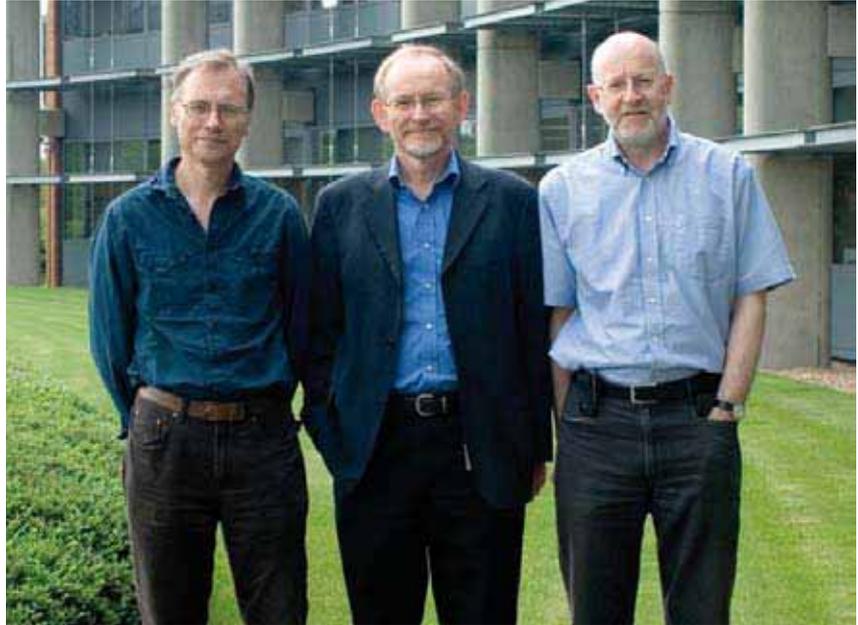
* International comparative performance of the UK research base, July 2008. www.dius.gov.uk/publications/IntComparativePerformanceUKResearch.pdf
** Thomson Reuters Essential Science Indicators www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=406212&c=1

- £Ms saved
- Environmental protection
- Reduced carbon footprint

Policy

Predictive modelling is one way in which bioscience informs policy development and implementation in areas such as safeguarding UK livestock and environmental sustainability.

■ Collaborative research by the Institute for Animal Health (IAH) and the Met Office provides the UK with the capability to predict incursions of the deadly disease, bluetongue, enabling surveillance and control to be targeted to cattle and sheep in high-risk areas. Work at IAH involving farmers voluntarily vaccinating against BTV-8, the virus strain most likely to reach Britain, successfully prevented disease in 2008. Consultants DTZ estimated that this potentially saved £485M and 10,000 jobs. www.iah.bbsrc.ac.uk/ecosoc/docs/Blue-Tongue-case-study.pdf



Three scientists from Rothamsted Research were among those who received a certificate from the Intergovernmental Panel on Climate Change, in recognition of their contribution to the award to the Panel and former USA Vice President Al Gore of the 2007 Nobel Peace Prize. This recognised their longstanding research on soil processes such as carbon cycling. (From l to r) Professors Andy Whitmore, David Powlson and Keith Goulding.



Midges spread bluetongue virus amongst ruminants when they take a blood meal.

■ An advice system that helps farmers recycle manure cost-effectively and without polluting watercourses has been developed from a RELU project led by North Wyke Research and including scientists at the Universities of Exeter and Lancaster. It shows interactions of four risk factors – microbial mass, potential landscape transfer, farm infrastructure, and social and economic factors – to inform the farmer where interventions will be most effective.

■ Scientists from Rothamsted Research and North Wyke Research have led the revision of Defra's Fertiliser Recommendations for Agricultural and Horticultural Crops. This will bring direct benefits to farmers and the environment. The models of nitrogen cycling that the scientists produce inform decision support packages for managing nitrate loss, e.g. in nitrate vulnerable zones which increased in 2009 to cover around 70% of England.



Public health

Increased life expectancy in developed countries is dramatically increasing the proportion of older people in populations. For these individuals to enjoy healthy old age we need to know more about the ageing process.

BBSRC has announced new support through:

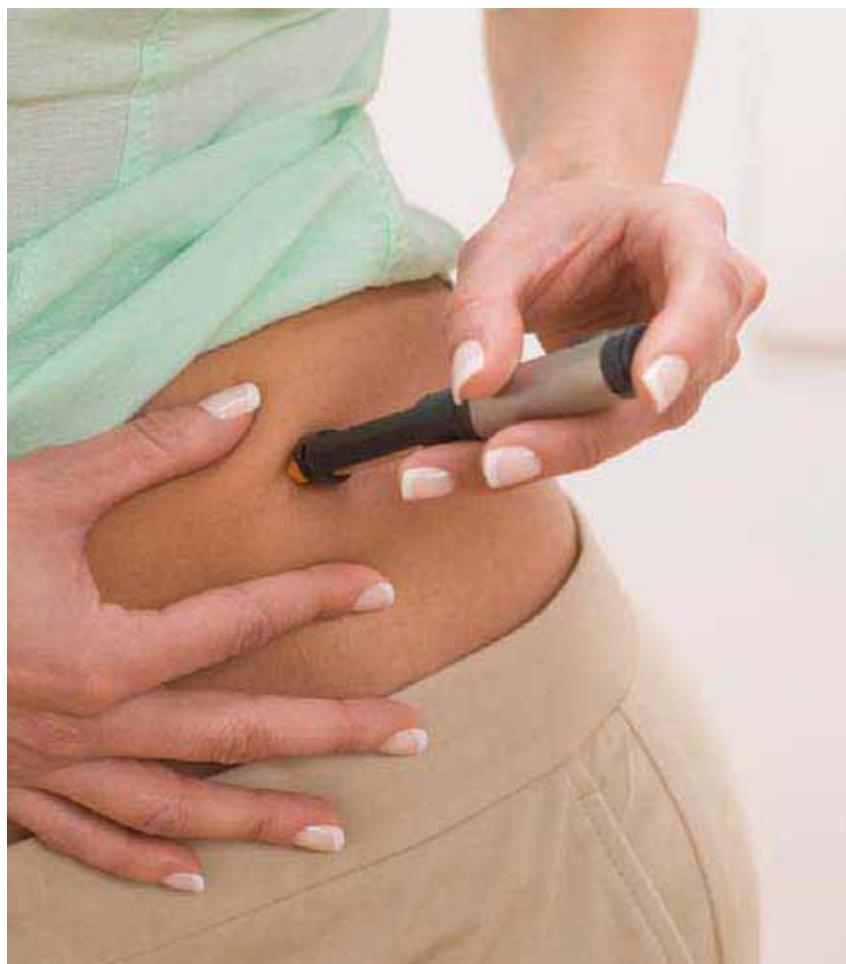
- joint funding totalling c.£4M with the US National Institute on Aging for collaborative research between scientists in the two countries into normal processes of ageing
- joint funding with Research into Ageing totalling around £1.4M for basic and translational research on bladder and bowel processes that lead to incontinence – a major detriment to quality of life in the elderly
- joint Research Councils and UK Health Departments support under the Lifelong Health and Wellbeing initiative, in priority areas of mental health, markers for ageing, interactions between determinants of healthy ageing, and interventions that promote healthy ageing and independence
- a call for further research under the £20M cross-Research Council programme 'New Dynamics of Ageing' (BBSRC contribution is £2M)

The £1.25M Strategic Promotion of Ageing Research Capacity (SPARC) programme, funded jointly by BBSRC and EPSRC, ended in 2008. Thirty-four awards were made under this pump-priming scheme to bring new researchers into ageing research. The value of funding secured by award-holding teams during and immediately after completion of their SPARC projects amounted to approximately £10M, of which about half was attributable to involvement with SPARC.

Scientific outputs included: new probes that detect reactive oxygen species at the sites where they cause the oxidative stress associated with ageing (University of Glasgow); and measures of how far older people need to be able to look ahead in order to step safely because of age-related decline in eye-locomotion coordination (University of Birmingham).

-
- The number of people in the UK with diabetes has increased from 1.4M in 1996 to 2.5M, and is estimated to reach over 4M by 2025. Most new cases will be Type 2 diabetes, which accounts for around 90% of people with diabetes ('Diabetes in the UK 200', Diabetes UK).

Scientists at the University of Oxford's Pharmacology Department have developed an inexpensive, computer-based system for identifying molecules that could form the basis of new drugs to treat Type 2 diabetes. They have exploited the power of digitally available chemical knowledge, including a database of over 5 million compounds. *Nature Chemical Biology* doi:10.1038/inchembio.150.



- Capacity building
- Novel drug candidates
- Healthier food

■ Scientists at the John Innes Centre (JIC) have produced purple tomatoes, with raised levels of anthocyanins – natural compounds which their co-workers in Italy have shown to have a beneficial impact on cancer-prone mice when consumed over relatively long periods.

The researchers are now hoping to conduct a long-term intervention study with volunteers to test whether the dietary benefits seen in mice also apply to humans.

The JIC team produced the tomatoes using GM techniques to insert genes stimulating anthocyanin production from the snapdragon *Antirrhinum majus*. The resultant fruits were a range of colours with deep purple reflecting the high levels of the pigment compounds. Extensive international media coverage of the research suggested a positive public response to potential GM foods with demonstrable health benefits.

The research, part-funded by the European Commission, was conducted in collaboration with scientists in Germany, Italy and The Netherlands. www.nature.com/nbt/journal/v26/n11/abs/nbt.1506.html

■ Cancer cells can often survive in the body because they evade the natural protective signalling system that tells damaged cells to 'commit suicide'. Many treatments are based on restoring this signalling, but some cancers have proved therapy-resistant.

Scientists at Babraham Institute in collaboration with oncologists at Addenbrooke's Hospital, University of Cambridge have discovered how modification of a key molecule, a change not previously implicated in malignancy, blocks this signalling and keeps cancerous myeloid leukaemia cells alive. This molecule is thus a target for new treatments. Proof-of-principle has already been demonstrated in the laboratory, by successfully killing a leukaemia patient's cells which had become resistant to a widely used drug. <http://dx.doi.org/10.1056/NEJMoa0804953> <<http://dx.doi.org/10.1056/NEJMoa0804953>>

The work was also funded by the Association for International Cancer Research, the UK Leukaemia Research Fund, the Wellcome Trust, the Medical Research Council, Cancer Research UK and the US Leukemia and Lymphoma Society.



■ In 2008, Professor Mandy MacLean of the University of Glasgow (Faculty of Biomedical and Life Sciences) became the first woman to receive the American Thoracic Society's prestigious Estelle Grover Lecture Award. Professor MacLean is the Director of the Glasgow/Strathclyde Integrative Mammalian Biology Centre, supported by BBSRC, MRC, Scottish Funding Council, industry and DIUS*. The award recognises fifteen years of multidisciplinary research on the neurotransmitter serotonin. Her BBSRC-funded research will underpin translation of novel therapeutic approaches to pulmonary vascular disease and pulmonary hypertension.

Purple tomatoes



Image: John Innes Centre

* Now Department for Business, Innovation and Skills Related examples: pages 12, 13, 20-25; Integrative Mammalian Biology: page 17

Knowledge

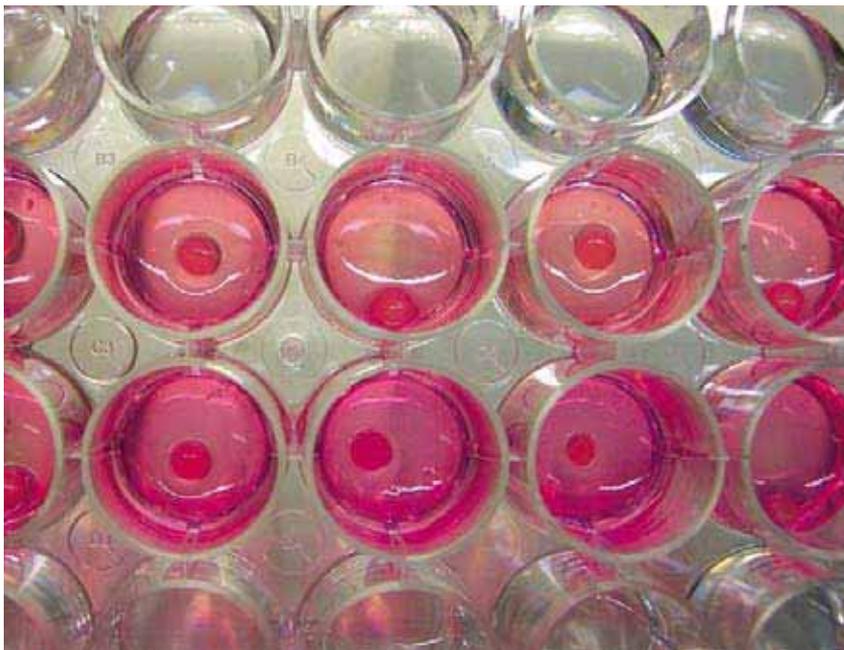
Scientific advancement

In stem cell science we can see the impact of BBSRC's long-term investment in fundamental research, and how international collaborations accelerate progress.

Clinicians in Spain successfully treated a woman by transplanting an inert piece of trachea (windpipe) that they had revitalised by coating with cartilage cells made from some of her own stem cells. The technique for making the cells was developed through BBSRC-supported research at the University of Bristol.

Scientists at the Institute of Psychiatry, King's College London and the University of Nottingham successfully replaced stroke-damaged brain tissue in rats by injecting neural stem cells attached to a biodegradable scaffold.

The scaffold adopts the shape of the cavity left by the stroke damage and holds the cells there while they interface with the host brain and establish a regenerative tissue.



Professor Antony Hollander's group at Bristol pioneered growth of specialist cartilage cells.

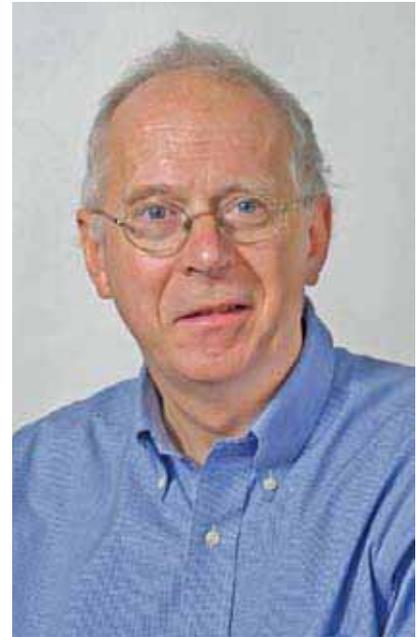
In 2008, scientists at the Universities of Cambridge and Edinburgh succeeded for the first time in deriving embryonic stem cells from the rat. Rats are more relevant than mice for modelling human physiology and brain function. The availability of rat embryonic stem cells is expected to lead to improved animal models of disease and preclinical tests of stem cell therapies. Other funders included: the US National Institutes of Health and the European Commission.

Induced pluripotent stem cells (iPCs) offer a potential alternative to human embryonic stem cells. BBSRC and MRC have made additional funding available to current stem cell researchers to explore iPCs. The two Councils also commissioned a large scale public dialogue on stem cell science in 2008. www.bbsrc.ac.uk/society/dialogue/activities/stem_cell_final_report.pdf

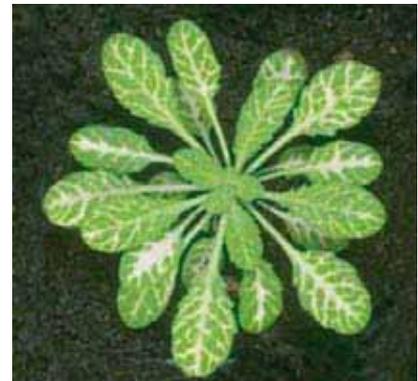
Regenerative medicine: pages 20, 21, 23, 25; Public engagement: page 30

■ 2008 Lasker Award

Plant scientist Professor (now Sir) David Baulcombe FRS, formerly of the Sainsbury Laboratory and now of the University of Cambridge, was a joint recipient of the 2008 Lasker Award for Basic Medical Research. The award recognised the discovery of small silencing RNA molecules. Baulcombe and his group showed that these RNAs switch-off genes in plants. Similar silencing RNAs in animals are implicated in cancers, heart conditions and viral infections and are being developed as tools in diagnosis and therapy of disease.



Lasker Award winner, Professor David Baulcombe FRS.



A silencing RNA produced in the veins of this plant is spreading into adjacent tissue and causing the cells to become bleached.

- Stem Cells
- Neuroscience
- Synthetic Biology

Synthetic Biology brings together engineering, computer sciences and bioscience to develop rationally designed biological parts, devices and systems. The research market has been predicted to reach c. £1.8Bn in the coming decade, with applications in, for example, biosensors, fuel cells, biomaterials, and novel therapeutics and food ingredients.

In partnership with EPSRC, BBSRC has established seven 'Networks for Synthetic Biology', based around research groups at the universities of: Bristol, Durham, Edinburgh, University College, London and Birkbeck College, London, Nottingham, Sheffield and Oxford. These facilitate multidisciplinary research and development of new research tools. They also address specific research questions, including: designer proteins to act as bio-specific catalysts in devices with electrical, optical and magnetic functions, for example in harvesting light; and techniques for programming interactions between biological and artificial cells.



Image: Sam Ogden - Science Photo Library

In July 2008 we published a short summary of the science, potential applications and societal issues around synthetic biology: www.bbsrc.ac.uk/publications/corporate/synthetic_biology.pdf



Professor John Pickett CBE FRS of Rothamsted Research shared the prestigious 2008 Wolf Prize for Agriculture for his research that has integrated techniques from molecular biology, electrophysiology, biochemistry and behaviour, leading to 'a paradigm shift in integrated pest management in agriculture'. Professor Pickett delivered the 2008 Royal Society Croonian Prize Lecture - the Society's premier lecture in the biological sciences. The picture shows Mr. Shimon Peres (right), President of the State of Israel, accompanied by Professor Yuli Tamir, Minister of Education, presenting Professor Pickett with the Wolf Foundation Prize at the Knesset, Jerusalem.

■ The chemistry of attention span

Acetylcholine is well known as a signalling molecule in the nervous system, but research has revealed an unexpected role in triggering brain cells to focus attention and so enhance perception, awareness, learning and memory.

Scientists at Newcastle University and University College, London showed that when monkeys were given tasks requiring high levels of attention, acetylcholine enhanced attention and awareness, but blocking acetylcholine receptors reduced attention. This provides insights into brain function and new clues about attentional deficits in conditions such as Alzheimer's disease, and attention deficit disorders. The research was also funded by the Wellcome Trust and the Gatsby Foundation.

BBSRC is leading production of a 'roadmap' for providing the UK with the capability to meet national and global demands for food over the next 20-30 years. A workshop of stakeholders in February 2009 analysed key elements, on which we will consult in summer 2009. These included generic factors such as: integrated scientific, social, economic and political approaches; effective translation from research to practice; and skills gaps – and identified specific opportunities including: raising crop productivity by increased photosynthetic efficiency; enhancing resistance to pests and diseases, and to abiotic stresses; prediction and mitigation of emerging animal diseases; conservation of biodiversity; making more efficient use of water, energy and chemical inputs; maintaining microbiological safety of foods; enhancing nutritional value of foods; and reducing waste in the food chain.

■ We have awarded £1.7M for extensive genetic analysis of the wheat genome by researchers at the Universities of Bristol and Liverpool and the John Innes Centre. The bread wheat genome will be sequenced using new technologies that generate the very large amounts of data needed to analyse this complex genome. The project deploys database, research infrastructure and genetics resources provided under our Bioinformatics and Biological Resources Fund (BBRF).

■ BBSRC-supported researchers contributed to a pan-European study of grain composition in over 150 cereal varieties that provided the first data which will enable breeders to combine high yield with good milling qualities and health benefits. We have announced proposals for a Research and Technology Club for crop improvement in wheat and oilseed rape.

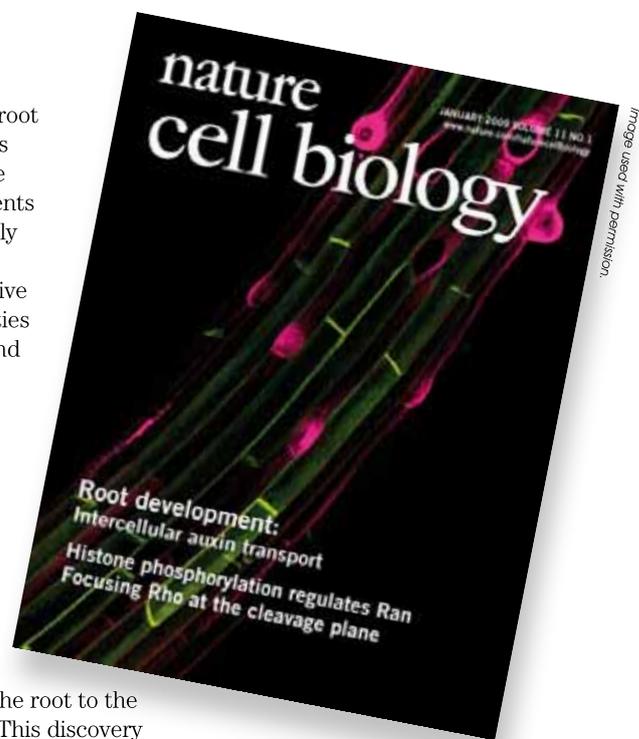
■ Scientists at The Roslin Institute (University of Edinburgh) contribute to an EC-funded pan-European project on Genomics for Sustainable Animal Breeding that has successfully developed and tested improved technologies for marker-assisted breeding. Also, with the University of Glasgow and breeding company Lohmann Tierzucht, they have devised a method for potentially selecting hens for improved egg cuticle, to reduce the risk of infected eggs reaching consumers.

■ Controlling barley germination is critical for the brewing industry. Exploiting their knowledge of genes that regulate germination in *Arabidopsis*, researchers at the University of Nottingham are studying barley plants with mutations in one of the corresponding genes. This work is funded through a BBSRC Industrial Partnership Award with brewer, SAB Miller plc and includes collaboration with the Scottish Crop Research Institute.



In January 2009, we published examples of BBSRC-funded science relevant to improving crop productivity and reducing losses.

Increasing the length of root hairs is one way breeders might be able to produce crops that take up nutrients and water more efficiently - an important goal for sustainability. Collaborative research at the Universities of Bristol, Nottingham and York has revealed that efficient delivery of the plant hormone auxin to developing hair cells increases root hair length. Surprisingly it is mainly the neighbouring hairless cells, and not the hair cells themselves, that are responsible for channeling auxin along the root to the site of root hair growth. This discovery provides a new focus for researchers and breeders. The research was published in *Nature Cell Biology*.



We established the BBSRC Sustainable Bioenergy Centre (BSBEC) in January 2009 with the UK's largest single public investment in 'second generation' bioenergy research that uses non-food crops and woody biomass as its feedstocks.

The Centre comprises 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. A further seven universities and institutes are involved. Fifteen industrial partners contribute around £7M of the total investment of £27M, to help ensure rapid translation of research into practical solutions.

The Centre draws together world-leading expertise in plant and microbial science to develop new understanding and technologies for the 'pipeline' of bioenergy production:

- improving perennial biomass crops by making them grow more efficiently and making their cell walls more easily digestible
- discovering new enzymes for sugar release from the cell walls
- developing yeast strains to ferment sugars more effectively
- bacterial fermentation of sugars to butanol

Analysis of the economic and environmental life cycle of potential sources of bioenergy ensures that the research addresses societal issues as well as scientific and technological challenges. During 2009, we will appoint a senior figure to take forward and oversee BSBEC.

■ Marine wood-boring animals contain enzymes in their guts that digest the otherwise resilient lignocellulose polymers of woody materials. Researchers at the Universities of York and Portsmouth are exploring with Syngenta how these enzymes might be used industrially to breakdown the polymers into sugars for fermentation into liquid biofuels.



Marine wood borers ('gribbles') are adapted to feed on the complex polymers which must be broken down if woody materials are to be used to make biofuels.



A BSBEC programme leader, Dr Angela Karp of Rothamsted Research won the 2008 Alfred Toepfer prize for Agriculture, Forestry and Nature Conservation in recognition of her contribution to the genetic improvement of willow for bioenergy.

■ Researchers at the University of Cambridge will develop high-throughput technologies for high resolution screening of individual polysaccharide structures (complex sugars) in plants; and for determining the specific actions of enzymes that break them down. Using a systems approach, and based on their expertise in polysaccharide biosynthesis, this will enable the selection and production of crops with polysaccharide structures that can be matched to the most appropriate enzymes for effective biofuel production.

■ Over £20M for new tools and resources

Equipment

Cutting-edge research tools, technologies and resources drive bioscience forward. Improved data sharing and collaboration helps maintain the UK's world lead.

■ We have announced a national centre for plant, animal and microbial genome analysis, bioinformatics and metagenomics (The Genome Analysis Centre) on the Norwich Research Park. The £13.5M Centre - a partnership with the East of England Development Agency (EEDA), Norfolk County Council, South Norfolk Council, Norwich City Council and the Greater Norwich Development Partnership, commences operation in 2009. It will work closely with academic and industry users, generating knowledge for strategically important areas such as food security.

■ We awarded a further £6M under our Bioinformatics and Biological Resources Fund (BBRF) for thirteen projects at a total of seven institutions. Subjects include protein structure prediction, electron microscopy, vertebrate anatomy, macrophages and TSEs.

■ We awarded a further £2.5M under our pump-priming Tools and Resources Development Fund for twenty seven projects at a total of eighteen institutions; and £700k for projects in Beamline 14 for macromolecular crystallography at the European Synchrotron Radiation Facility, and in EPSRC's Nanotechnology Grand Challenge in Healthcare.

■ The ten awards made under the first round of BBRF are now showing return on investment. Examples are:

RevGenUK - an open source database for identifying how defects in individual genes affect plant performance. Based around high throughput sequencing of large populations of 'model' legumes and brassicas, the initial focus is on genes that influence crop growth in adverse conditions, and growth with reduced levels of fertiliser. (John Innes Centre)

Wheat Functional Genomics Resource

- 'free one-stop shop' for authenticated data, protocols and research tools, including marker/phenotype data. (University of Bristol)

BioCatalogue - a Web 2.0-based public curated catalogue of web services relevant to life sciences that prevents wasteful 're-invention' of datasets and tools and optimises their use. (University of Manchester & EMBL - European Bioinformatics Institute)

Professor Carole Goble, BBSRC grantholder, Strategy Advisory Board member and co-leader of BioCatalogue was awarded the first (Microsoft) Jim Gray e-Science Award for her achievements in applying computing technology to scientific insight and innovation.



Professor Carole Goble with (left) Daron Green (Senior Director) and Tony Hey (Corporate Vice President) both of Microsoft External Research.



RevGenUK provides an integrated platform for 'reverse genetics' of model species. It maintains populations of plants each of which bears thousands of mutations that can be 'interrogated' to determine how mutations in specific genes affect the plant.

Tools for synthetic biology: page 13; Diamond Fellowships for synchrotron radiation research: page 19

Skills Training

We have continued to identify and target skills gaps in academic research and industry.

For *in vivo* skills, our Integrative Mammalian Biology programme* is building capacity at Imperial College and King's College, London and through two joint consortia between the Universities of Manchester and Liverpool, and Glasgow and Strathclyde. The centres have secured additional funding from private and public sources, providing new academic posts, a business development manager and several CASE (Collaborative Award in Science and Engineering) awards. Private sponsors include AstraZeneca, GlaxoSmithKline, Pfizer, Abbot and Syngenta.

BBSRC also contributed £300k to the MRC's Masters award scheme to support additional places on programmes providing *in vivo* skills from September 2009.

Our **Modular Training Courses for Industry** provide tailored training for graduates working in, and with, industry. In 2008, new courses commenced in: Advanced Methods of DNA Quantification (Queen Mary College, London); Biomedical Nanotechnology and Nanosafety (co-funded with MRC), and Simulation Methods for Systems Biology (both at the University of Oxford); Introduction to Mathematical Modelling for Life Sciences (University of Nottingham); and Simulation and Analysis of Biochemical Networks (University of Manchester).

Reflecting our increased emphasis on skills development and training we have replaced our former Studentships and Fellowships Panel with a Bioscience Skills and Careers Panel that will identify strategic national needs, and a Training Awards Committee to deliver support.

Through our Bioscience for Industry Panel we have identified and are addressing specific training needs in areas such as agronomy, entomology, *in vivo* physiology, and data analysis.

BBSRC funds and supports the work and activities of Vitae, a national programme supporting the personal, professional and career development of doctoral researchers and research staff.



■ The Biotechnology Young Entrepreneurs Scheme (Biotechnology YES) provides entrepreneurial training and mentoring for early career researchers who produce and present hypothetical business plans for a new company. The 2008 winners, from the University of Reading, beat 82 other teams (over 350 participants in total) with their proposed novel Omega-3 oil from food waste.

Biotechnology YES is run jointly with the University of Nottingham Institute for Enterprise and Innovation and continues to receive significant support from industry, charities and RDAs.

* Launched in 2005, this is a partnership with the Higher Education Funding Council for England, Medical Research Council, Scottish Funding Council, British Pharmacology Society's Integrative Pharmacology Fund (donors: AstraZeneca, GlaxoSmithKline and Pfizer) and the Department for Innovation, Universities and Skills.

Top 25 Universities by postgraduate funding

University	Funding (£M)	Fellowships (as at 31.03.09)
1 Manchester	4.35	4
2 Cambridge	2.90	5
3 Nottingham	2.75	4
4 Imperial College, London	2.74	3
5 Edinburgh	2.67	4
6 Leeds	2.50	1
7 University College, London	2.15	4
8 Sheffield	1.76	1
9 Oxford	1.62	2
10 Birmingham	1.62	3
11 Bristol	1.60	1
12 York	1.58	0
13 Glasgow	1.33	2
14 Liverpool	1.19	2
15 Newcastle	1.17	2
16 Dundee	0.90	1
17 Bath	0.84	0
18 Southampton	0.77	1
19 Cardiff	0.76	2
20 Royal Veterinary College	0.76	0
21 East Anglia	0.72	0
22 Aberdeen	0.72	1
23 Kings College, London	0.67	1
24 Kent	0.66	2
25 Warwick	0.64	0



Adam Elliston is a CASE student (with industrial sponsor Achor Innovation Ltd) and part of the Sustainability in the Food Chain exploitation platform at the Institute of Food Research. He is working on bio-ethanol production from food processing and related waste streams.

We have launched funding for up to five fellowships to support BBSRC-funded PhD students on 3 month secondments to the Parliamentary Office of Science and Technology (POST) to work on an area of science policy.

Training first rate people

	2005-06	2006-07	2007-08
Students qualifying from Masters courses (%)	95	87	98
	2002-06	2003-07	2004-08
Students submitting PhD theses within 4 years (%)	79	80	80

First destination data of PhD students*

	Completing in academic year: 2005-06	2006-07
% of known destination		
Government and public sector	11	6
Higher education	37	44
Industrial and commercial sector	34	34
Further training	8	5
School teaching/other	4	3
Not employed	6	8

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

Studentships

Directly funded	177
DTG* funded	1,506
Targeted Priority	68
Ind CASE & Ind CASE Partner**	191
Masters	110
Total	2,052

*Doctoral Training Grant

**Industrial CASE and Industrial CASE Partnership scheme



Diamond Light Source and other facilities of the Science and Technology Facilities Council, such as ISIS and the Central Laser Facility, will be used by scientists at the Research Complex Harwell for cutting edge life science research.

Our portfolio of postgraduate studentships supports our strategic priorities. In addition to Quota Doctoral Training Grant awards to our major departments, we brought forward funding for an additional twenty 4-year targeted students in response to the economic downturn. We awarded just over seventy targeted PhD studentships for start in October 2009 in: ageing, bioenergy, bioprocessing, environmental change and systems biology. This includes studentships supported by the BRIC and DRINC Research and Technology Clubs and ten studentships to our Systems Biology Centres.

For the first time in 2008 we allowed academic partners as well as companies to lead on proposals for Industrial CASE studentships. We awarded seventy 4-year studentships for take up from October 2009, almost double the number of the previous year. We continue to make studentships available to our main industrial partners through the Industrial CASE Partnership scheme, with seventy-five 4-year collaborative studentships being allocated by industry to academic groups to start in October 2009.

Where possible we align our support with that of other Research Councils. From September 2009 we will fund two 4-year studentships per year at the EPSRC Doctoral Training Centres in Neuroinformatics (Edinburgh); Cell and Proteomics Technologies (Glasgow); Chemical Biology (Imperial College, London); and Mathematics and Physics in the Life Sciences and Experimental Biology (University College, London).

Of the one hundred undergraduate vacation bursaries we made for 2008, twenty were in mathematical biology, a high priority across many areas in the biosciences.

We have announced new 5-year Diamond Professorial Research Fellowships that will enable outstanding researchers to set up small teams and work at the Diamond Research Complex at Harwell on applying new synchrotron radiation techniques to solve biological research problems.

Fellowships portfolio 2008

David Phillips	12*
Institute Career Path	2
Research Development	1
Institute Development	1
Enterprise	4
Professorial	1

*4 of these offered Fellowships were not taken up

We invited proposals for BBSRC Institute Career Path Fellowships in the area of animal biology, particularly encouraging integrative biology and/or systems approaches. We awarded two Fellowships, both to researchers at The Roslin Institute, University of Edinburgh.

In July 2008, BBSRC co-sponsored a training 'summer school' on data standards, management and storage for twenty-six postdoctoral researchers in the ERA SysBio partnership of countries. As well as experimentalists, participants included bioinformaticians, software modellers and physicists.

Knowledge economy

Jobs

We have aligned our strategies and programmes more closely with those of the Technology Strategy Board (TSB) with whom we now co-fund a post to facilitate coordination.

■ With EPSRC and TSB we established the Regenerative Technologies and Devices Innovation and Knowledge Centre at the University of Leeds, with total funding of £10M over five years. The Centre will provide a sustainable regional and international platform to accelerate innovation, for example in longer-lasting hip replacements and cardiovascular disease treatments. This should shorten the time to clinical trials and market, and mitigate technology risks. The Centre builds on a £6M investment by TSB, BBSRC, EPSRC and MRC on nine projects in cell therapy, announced earlier in 2008.

With the TSB, we are supporting proposals for two Innovation Platforms: in Sustainable Agriculture (with Defra); and in Detection of Infectious Diseases (with Defra and the Department of Health).

We funded Knowledge Transfer Partnerships in several areas, including: bioprocessing, diet and health, and marker-assisted breeding. These complement Knowledge Transfer Networks (funded by TSB) that contribute to the management of our Research and Technology Clubs, helping to ensure efficient translation to commercial applications.

■ The John Innes Centre, Institute of Food Research and Rothamsted Research are part of the Innovation in Crops partnership, based at the University of East Anglia, that has attracted £2M from EEDA and the European Union to develop an enterprise hub to boost eco-businesses and create jobs.

The focus is on maximising the use of crops for fibre, high value chemicals, proteins and starches and using renewables for low carbon products.

■ We have updated BBSRC's Technology Strategy around new priorities. These are:

Crops & crop production/Farm animal genetics & genomics; Intelligent storage, retrieval & analysis of large data sets; Instrumentation/Measurement and Bioimaging; Ageing; Design of Biopharmaceuticals; and Bioprocessing.

Four BBSRC-supported bids to the 2008 round of the Public Sector Research Exploitation Fund secured over £7M, almost a quarter of the total awarded. The Fund supports capacity building for knowledge transfer. The awards included: £3M to the Genomia Fund; £1.2M to Genecom Ltd; £1.5M to the Rainbow Seed Fund to support Entrepreneurs in Residence; and £1.6M to PBL to which BBSRC will contribute a further £0.5M, for strengthening links with Babraham Bioscience Technologies Ltd. BBSRC was also awarded £1.5M for commercialisation of research in its institutes; and Roslin Institute Stem Cell Commercialisation Unit was awarded over £0.5M.



New companies: pages 23, 24; Research and Technology Clubs: page 21

■ Collaborative projects with TSB

■ Over £8M attracted for exploiting research outcomes

Research and Technology Clubs

We are seizing the opportunities afforded by UK industry's increased appetite for 'open innovation' and for external investment in research. In our three Research and Technology Clubs, BBSRC and member companies jointly identify and fund high quality research that addresses generic problems faced by the sector. We are discussing options for additional Clubs - in Crop Improvement, and Healthy Ageing – with potential industrial partners.

Bioprocessing Research Industry Club

■ We made nine awards, totalling £4.7M, in the third and final round of funding for the £14M **Bioprocessing Research Industry Club** (BRIC) which was launched in 2005.

The Club already supports innovative research in areas such as production of intractable recombinant proteins in the manufacture of complex biopharmaceuticals; and bioreactor design and operation, and quality assessment of stem cells.

Of grantholders funded in the first two rounds, 93% reported that new products, processes, resources, tools or technologies had arisen, or were likely to arise from their grant: this is almost double the figure for grants funded through BBSRC's Research Committees. Over 90% reported that they had applied, or were likely to apply to secure IP as a result of their grant, and 14% envisaged start-up companies; in both cases these numbers are around five times the Committee comparisons.

Antisoma, Avacta plc, Avecia Biologics, Centre of Excellence for Life Sciences, Cobra Biomanufacturing, Eden Biopharm, Glycoform, GlaxoSmithKline, HPA, Ipsen Limited, Lonza Biologics plc, Med Cell Bioscience Ltd, MedImmune, NIBSC, Novozymes Delta Ltd, Pall Life Sciences, Stem Cell Sciences UK Ltd, UCB Celltech

Diet and Health Research Industry Club

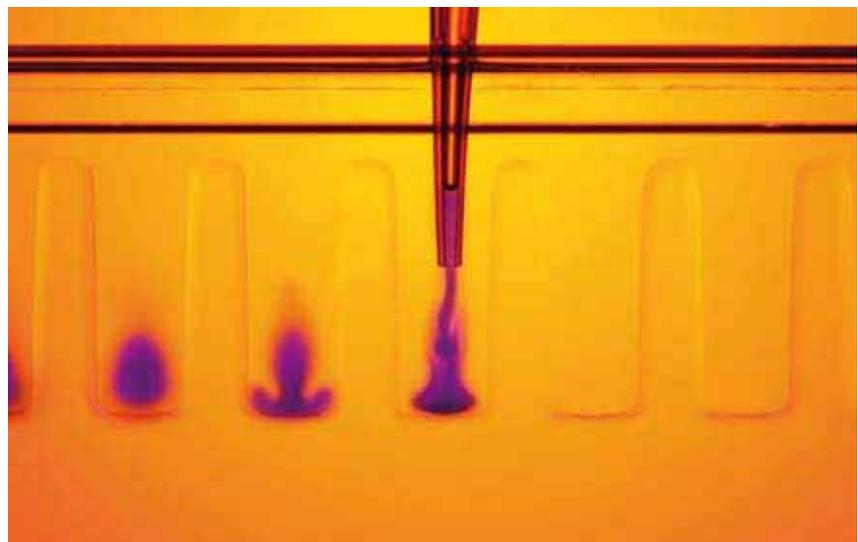
■ We made the first nine awards, totalling £4M, through the **Diet and Health Research Industry Club**. These include support for: novel structures to deliver bioavailable iron in micro capsules that respond to changes in the digestive tract (IFR and University of East Anglia); formulations that slow digestion and nutrient release to provide a prolonged sense of fullness (University of Birmingham); and the impact of processing on flavanol content, absorption and metabolism and how they benefit human health (University of Reading).

Britvic Soft Drinks Ltd, Campden & Chorleywood Food Research Association, Cadbury Schweppes, Coca-Cola, Danisco, Danone, GlaxoSmithKline, Leatherhead Food International, Marks & Spencer plc, National Association of British and Irish Millers, Nestlé, PepsiCo UK and Ireland, The Sugar Bureau, Unilever, United Biscuits

Integrated Biorefinery Technologies Initiative Research and Technology Club

■ In August 2008, we launched the **Integrated Biorefinery Technologies Initiative Research and Technology Club** with the Bioscience for Business Knowledge Transfer Network. The aim of the £5M 5-year programme is to reduce dependence on fossil fuels, through optimising feedstock composition; integrative bio-processing; and enhancing product value. From fifty outline proposals, seventeen have been invited to submit full applications.

Biocaidol, BP, British Sugar, Croda, Genencor, Green biologics, HGCA, KWS, Syngenta, TMO renewables



Wealth creation

As part of our programme to embed entrepreneurial awareness and skills in research groups, we have increased support, opportunities and recognition for researchers who translate their science into commercial and other outcomes. We are also enabling experienced and highly-skilled individuals in the business sector to work alongside academic teams. This both brings industrial perspectives into academic research and secures key expertise in the UK during the economic downturn.

In December 2008 we announced a £2M investment in **Industrial Impact Fellowships** to support professionals from the private sector to work alongside and share their market awareness, business skills and entrepreneurial experience with researchers funded by BBSRC grants. This complements our ongoing **Industry Interchange Programme** that enables researchers to move between industrial and academic partners to establish the foundations for long-term collaboration. An example of a new award this year is collaboration between Professor Rob Beynon's group at the University of Liverpool and Waters Corporation to converge new analytical methodologies at the University with the company's new instrumentation to improve rapid profiling of proteomes and biomarker analysis in plasma.

Also in 2008 we launched our **'Innovator of the Year'** and **'Excellence with Impact'** schemes to celebrate and reward individuals and departments, respectively, who translate research outputs into tangible economic and social benefits.



Professor Stephen Jackson of the University of Cambridge (centre) won the inaugural BBSRC Innovator of the Year award for translating his research on DNA damage and repair into anti-cancer medicines through spin-out KuDOS Pharmaceuticals Ltd which was acquired by AstraZeneca for \$210M. Pictured with him at the award ceremony are: (from left to right) economics commentator and broadcaster Alvin Hall who made the presentations; runners-up Dr Luke Alphey of Oxitec Ltd and Professor Jeff Errington of Newcastle University; and BBSRC Chief Executive Professor Douglas Kell. The first of the two-year Excellence with Impact Awards will be made in 2011.



■ BBSRC Enterprise Fellow, Dr Andrew Almond, and colleagues in the University of Manchester spin-out company Conformetrix won the 2008 Biomedical Start Up of the Year Award from the North West Development Agency. Conformetrix has received support from BBSRC's Follow-on Fund.

The platform technology of this early-stage drug discovery company was developed from Dr Almond's research. He is a former BBSRC David Phillips Research Fellow and was a Finalist in the 2009 Innovator of the Year competition.

BBSRC Enterprise Fellowships provide a year's salary and expert business training and mentoring to help researchers focus on commercialising their research outputs. We awarded four new Fellowships in October 2008, bringing the total to 14. Fellowships are delivered by The Royal Society of Edinburgh.

■ £Ms investment attracted

Since 2004, our **Follow-on Fund** has enabled over sixty scientists to demonstrate 'proof of principle' and attract financial backing. Twenty proposals have been commercialised from the first twenty-four awards. This includes nine new spin-out companies, private sector investments, licensing deals and academic-business collaborations. The spin-outs are:

- **ABsynth Biologics**
- **A2sp Ltd**
- **Conformetrix**
- **CEPOS Insilico Ltd**
- **DegraSense Ltd**
- **Equinox Pharma**
- **IntelliHep**
- **Procarta Biosystems Ltd**
- **Tissue Regenix Ltd**

We have announced plans to increase funding for this scheme to £3M a year by 2010-11.

With awards typically between £50k-100k, the Fund provides support from which researchers can attract larger sums for development. Examples include:

- Funding in support of validated computer modelling for drug discovery and development helped researchers led by Professors Michael Sternberg and Stephen Muggleton to raise £500k of seed funding (Imperial College, London).
- An award to Drs Steffi Krause and Michael Watkinson for using tailored hydrogel coatings as sensor materials for monitoring periodontal disease enabled them to work with dental partners and win £738k from the Technology Strategy Board to develop a prototype with researchers at the University of Sheffield and dental and sensor technology companies. They formed DegraSense Ltd with funding from IP2IPO and Combined London Colleges University Challenge Limited Partnership, which together provided a further £60k (Queen Mary University of London).

- Tissue Regenix Ltd, a company showcased at the 'Building the Britain of the Future' Expo in January 2009, is based on a platform technology (dCELL™) in cell-free biological scaffolds for transplantation therapies derived from research funded by BBSRC and EPSRC at the University of Leeds over many years. Formed in 2006 after Follow-on funding in 2004, it has since attracted investment totalling over £3M. The company's dCELL™ Vascular Patch product is about to enter the clinic and the grafts are in pre-clinical stages; a heart valve has 4 year published clinical data.

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- Based on feedback from the research community, we have launched 'Pathfinder' small awards (£7-10k) to enable researchers to prepare for applying for Follow-on Fund support.
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Secretary of State for Innovation, Universities and Skills, John Denham MP (left) with Tissue Regenix Ltd Chief Executive Antony Odell at the 'Building the Britain of the Future' Expo. Professors Eileen Ingham and John Fisher were finalists in the 2009 Innovator of the Year competition for their development of the underlying technology.



New companies

Attracting investment in the early years of a new company is particularly important. The following examples show how new companies derived from the outputs of BBSRC-funded research are meeting this challenge.

Procarta Biosystems Ltd has been awarded £320k to advance its DNA decoy technology as a tool for combating 'superbugs' such as MRSA which have become resistant to antibiotics. The company, which is based in the Norwich Biocubator, was spun out from the John Innes Centre in 2008 (Professor Mervyn Bibb and Dr Michael McArthur, a former Enterprise Fellow). The new funding, from the Rainbow Seed Fund and the Icení Seedcorn Fund, will enable the company to generate pre-clinical data to validate its technology and develop a product pipeline.

BBSRC-funded neural stem cell research at Durham University contributed to the spinning out of **Reinnervate** in 2002 by Dr Stefan Przyborski. In July 2008, the company secured equity investment of £970k from North Star Equity Partners and angel investors. The company is currently raising funds to establish independent premises and has planned product launch in 2010.

Asterion Ltd derives in part from insights into structural biology and biochemical research funded by BBSRC (Professors Richard Ross, Jon Sayers and Peter Artymiuk). The company has been awarded over £250k from the University of Sheffield's commercialisation company to take forward its programme on developing therapeutic proteins to treat a range of chronic and debilitating diseases.

Bioniqs Ltd has been awarded funding from the Technology Strategy Board to investigate new research applications in waste recycling alternatives to landfill. Its technology is based around designer industrial solvents – for example, the capability to make ionic liquids with properties that mimic those of water. The new investment reflects growing interest in 'green solvents' that are non-toxic, recyclable and biodegradable.

This technology and the company's development can be traced back to BBSRC-funded research in 2000-2006 (to BBSRC PhD student Adam Walker, and Professor Neil Bruce at the Institute of Biotechnology at the University of Cambridge) and through the ProBio Faraday Partnership funded by the then DTI and EPSRC.



Image: Bioniqs Ltd

With support from Medicines for Malaria Venture, Bioniqs Ltd is using its solvent technology to extract an essential ingredient in anti-malaria treatments from the plant *Artemisia annua*. (Inset) molecular simulation of an ionic liquid.

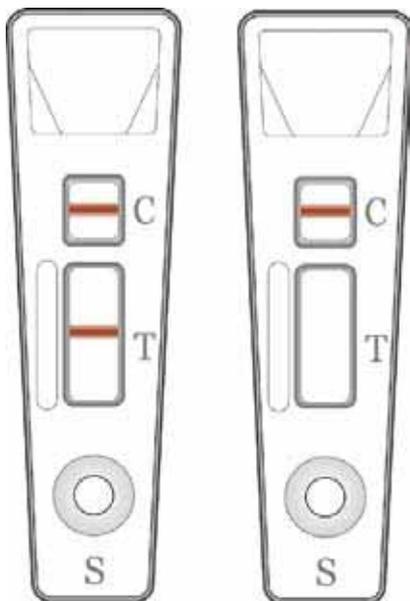
Spin-outs: pages 22, 23; Reinnervate: page 25; Enterprise Fellowships: page 22; Technology Strategy Board: page 20

Processes

Products

New on-farm test for Foot-and-Mouth

Scientists at the Institute for Animal Health Pirbright Laboratory, Svanova Biotech AB (Sweden) and Istituto Zooprofilattico Sperimentale Brescia (Italy) collaborated on developing a rapid pen-side detection test for Foot-and-Mouth Disease (FMD). It enables on-farm diagnosis within ten minutes. The test kit went on sale in April 2008.



The hand-held lateral flow detector for FMD illustrating a positive reaction (left) and negative (right). This immunological test works rather like a home pregnancy testing kit. Sample is spotted at one end of the device and flows up it. If FMD virus is present a line appears in the viewing window.

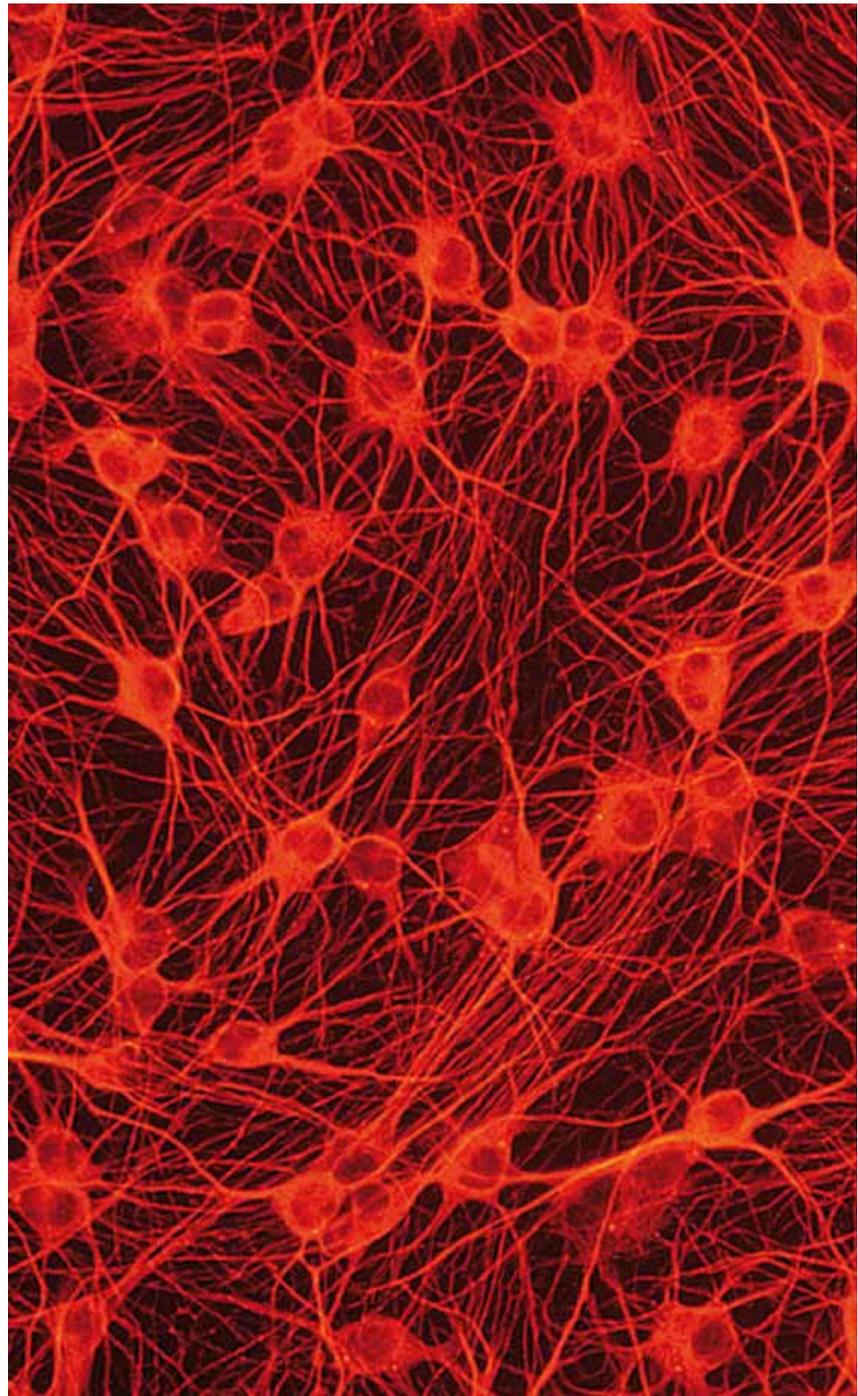
Improved culture systems for stem cells

Scientists at Durham University have designed novel synthetic molecules that very effectively trigger stem cells to specialise into different cell types, for example into nerve cells that can be used to investigate neurological disease and test drugs. In conjunction with nerve cells derived from human

stem cells this approach could be used to help reduce the number of animals needed in such research.

The research is led by BBSRC Enterprise Fellow, Dr Stefan Przyborski who also receives funding from BBSRC on the control of stem cell specialisation and growth using novel

substrates. Dr Przyborski is Company Director and scientific founder of spin-out company Reinnervate, which has also developed a novel apparatus to enable three-dimensional cell culture. This involves culturing cells in a unique polystyrene scaffold which provides a 3-D environment for cells to grow and function in a more realistic manner.



Fluorescence showing the presence of nerve cell proteins in rat progenitor cells that are being specialised into nerve cells by treatment with a small activator molecule.

Image: Dr Victoria Christie

International development

In 2008, we announced funding for high-quality research on infectious diseases of major livestock in Sub-Saharan Africa and South Asia. This programme, of up to £9.5M, is supported with DFID and the Scottish Government. This builds on the £7M joint BBSRC-DFID programme, 'Sustainable Agriculture Research for International Development' (SARID) to improve crop productivity and food security, which was announced in February 2008. (BBSRC Annual Report 2007-08).

Over the past 25 years the Institute for Animal Health (IAH) has been working with international bodies, including the Office International des Epizooties (OIE) and the Food and Agriculture Organization of the United Nations (FAO), to eradicate rinderpest (cattle plague). The target date for global eradication is 2010 and current evidence indicates that eradication has been achieved. Vaccination played a major part and was facilitated by extensive sero-monitoring of cattle using an ELISA test developed at IAH Pirbright. IAH scientists also developed new PCR-based diagnostics, and a pen-side test to detect infected animals which produces results within 5 minutes and which was widely used in the final stages of the eradication campaign. IAH was also involved in the development of vaccines that perform better in hot climates. IAH is the World Reference FAO Laboratory for Morbilliviruses and an EU Regional Reference for Morbilliviruses. The institute played a major part in training programmes associated with the rinderpest eradication campaign and continues to train overseas scientists in other exotic virus diseases.

Elimination of rinderpest is estimated to produce a net economic benefit to the African region alone of \$1Bn a year.

Scientists at the University of Sheffield lead a SARID project to develop crops resistant to the parasitic weed *Striga* (witchweed) that infests around 40% of cereal-producing areas in sub-Saharan Africa. They have already identified some varieties of rice that are resistant, and are now 'homing-in' on the genes responsible so that breeders can increase resistance to this parasite.

The Sheffield team is also funded by BBSRC to understand how *Striga* is suppressed by the tropical perennial legume *Desmodium uncinatum*, in collaboration with Rothamsted Research.



Striga hermonthica parasites attached to roots of a susceptible rice plant (left). The variety on the right is resistant and the majority of parasites die shortly after attaching.

Embrapa, the £400M agribusiness research arm of the Brazilian government, will establish a UK base at Rothamsted Research (RRes), as part of its international Labex programme. This will promote interactions between Brazilian and UK scientists and links with Labex partners in France, The Netherlands, the USA and African countries. The main focus at RRes will be on molecular interactions of plants with pathogens and insects.

TB infects millions of people each year, mainly in developing countries. Researchers at Aberystwyth University in the 1990s discovered a resuscitation factor for dormant TB bacteria, with potential use for making them vulnerable to antibiotics or as a vaccine target. The intellectual property was patented. In 2008 the Aeras Global TB Vaccination Foundation, which receives funding from the Bill and Melinda Gates Foundation, the US Centers for Disease Control and Prevention, and the Dutch, Danish and Norwegian governments, signed an exclusive licence with the University's technology operating company to exploit the patent for developing improved vaccines for protecting humans and other animals against TB.

Inward investment

Our international collaborations and relationships add value to the UK research base. For example, UK bioscientists are major recipients of funding from EC-supported pan-European programmes.

We are strengthening new international partnerships in systems biology:

- We are supporting a second round of ERA-NET funding for research that consolidates the systems approach and stimulates widespread adoption in biotechnology, biomedicine and agri-food.

- We are leading on development of a Data Management Strategy for SysMO - a transnational initiative for funding systems biology in micro-organisms, which involves 11 consortia across Europe comprising a total of 89 research groups. The strategy was launched in July 2008 to meet needs in areas such as: maximising 'shelf life' and utility of data; providing an integrated platform for disseminating results; and standardisation of processes to interface modelling and experimentation.

- In 2008, BBSRC and the Japan Science and Technology Agency (JST) agreed to align their respective schemes for partnering and exchange of researchers, with a focus on building links between the systems biology research bases in both countries. The agreement resulted from a successful joint BBSRC-JST workshop on systems biology in Tokyo earlier in the year.

A BBSRC Japan Partnering Award between the EMBL – European Bioinformatics Institute and the Computational Biology Research Centre of Japan's national Institute of Advanced Industrial Science and Technology, is focused on developing interfacing standards and ontologies in systems biology.



Fumiaki Takahashi (JST Executive Director) and Steve Visscher (Interim Chief Executive of BBSRC) sign a memorandum of understanding to cooperate on systems biology research, in September 2008.



Professor Caroline Dean OBE FRS has been elected a Foreign Associate of the National Academy of Sciences, one of the USA's highest scientific honours (only eighteen foreign associates are elected worldwide each year). This recognises Professor Dean's world-leading research on the genetic regulation of plant flowering.

- A 4-year pan-European FP7 Integrated project (ICON) to use GM technology to develop high value sustainable plant oils to replace fossil oils in lubricants and the chemical industry has been announced, involving twenty-three partners in eleven countries. At Rothamsted Research, scientists are exploring opportunities to generate novel chemical feedstocks for the production of plant wax esters as bio-lubricants.

Examples of international collaboration: pages 10, 11, 12, 14, 16, 19, 25, 26

Communication

We have redeveloped our communications strategy, jointly with the BBSRC institutes, in order to increase impact and to add value, for example through collaborative media relations, shared resources, improved branding and integrated delivery of institute, BBSRC Office, RCUK and Government strategies in Science in Society.



Our new visual identity takes forward the colours and style of its predecessor, with a strapline that emphasises our purpose.

We have developed effective working partnerships with university media and communications teams and this has helped to increase reach and coverage for our science. In particular, working with the Science Media Centre, the launch of the BBSRC Sustainable Bioenergy Centre achieved worldwide coverage through over one hundred outlets.

We have developed and strengthened our on-line communications, complementing our RSS news feed with a new BBSRC YouTube channel, Chief Executive blog and Twitter sites: Blog: blogs.bbsrc.ac.uk/ Twitter – BBSRC: twitter.com/bbsrc Twitter – Doug Kell: twitter.com/dbkell

We have continued our programme of media training for researchers including specialist courses for those working in Synthetic Biology, and in Bioenergy; and we have continued to provide media relations support to the UK National Stem Cell Network.

Making our science accessible			
	2006-07	2007-08	2008-09
Media releases	64	47	67
Corporate publications*	11	7	9
Exhibitions	13**	8	16***
Grants for National Science Week (awarded through RCUK)	7	9	15
Public Engagement Awards	7	6	10
Local Schools Coordinators	22	20	22
Science Communication courses	8+	8+	13

*Excludes publications with Research Council partners
 ** Includes nine with other Research Councils
 *** Includes eight Darwin Today presentations and related public events
 + Includes 2 with other Research Councils and two university-led courses



www.youtube.com/user/bbsrcmedia



twitter.com/bbsrc



blogs.bbsrc.ac.uk

Societal issues

We have focused on five topics: genetic modification of plants, and the use of animals in research, both of which are of longstanding public interest and engagement; stem cell research which is moving towards clinical applications; and synthetic biology and second-generation biofuels around which there is yet to be significant public engagement. In each case we have sought to work with other funders and partners, and to develop our capability to respond to aspirations, concerns and insights from the wider public.

Animals in research

In many areas of biomedical research there is no satisfactory alternative to the use of animals. Observing the highest possible standards is critical for good animal welfare, top quality science and for maintaining public confidence.

BBSRC remains committed to replacing, refining and reducing the use of animals in research (the 3Rs). We have announced plans to increase support for the National Centre for the 3Rs (NC3Rs) to over £3M for 2008-09 to 2010-11 (compared with £553k for 2007-08). In September 2008 we announced a joint call with NC3Rs for research projects that use invertebrates to replace animals protected under the Animal (Scientific Procedures) Act 1986. With NC3Rs we supported a workshop on tissue engineering to promote alternatives.

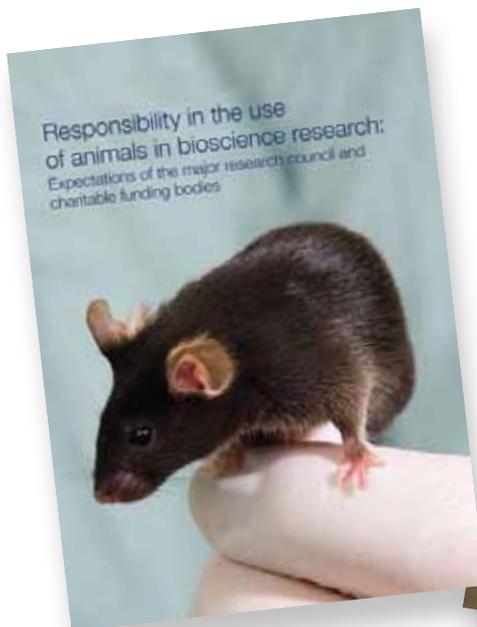
BBSRC, other research funders and the NC3Rs have published a joint set of principles and guidelines, compliance with which is now required on all new grants involving the use of animals. This requires, for example, that when collaborating with laboratories outside the UK, researchers and their local ethics committees must check that

welfare standards are consistent with the principles in UK legislation and the new guidelines.

GM plants

BBSRC's Bioscience for Society Strategy (BSS) Panel led a review and updating of BBSRC's position on Genetically Modified Plants www.bbsrc.ac.uk/organisation/policies/position/public_interest/genetic_modification.pdf. BBSRC contributed £500 towards publication costs of Sense about Science's 'Making Sense of GM' which was published in February 2009.

■ The BSS Panel advised BBSRC on its evidence to the House of Lords inquiry into Nanotechnology and Food.



Responsibility in the use of animals in bioscience research (with MRC, NERC, Wellcome Trust, Defra and the NC3Rs)



Sharing and archiving of genetically altered mice (with CRUK, MRC, NC3Rs and the RSPCA)



Public engagement

BBSRC and MRC commissioned a study on public attitudes to stem cell science. Undertaken by BRMB Ltd and funded by the Government-funded Sciencewise programme, the study was the largest of its kind undertaken in the UK. The findings were published in December 2008 at an event addressed by the Science Minister, Lord Drayson, and the Chief Executives of BBSRC and MRC.

The study found conditional support for funding all avenues of stem cell research. A focus on basic and translational research should be priorities. Support was related to the sources of stem cells, the purposes of research and the clinical risks in treatments. There were ethical and social concerns related to both tissue-specific stem cells and embryonic stem cells.

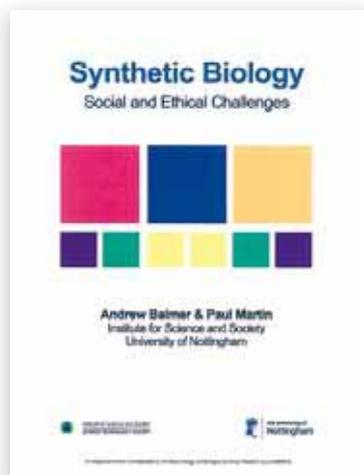
The conclusions and recommendations from the study are being addressed where appropriate, by the BSS Panel and by BBSRC's Healthy Organism Strategy Panel and Research Committees. BBSRC and MRC have also jointly supported a project by the PEALS Research Centre at Newcastle University that uses informal discussion workshops and creative writing to explore stem cell research with diverse members of society, including disadvantaged groups.



Synthetic Biology

Synthetic Biology links bioscience, engineering and computer sciences to develop rationally designed biological parts, devices and systems. Led by the BSS Panel, BBSRC commissioned researchers at the Institute for Science and Society at the University of Nottingham to review associated ethical and other social issues. Their findings were published in May 2008.

In partnership with the EPSRC, BBSRC brought together researchers, research funders, members of Government advisory committees and regulators in September 2008 to explore how the UK regulatory system would handle possible future research developments and applications.



A BBSRC-commissioned review by Andrew Balmer and Paul Martin of the University of Nottingham has helped to shape scientist-public engagement around synthetic biology.

Synthetic Biology is an example of an area in which BBSRC's BSS Panel works closely with its counterpart in EPSRC. A joint Steering Group has been established under the chairmanship of Dr Brian Johnson of BSS to scope an effective public engagement strategy. Developments will be reported at the 2009 Communicators meeting of the British Science Association.

■ Following the launch of the BBSRC Sustainable Bioenergy Centre, the BSS Panel is advising on key societal issues and approaches for communication and effective public dialogue around the science and its applications.

Schools

We have announced plans to fund increased public engagement at the BBSRC institutes from April 2009, especially in the area of engaging young people with the practice and impacts of scientific research.

In March 2009, the Babraham Institute celebrated its 15th annual Schools' Science Day, opening its laboratories to 140 GCSE and A-level students from 18 schools across Cambridgeshire. Pupils worked alongside researchers and used state-of-the-art research equipment. A group of school students from Finland joined the Cambridgeshire pupils for the Day which included a workshop on ethical aspects of biomedical research.



BBSRC is sponsoring the team of four sixthformers who will be representing Britain at the 2009 International Biology Olympiad in Japan in July 2009. We also provided funding to support a pilot national schools competition for Year 9 and 10 pupils, Biology Challenge. This involved 4000 pupils from 50 schools.

In addition to our own scientist-school activities, BBSRC supports a number of activities through RCUK. These include: Researchers in Residence; BA CREST awards; and Nuffield Bursaries. We also support CPD training for teachers, also through RCUK.

■ Darwin Today is a touring interactive exhibition that celebrates the 200th anniversary of Darwin's birth by showing how his ideas continue to influence research across the sciences, social sciences and humanities.

Darwin Today was conceived, coordinated and led by BBSRC on behalf of Research Councils UK. It is scheduled to visit over twenty venues during 2009, from Belfast to the Isles of Scilly, and Dundee to Gosport.



The Chief Executives of all seven Research Councils mark the launch of the UK-wide tour of Darwin Today.



Young visitors get to grips with one of the interactive elements of Darwin Today at the 'Big Bang UK Young Scientists and Engineers' fair in London in March 2009.

Year in images



A display on BBSRC-funded research into how plant and animal diseases spread and the value of predictive models in helping to control diseases such as sudden oak death, bluetongue and cassava mosaic virus disease, was selected by the Royal Society for presentation at its 2008 Summer Exhibition. The research is conducted by scientists at the University of Cambridge, the Institute for Animal Health (IAH) and Rothamsted Research (RRes). Pictured from left to right: Professor Chris Gilligan (Cambridge), Dr Simon Gubbins (IAH), Femke Van den Berg and Frank Van den Bosch (both of RRes).



Flyer advertising a BBSRC media training course, on this occasion at the University of York.



Alun Evans, Director of Strategy and Communications at the Department for Innovation, Universities and Skills, speaking at the launch of the BBSRC Sustainable Bioenergy Centre, see page 15.

Sustainable Bioenergy Centre: page 15



Entrepreneur, James Caan talking with Prime Minister Gordon Brown at the launch of 'Science So-What?' in which BBSRC was, through Research Councils UK, a campaign partner.



Image: UK Resource Centre for Women in SET

Former BBSRC Professorial Fellow, and BBSRC grantholder, Professor (now Dame) Linda Partridge was named as one of six Woman of Outstanding Achievement by the UK Resource Centre for Women in Science, Engineering and Technology in 2009 for her discovery, innovation and entrepreneurship. Professor Partridge is a leading evolutionary biologist who specialises in ageing research.



Babraham Institute's celebrations for its sixtieth anniversary in 2008 included an anniversary conference on epigenetics and cell signalling, which was attended by a hundred and seventy participants. Institute Director Professor Michael Wakelam (left) with guest lecturer at the conference, Sir John Chisholm.



Professor Lin Field of Rothamsted Research has been elected President of the Royal Entomological Society. Professor Field also authored the most cited paper in *Insect Molecular Biology* (Zhou, J.-J., He, X.L., Pickett, J.A. and Field, L.M. (2008) Identification of odorant binding proteins of the yellow fever mosquito *Aedes aegypti*: Genome annotation and comparative analyses. *Ins. Mol. Biol.* 17, 147-163). Her research focuses on genomic and molecular biological approaches to understanding pests' resistance to insecticides, and their response to chemical cues in the environment.



The Cambridge Science Festival was one of the venues where scientists engaged directly with the public on contemporary research and its impact.

Corporate information

Council

Council determines BBSRC policies and strategies. It comprises the Chair, the Chief Executive 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 Innovation, Universities 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 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 70 contains details of related party transactions. Registers of interest for Council, Boards and Committees can be found at www.bbsrc.ac.uk.

Council (as at April 09)

Dr Peter Ringrose
Chair

Professor 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

Professor Peter Grindrod CBE
University of Reading

Professor A Jackie Hunter
GlaxoSmithKline

Professor Douglas Kell
BBSRC Chief Executive

Dr David Lawrence
Syngenta

Professor Quintin McKellar FRSE
The Royal Veterinary College

Professor Chris Pollock CBE
Independent

Dr Andy Richards
Independent

Dr John Stageman
AstraZeneca

Professor Robert Watson
Department for Environment, Food and Rural Affairs

Professor Malcolm Weir
Heptares Therapeutics Ltd

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

Council members who also served in 2008-09 were:

Dr David Brightman, Independent; Professor Chris Gilligan, University of Cambridge; Professor Dame Nancy Rothwell FRS, University of Manchester; Mrs Sarah Haywood, Department for Innovation, Universities and Skills.

Boards, Panels and Committees

(as at 31 March 2009)

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BBSRC Council Member

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GlaxoSmithKline
Chair, BBSRC Bioscience for Industry
Strategy Panel

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BBSRC Council Member

Professor Alison Smith OBE
John Innes Centre
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Sciences Committee

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University of Liverpool

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University of Edinburgh

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The Royal Veterinary College
BBSRC Council Member

Professor Anne Dell FRS
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BBSRC Council Member

Dr Andy Richards
BBSRC Council Member

Mr Mike Samuel
Independent

Dr Alistair Penman FIFST
Independent

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Mr Steve Visscher (Deputy Chair)
BBSRC Deputy Chief Executive

Dr Frances Green
Independent

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BBSRC Council Member

Professor Keith Gull CBE FRS
Chair of BBSRC Governing Body

Mr Mike Phipps
Independent

Dr John Stageman
BBSRC Council Member

Professor Michael Wakelam
BBSRC Institute Director

Professor Ian Crute
BBSRC Institute Director

Remuneration Board

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Chair of BBSRC Council

Professor John Coggins OBE FRSE
BBSRC Council Member

Professor Peter Fryer FREng
BBSRC Council Member

Professor A Jackie Hunter
BBSRC Council Member

Professor Douglas Kell
BBSRC Chief Executive

Professor Malcolm Weir
BBSRC Council Member

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BBSRC Chief Executive

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Independent

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Chair, Integrative Systems Biology
Strategy Panel

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 Andrew Hopkins
Independent

Professor Carole Goble
Independent

Professor Chris Lamb FRS
Independent

Professor Alan Irwin
Chair, Bioscience for Society
Strategy Panel

Professor Steve Oliver
Independent

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

Dr Malcolm Skingle
Chair, Bioscience for Industry
Strategy Panel

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BBSRC Council Member

Dr Fiona Marston
Independent

Dr John Stageman
BBSRC Council Member

Professor Chris Gilligan
BBSRC Council Member

Bioscience for Industry Strategy Panel

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GlaxoSmithKline plc

Dr Paul Berryman
Leatherhead Food International

Professor Simon Bright
Warwick HRI

Dr Alison Campbell
Kings College, London Business Ltd

Dr Mark Carver
Avecia Biologics

Dr Belinda Clarke
ERBI Ltd

Dr Lloyd Czaplewski
Prolysis Ltd

Sir Ben Gill
Hawkshead Consulting

Dr Harren Jhoti
Astex Therapeutics

Dr Ruth McKernan
Pfizer

Professor Katherine Smart
University of Nottingham

Dr Lewis Smith
Syngenta Crop Protection AG

Stakeholder representatives:

Dr Merlin Goldman
Technology Strategy Board

Dr David Griffiths-Johnson
BERR

Bioscience for Society Strategy Panel

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Copenhagen Business School

Professor Louise Archer
Kings College, London

Ms Wendy Barnaby
Independent

Dr David Boak
Independent

Professor Kenneth Boyd
University of Edinburgh

Professor Derek Burke CBE
Independent

Professor Robert Dingwall
University of Nottingham

Dr Richard Dyer OBE
Biosciences Federation

Sir Roland Jackson
British Science Association

Dr Brian Johnson
Independent

Dr Mairi Levitt
Lancaster University

Dr Tom MacMillan
Food Ethics Council

Professor Vincent Walsh
University College, London

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Professor Louise Archer
Kings College, London

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Liverpool School of Tropical Medicine

Dr Paul Berryman
Leatherhead Food International

Professor David Bogle
University College, London

Professor Malcolm McCrae
University of Warwick

Dr Jonathan Powell
Unilever Corporate Research

Professor Ian Roberts
University of Manchester

Professor Nicola Spence
Central Science Laboratory

Professor Saul Tendler
University of Nottingham

Mr Chris Warkup
Genesis Faraday Partnership

Mrs Jackie Wilbraham
AstraZeneca

Healthy Organism Strategy Panel

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Professor Stephen High
University of Manchester

Professor Jane Hurst
University of Liverpool

Professor Malcolm Jackson
University of Liverpool

Professor Janet Lord
University of Birmingham

Dr Janette Jones
Unilever

Professor Peter McNaughton
University of Cambridge

Professor Peter Morgan
University of Aberdeen

Professor Richard Oreffo
University of Southampton

Dr Jonathan Powell
Unilever Corporate Research

Dr David Tattersall
Pfizer Global R&D

Dr Martin Turner
Babraham Institute

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University College, London

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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
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Dr Stuart Dunbar
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Professor David Rand
University of Warwick

Professor Michael White
University of Liverpool

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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
North Wyke Research

Professor Julie Fitzpatrick
Moredun Research Institute

Professor Karl Ritz
Cranfield University

Professor Steven Rushton
Newcastle University

Professor Nicola Spence
Food and Environment Research
Agency, York

Professor Toni Slabas
Durham University

Professor Chris Tapsell
KWS UK Ltd

Mr Paul Temple
East Yorkshire and National Farmers' Union

Professor Jeremy Wilson
Royal Society for the Protection of Birds

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Dr Ewan Birney
European Bioinformatics Institute

Dr Michael Csukai
Syngenta Ltd

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Professor Paul French
Imperial College, London

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Professor Steve Homans
University of Leeds

Dr Peter 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
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Professor Robbie Waugh
Scottish Crop Research Institute

Agri-Food Committee

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University of Cambridge

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Sporomex

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Dr Claire Halpin
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Rowett Research Institute,
University of Aberdeen

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McNeill Nutritionals (Johnson & Johnson)

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Mr Alisdair Wotherspoon (Observer)
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University of Bristol

Professor Steve Tipper
Bangor University

Dr Lynne Sneddon
University of Liverpool

Professor David Burt
The Roslin Institute, University of
Edinburgh

Biochemistry and Cell Biology Committee

Professor David Gilbert (Chair)
University of Glasgow

Professor Colin Brownlee
Marine Biological Association

Professor Peter Cullen
University of Bristol

Dr Stephen Delaney
AstraZeneca

Professor Colin Dingwall
King's College, London

Professor Veronica Franklin-Tong
University of Birmingham

Professor Beverly Griffin
Imperial College, London

Professor Chris Hawes
Oxford Brookes University

Dr Markus Kirkilionis
University of Warwick

Professor Michael McPherson
University of Leeds

Professor Andrew Munro
University of Manchester

Professor Peter Piper
University of Sheffield

Professor Emma Raven
University of Leicester

Dr Alastair Reith
GlaxoSmithKline
Research and Development Ltd

Dr Len Stephens
Babraham Institute

Professor Anne Willis
University of Nottingham

Professor Rose Zamoyska
University of Edinburgh

Biomolecular Sciences Committee

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University of York / Vernalis

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University of Southampton

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University of East Anglia

Dr Sophie Jackson
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Dr Marisa Martin-Fernandez
STFC Daresbury Laboratory

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Professor Nigel Scrutton
University of Manchester

Dr Chris Tate
MRC Laboratory of Molecular Biology

Dr David Westhead
University of Leeds

Professor Malcolm Whit
University of St. Andrews

Dr Xiaodong Zhang
Imperial College, London

Engineering and Biological Systems Committee

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Professor Andy Baker
University of Glasgow

Professor Declan Bates
University of Leicester

Dr Walter Cook
Pfizer Global R&D

Professor Alicia El Haj
Keele University

Dr Brendan Fish
MedImmune Ltd

Professor Alec Gray
Cardiff University

Professor Chris Hewitt
Loughborough University

Professor Marta Kwaitkowska
University of Oxford

Dr Kathryn Lilley
University of Cambridge

Professor Paul O'Shea
University of Nottingham

Professor Chris Mason
University College, London

Professor Johnjoe McFadden
University of Surrey

Dr Tracy Melvin
University of Southampton

Dr Gill Stephens
University of Manchester

Professor Michael Stumpf
Imperial College, London

Professor Dek Woolfson
University of Bristol

Observers

Dr Martin Anthony
BERR

Dr Katie Finch
EPSRC

Genes and Developmental Biology Committee

Professor Elizabeth Jones (Chair)
University of Warwick

Dr Tim Allsopp
Stem Cell Sciences UK Ltd

Professor John Brookfield
University of Nottingham

Professor Hugh Dickinson
University of Oxford

Professor Ray Dixon FRS
John Innes Centre

Professor Jon Frampton
University of Birmingham

Professor Andrew Hudson
University of Edinburgh

Dr Andrea Münsterberg
University of East Anglia

Dr Sarah Newbury
University of Sussex

Dr Helen Ougham
Aberystwyth University

Professor Nancy Papalopulu
University of Manchester

Dr Penny Rashbass
University of Sheffield

Professor Mike Stark
University of Dundee

Dr Max Telford
University College London

Professor Melanie Welham
University of Bath

Dr Mark Wilkinson
Natural History Museum

Plant and Microbial Sciences Committee

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John Innes Centre

Professor James Beynon
Warwick HRI

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Professor Andrew Fleming
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Dr Christopher Grant
University of Manchester

Professor Sarah Gurr
University of Oxford

Professor Michael Holdsworth
University of Nottingham

Professor Marc Knight
Durham University

Professor Johnathan Napier
Rothamsted Research

Professor Tracy Palmer
University of Dundee

Professor Peter Palukaitis
Scottish Crop Research Institute

Professor Margaret Smith
University of Aberdeen

Dr Helena Thomaidis
Prolysis Ltd

Dr Colin Turnbull
Imperial College, London

Professor Simon Turner
University of Manchester

Training Awards Committee

Professor Ian Roberts (Chair)
University of Manchester

Professor John Birch
Lonza Biologics plc

Dr Helen Cassaday
University of Nottingham

Professor Peter Doyle
Unilever

Professor Clive Edwards (Deputy Chair)
University of Liverpool

Professor Jonathan Elliott
The Royal Veterinary College

Dr Shirley Ellis
Institute for Animal Health

Dr Colin Farquharson
University of Edinburgh

Dr Sheila Francis
University of Sheffield

Dr Ian Furner
University of Cambridge

Dr Simon Leather
Imperial College, London

Professor Michael Stumpf
Imperial College, London

Dr William Watson
TEVA Pharmaceuticals Ltd

Professor Tony Wilkinson
University of York

Professor Sue Wonnacott
University of Bath

Organisational developments

Efficiency

This year BBSRC delivered efficiency savings worth £24.3M. A target of £28.3M was not achieved, due to a 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 sponsored institutes. These savings were delivered through:

- Re-prioritisation of funded programmes, including training (£1.3M)
- Proportional reduction of administration costs (£0.6M)
- Increased efficiency of our sponsored institutes, including better use of capital infrastructure (£4.5M)
- More co-funding (£17.9M)

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

BBSRC's administration costs represented 2.26% of the Science Budget Income (resource and capital including non-cash) for 2008-09. This continues the downward trend previously achieved over the Gershon period (2.95% in 2004-05, 2.78% in 2005-06, 2.67% in 2006-07 and 2.46% in 2007-08) and is once again within target.

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. This year we have appointed a corporate risk

manager to advise senior management. The corporate risk register has been revised to align 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 of 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 2009, 1,811 staff were employed on indefinite contracts in Institutes sponsored by BBSRC and in the BBSRC Office. Of the indefinite contract staff, 758 were in the science category. A further 321 members of staff, mainly scientists, held period appointments in BBSRC directly. Women occupy 21% of senior posts in BBSRC (pay band PC1 - F). The comparable figure for 2007-08 was 20%.

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 CO₂ emissions, energy consumption and waste. These are reported on annually.

We endeavour to minimise the environmental impacts of new buildings and structures through good specification and design. Major capital construction projects include BREEAM assessment. We have implemented video conferencing at all main sites which has enabled a considerable reduction in travel.

BBSRC institutes continuously seek ways of reducing their energy consumption and during 2008 a number of energy efficiency schemes were implemented including site meter monitoring, virtual computer servers and PC master switches. Plans to install a wind turbine at one major site are also currently underway.

With its sister Research Councils, BBSRC is developing an environmentally sustainable Travel Plan for the Swindon Offices.

Diversity and Equality

Our vision is to make BBSRC an organisation of choice for employment and training, a place where people want to work and train to deliver excellent science with impact. In support of this we continue to mainstream diversity into our core business activities.

During the year BBSRC developed a single equality scheme and reviewed our Equality Duty Action Plan; mainstreaming diversity and better communication of our diversity policies are key objectives.

Over the period of this report, reviews of recruitment and merit promotion have resulted in revised policies or guidance with equality and diversity being central to both selection processes. We have also continued to ensure that all our employees are diversity aware through attendance at mandatory workshops.

Much progress has been made throughout BBSRC in conducting Equality Impact Assessments. Summaries of assessments carried out to date have been published on the BBSRC website.

A key focus has been on increasing the recruitment and retention of those from under-represented groups (including women), by increasing their participation in research careers at all levels. Working with the UK Resource Centre (UKRC) for Women in Science, Engineering and Technology (SET), cultural analysis surveys were conducted in September 2008.

Whilst BBSRC was seen as a good place to work the survey suggested the need to raise awareness of the issues throughout BBSRC and communicate our gender diversity policies better. In liaison with UKRC we intend to set up a gender diversity best practice forum to take forward many of the issues highlighted in the survey, drawing on expertise from other diversity practitioners across the SET arena.

Allied to our work with the UKRC, we also participated in the Opportunity Now Benchmarking Survey 2008. Opportunity Now promotes gender equality and this survey of its members, which includes central Government Departments and FTSE Top 100 companies, was considered to be their closest examination of gender equality in the workplace to date. BBSRC once again achieved Gold standard, repeating the 2006 benchmarking survey performance.

In addition to its responsibilities as an employer, BBSRC has responsibilities as a funder of research. We have recently formed a cross-functional equality monitoring group to review existing diversity monitoring mechanisms associated with all funding activity conducted by BBSRC. It is intended that the findings of the group will be shared with the other Research Councils.

All BBSRC institutes have now achieved the Two-Ticks disability standard and made adjustments to buildings access and facilities for those with disabilities.

Health and safety

BBSRC aims to take a proactive and preventative approach to the management of health and safety. Our management arrangements are implemented in accordance with HSE guidelines (Successful Health and Safety Guidelines- HSG65) and ensure that the requirements of current legislation and best practice are implemented.

During the last two years all of our sites have been audited, the results of which demonstrate that we are achieving continuous improvements in all aspects of health and safety performance.

In particular, there has been improvement in our safety culture as all staff are encouraged to participate in health and safety management and dedicated advisers are available at each site to assist with local issues and monitor standards.

Over the past 12 months policies on Working Alone, Asbestos, Biosecurity, and Personal Safety have been agreed

with the Trade Unions and issued. We have also developed new initiatives to ensure our policies are implemented across the organisation.

We are pleased to report that we have seen a decrease in both total and reportable number of accidents recorded within the year, with reportable accidents below the HSE national incident rate for our industry.

The total number of Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) reports to HSE in the years 1 April 2007- 31 March 2009

Reportable Incident Category (defined as in RIDDOR 1995)

	2007-08	2008-09
Fatality (suicide)	1	0
Contact with moving machinery or material being machined	0	0
Hit by a moving, flying or falling object	0	0
Hit by a moving vehicle	0	0
Hit by something fixed or stationary	1	0
Injured while handling, lifting or carrying	4	2
Slipped, tripped or fell on the same level	4	3
Fell from a height	3	1
Trapped by something collapsing	0	0
Drowned or asphyxiated	0	0
Exposed to, or in contact with, a harmful substance	2	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	0
Physically assaulted by a person	0	0
Another kind of accident	1	1
Total accidents	16	7
Cases of occupational disease	1	0
Dangerous Occurrence	2	2
Overall total	19	9

Sickness absence: BBSRC Office (2008-09)

Number of days lost		%
Cold /Flu/Virus	433.5	24.66
Malignancy	182	10.35
Mental/ Psychiatric	325	18.49
Skeletal	141	8.02
Hospital appointment/surgery	336	19.11
Other	340.5	19.37
Total	1,758	100

Sick absence	
Frequency of absences lasting longer than 28 days	8
Total days of long term sickness	445
Average days of sick absence per person	6.17

Protected personal data related incidents

There have been no personal data related incidents in 2008-09 or in previous financial years. 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 2008-09

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"> ■ Implementation of DSO/KPMG recommendations on Information Assurance under the guidance of external body. ■ Review and revise as appropriate current Information Security Policy. 			

TABLE 2: SUMMARY OF OTHER PROTECTED PERSONAL DATA RELATED INCIDENTS IN 2008-09

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	0

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
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
2006-07	0	0	0	0	0	0	2006-07	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 first year of the three year Comprehensive Spending Review 2007 allocation, grant-in-aid income from the Department for Innovation, Universities and Skills (DIUS) increased by £18.7M to £412.3M for the 2008-09 year.
- Non-DIUS net parliamentary funding for the year also increased by £4M to £16.6M. This represents a net increase in a variety of cross-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 £3.2M received in 2008-09 from HEFCE, MRC, Scottish Funding Council and the British Pharmacology Society.
- The increased grant income contributed toward a rise in research and capital grant expenditure of £34M to £367.5M. Expenditure on training and fellowship awards rose by £4m to £50.5M. In total, net expenditure for the year increased by £39.9M to £457.4M.
- Other operating costs, excluding the set-up costs of the Shared Services Centre Ltd (SSC), rose by £1.3M, the most significant being professional fees and management consultancy. For 2008-09 this included increased costs for leased sites letting fees, governance reviews of the sponsored institutes and quality assurance validation work.
- Staff costs rose by £1.1M to £10.3M, reflecting an increase in average Full Time Equivalent (FTE) staff to 304.7 from 289.1. Included within the staffing figures were £0.2M of payroll costs relating to 7.1 FTE staff who transferred to the employment of the RCUK Shared Services Centre Ltd (SSC) on 1 April 2008 and were immediately seconded back to BBSRC. These secondments will end when the posts permanently migrate to the SSC. This will occur when the activities for which they are employed become performed by the SSC.
- During the year, 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 for nil consideration. 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 level of BBSRC's contribution is dependent on both the level and year of the reduction. BBSRC also agreed to provide indemnity for any potential costs that arise as a direct result of the past actions of the institute and indemnity of up to £1M 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 20. There were no claims from the university during 2008-09.
- On-going capital work on the biological support unit at Babraham was valued at £13.7M for the year. This is added to the value of the capital redevelopment work at IAH Pirbright to give a total value of buildings under construction at 31 March 2009 of £31.4M (2007-08: £11.2M).
- Part of the land at the Wrest Park site was disposed of for a £0.5M profit. The transfer of land and buildings for nil consideration as part of the transfer of the Roslin Institute, coupled with the demolition of five buildings at the Institute for Animal Health (IAH) Compton site, led to a net loss on disposals of £0.3M for the year.
- Capital commitment at 31 March 2009 rose to £134.9M covering a variety of new building projects, including the development of new facilities at the Easter Bush Research Centre near Edinburgh, redevelopment of facilities at IAH Compton and new laboratories at Babraham Institute.
- Grant commitments at 31 March 2009 decreased by £25.9M to £455.1M.



Shared Services Centre (SSC)

In 2007-08 the seven Research Councils agreed to establish a Shared Services Centre (SSC), to be based 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 2008-09 the SSC provided strategic procurement, IT and recruitment services to BBSRC. BBSRC are scheduled to migrate to the SSC's HR services in July 2009, finance and payroll in December 2009 and grants processing during 2010-11. Service charges from the SSC to BBSRC for 2008-09 totalled £1.1M.

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 set-up costs and BBSRC's agreed share is 20.54%. BBSRC began incurring expenditure on the project during 2007-08. The set-up costs have been accounted for BBSRC in 2008-09 as £4,497k as assets in the course of construction (£7,721k to date) and £3,970k expensed (£6,426k to date) including £24k as provisions for redundancy and system termination costs (£813k to date).

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 Councils hold an equal, joint share of RCUK SSC Ltd. Each council owns 1 'A' ordinary share, purchased in 2007-08, which carries one vote per share. 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.

Post Balance Sheet events

FRS21 Events after the balance sheet date require the disclosure of the date on which the financial statements were “authorised for use” and who gave that authorisation. There were no Post Balance Sheet events between the balance sheet date and 14th July 2009, the date when the Accounting Officer approved the accounts. The Financial Statements do not reflect events after this date.

On 5th 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 the expected government funding underlying the Council’s going concern assertion will be affected by this change.

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 and endeavours to pay them within 30 days of receipt of goods or services. During 2008-09 87% of payments were made within 30 days (2007-08: 88%).

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.

In November 2008 a new prompt payment target of 10 days was introduced for the public sector. BBSRC adopted this target from this date.

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 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 £55,900, which represents £49,000 (2007-08: £47,500) for the audit of the financial statements and £6,900 (2007-08: £nil) for the audit of the opening balance sheet as at 31 March 2008 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.

Professor Douglas Kell
Chief Executive and Accounting Officer

Date: 6th July 2009

Remuneration report

Council Chair and Council members except Chief Executive

Policy (unaudited information)

Remuneration rates are the same across the Research Councils. The rates are reviewed each year by the Department for Innovation, Universities and Skills. In considering the new rates, the Department may take into account the increase given to the senior civil service. The Department consults with the Research Councils and the agreed change is 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 2008 £	Until 30 September 2008 £	
Council Chair	16,180	15,780	per annum
Council Members who also chair Committees	8,970	8,750	per annum
Council Members	6,740	6,570	per annum

	Appointments		Remuneration £000s	
	From	To	2008-09	2007-08
Chair - Dr Peter Ringrose	01/05/2003	30/04/2009	16	16
Deputy Chair - Professor Douglas Kell	01/10/2008	30/09/2012	0	0
<u>Council Members</u>				
Mr David Brightman	01/08/2003	31/03/2009	7	7
Professor John Coggins FRSE	01/04/2008	31/03/2012	7	0
Professor Anne Dell FRS	01/04/2007	31/03/2010	7	6
Professor Peter Fryer FREng	01/05/2006	31/03/2012	8	7
Professor Chris Gilligan	01/04/2003	31/03/2009	7	7
Mrs Sarah Haywood	24/10/2005	01/11/2008	0	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 CBE	01/04/2008	31/03/2012	7	0
Dr Andrew Richards	01/04/2008	31/03/2012	7	0
Professor Dame Nancy Rothwell FRS	01/04/2005	31/12/2008	5	7
Dr John Stageman	01/04/2008	31/03/2012	2	0
Professor Robert Watson	01/12/2007	30/11/2011	0	0
Dr Malcolm Weir	01/04/2005	31/03/2011	7	7

The total emoluments of the Chairman were honoraria of £15,980 (2007-08: £15,750). 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 April 2009. Professor Blundell was appointed as BBSRC Chair of Council by DIUS 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, Mrs Haywood or Professor Watson. Dr Lawrence elected not to receive remuneration for his role on BBSRC Council.

Committee Chairs and Members (unaudited information)

The remuneration of Committee Chairs and Members is set by the Financial Management Group of the Research Councils.

	2008-09	2007-08	
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 and review for April 2010 onward.

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 Innovation, Universities and Skills. The Permanent Secretary is advised by a Remuneration Committee chaired by the Director General of Research Councils. The Chair of BBSRC is consulted.

BBSRC Remuneration Board

The remuneration of BBSRC Directors and Directors of sponsored institutes is reviewed and adjusted annually by the Council Remuneration Board. 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.

Policy

Subject to successful performance, the Chief Executive's salary rises by a cost of living increase and a pre-determined incremental increase up to a salary ceiling. In addition, a non-consolidated, non-pensionable annual bonus may be awarded for performance towards objectives agreed by BBSRC and the Chief Executive.

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

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. Following Professor Kell's appointment, Mr Visscher stepped down as Interim Chief Executive and took up the post of Deputy Chief Executive.

The total emoluments of Professor Kell and Mr Visscher are detailed overleaf. There were no receipts or benefits in kind for either.

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.

Following the appointment of a permanent Chief Executive and Director of Finance, Mr Gemmill moved to become the Director of the new Communications and Information Management Group. New Directors of Research, Innovation and Skills, and Finance were appointed during the year.

Directors' remuneration for 2008-09 are detailed overleaf. No Director is in receipt of benefits in kind. The remuneration of Mr Visscher, Mr Gemmill, which covers their two positions, and Dr Yarrow are shown for 12 months.

Remuneration of senior employees (audited information)

	Chief Executive From 1 October 2008	Interim Chief Executive To 30 September 2008 Deputy Chief Executive From 1 October 2008	Director of Research From 1 October 2008	Director of Science and Technology To 31 August 2008	Director of Innovation and Skills From 15 September 2008	Director of Corporate Science To 30 May 2008 Part-time Consultant From 1 June 2008	Director of Finance From 1 November 2008	Director of Human Resources	Interim Executive Director To 31 October 2008 Director of Communications and Information Management From 1 November 2008
	Professor Douglas Kell	Mr Steve Visscher	Professor Janet Allen	Professor Nigel Brown	Dr Celia Caulcott	Dr Doug Yarrow	Mr David Parfrey	Mr Peter Swinburne	Mr Paul Gemmill
Salary and allowances in 2008-09	£64,000	£157,907	£50,000	£57,062	£54,444	£55,517	£32,500	£93,085	£94,695
Salary and allowances in 2007-08	£0	£124,859	£0	£107,015	£0	£91,913	£0	£84,726	£77,681
Real increase in pension and lump sum at age 60	£0 – 2,500	£27,500 – 30,000	£0 – 2,500	£0 – 2,500	£0 – 2,500	£17,500 – £20,000	£7,500 – 10,000	£0 – 2,500	£0 – 2,500
Total accrued pension and lump sum at age 60 as at 31 March 2009/ leaving date	£0 – 5,000	£225,000 – 230,000	£0 – 5,000	£5,000 – 10,000	£0 – 5,000	£175,000 – 180,000	£5,000 – 10,000	£60,000 – 65,000	£5,000 – 10,000
Cash equivalent transfer value as at 31 March 2008*	£0	£925,000	£0	£118,000	£0	£932,000	£0	£452,000	£72,000
Cash equivalent transfer value as at 31 March 2009/ leaving date	£25,000	£1,151,000	£16,000	£138,000	£15,000	£1,053,000	£145,000	£515,000	£103,000
Real increase in cash equivalent transfer value 2008-09	£22,000	£142,000	£14,000	£17,000	£13,000	£110,000	£142,000	£29,000	£22,000

* The figure for the CETV value at 31 March 2008 may be different from the closing figure in last year's accounts. This is due to the CETV factors being updated to comply with The Occupational Pension Schemes (Transfer Values) (Amendment) Regulations 2008.

The average gross increase in annual salary for the three senior employees who were in BBSRC full-time employment throughout 2008-09 was 20% (2007-08: 7%). This figure includes temporary increases for additional responsibilities for Mr Visscher and Mr Gemmill, as well as paid annual leave. The net average increase on a continuing basis is 6%.

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: 6th July 2009

Annual Accounts 2008-2009

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 for Innovation, Universities and Skills, 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, recognised gains and losses 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) and in particular to:

- observe the Accounts Direction issued by the Secretary of State for Innovation, Universities and Skills, 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 in operation.

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 DIUS 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 2009 and up to the date of approval of the annual report and accounts, and accords with HM Treasury guidance.

3. Capacity to Handle Risk

BBSRC gives leadership to the process by a number of means, including:

- 1) setting out a risk management policy and strategy;
- 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) using a formal PRINCE 2 based project management approach with embedded risk management for major activities, including the business critical projects listed below;
- 6) hosting the RCUK project for Transparent Approach to Costing (TRAC) methodology and the Funding Assurance Programme (FAP).

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

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 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 review the strategic and operational risk management registers and framework quarterly and receive reports on business critical projects pertaining through the year.

The business critical projects at 31 March 2009 were:

1. IAH Pirbright redevelopment. 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. Easter Bush Bioscience Research Centre. A new international centre of research in the biosciences will bring together researchers currently at the Roslin Institute, Royal (Dick) School of Veterinary Studies of the University of Edinburgh, the Neuropathogenesis Unit and TSE Programme of the IAH and the Scottish Agricultural College. The institute will also benefit from collaborative links with the adjacent Moredun Research Institute.
3. Babraham Institute building project. The project is planned to replace the institute's current facilities with state of the art flexible facilities to allow Babraham to maintain its world class science.
4. The Genome Analysis Centre. Capital investment from BBSRC, East of England Development Agency (EEDA) and Norfolk Local Authorities to establish a world class BBSRC centre for the study and application of genomics in animals, plants and microbes.
5. Impact of the Department for Environment, Food and Rural Affairs (Defra) funding changes on institute sustainability. Focusing investment on protecting key science capabilities that underpin BBSRC's mission.
6. Governance changes. Implement the post Follett Review governance changes of the BBSRC-sponsored institutes.
7. 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. Initially RCUK Shared Services Ltd (SSC Ltd) will provide recruitment, procurement and IT services in year to 31 March 2009 with finance in the year ending 31 March 2010, followed by grants processing. 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 the Chair of the RCUK Executive Group, Professor Diamond. 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. Recently an exercise took place to review the timetable and costs for the whole project. The Project Board has now agreed to a revised implementation plan which maintains the overall timetable and includes measures designed to control project costs.

SSC Ltd has a Board of Directors and Audit Committee which provides corporate governance framework in line with statutory and best practice requirements. Directors have been appointed by Research Councils as shareholders, with the BBSRC nominee being BBSRC's 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 Directors. 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. The Assurance unit has also managed the Quality Assurance and Validation (QAV) of TRAC project which has scrutinised the implementation of TRAC in universities. This has been agreed as an additional assurance requirement for all Councils following the introduction of Dual Support reform and the implementation of full economic costing by research organisations. An annual report for the Accounting Officers is produced on the work of RCUK Assurance along with a level of assurance for Accounting Officers. A further report on QAV was published on 31 March 2009.

In response to the Cabinet Office's review of Data Handling in government departments and delivery partners, BBSRC is improving its Information Assurance practices. A programme of work has begun which will deliver compliance with the guidelines set out in the Cabinet Office's Security Policy Framework. Progress towards this goal will be independently assessed during 2009-10 by the Research Councils Internal Audit Service.

As disclosed within the related parties note on page 70 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 with relation to the University of Manchester.

Following the Follett and Costigan reports, the governance models of each of the BBSRC-sponsored institutes has been under review. As a result of changes in governance at the Institute for Animal Health (IAH), Mr Swinburne and Mr Gemmill act as members of the Corporate Trustee Team of five for IAH. To avoid any conflict of interest, Mr Swinburne and Mr Gemmill abstain from any BBSRC funding discussions with regard to IAH.

The North Wyke Research Centre is due to become part of the operations of Rothamsted Research during 2009-10. In the interim, a temporary trustee board was created to govern the operations of the centre. Mr Stapley, as a BBSRC employee and interim trustee board member, abstains from any BBSRC funding discussions with regard to the North Wyke Research Centre.

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 process, 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 positive reasonable assurance rating from the Director of Internal Audit for 2008-09, which included substantial assurances for Swindon Office, the hosted joint units and all but one BBSRC institute. The RCIAS plan for 2009-10 includes audits for HR, financial transactions, business continuity planning, Shared Services Centre transition and the institute strategic programme grants.

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.

In general, controls are in place which can provide a reasonable degree of assurance that operational, financial and reputational risks are managed appropriately. This is not based on a culture of risk aversion but one where risks are considered as part of the decision making process.

Professor Douglas Kell
Chief Executive and Accounting Officer

Date: 6th July 2009

The Certificate And Report 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 2009 under the Science and Technology Act 1965. These comprise the Statement of Net Expenditure, the Balance Sheet, the Cashflow Statement and Statement of Recognised Gains and Losses and the related notes. These financial statements have been prepared under the accounting policies set out within them. I have also audited the information on the Remuneration Report that is described in that report as having been audited.

Respective responsibilities of the Council, Chief Executive and Auditor

The Council and Chief Executive as Accounting Officer, are responsible for preparing the Annual Report, which includes the Remuneration Report and the financial statements in accordance with the Science and Technology Act 1965 and Secretary of State for the Department for Innovation, Universities and Skills directions made thereunder and for ensuring the regularity of financial transactions. These responsibilities are set out in the Statement of Council and Chief Executive's Responsibilities.

My responsibility is to audit the financial statements and the part of the remuneration report to be audited in accordance with relevant legal and regulatory requirements, and with International Standards on Auditing (UK and Ireland).

I report to you my opinion as to whether the financial statements give a true and fair view and whether the financial statements and the part of the Remuneration Report to be audited have been properly prepared in accordance with the Science and Technology Act 1965 and Secretary of State for the Department for Innovation, Universities and Skills directions made thereunder. I report to you whether, in my opinion, the information which comprises the sections titled Organisational developments and the Financial review included within the Annual Report, is consistent with the financial statements. I also report whether 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.

In addition, I report to you if the Biotechnology and Biological Sciences Research Council has not kept proper accounting records, if I have not received all the information and explanations I require for my audit, or if information specified by HM Treasury regarding remuneration and other transactions is not disclosed.

I review whether the Statement on Internal Control reflects the Biotechnology and Biological Sciences Research Council compliance with HM Treasury's guidance, and I report if it does not. I am not required to consider whether this statement covers all risks and controls, or form an opinion on the effectiveness of the Biotechnology and Biological Sciences Research Council's corporate governance procedures or its risk and control procedures.

I read the other information contained in the Annual Report and consider whether it is consistent with the audited financial statements. This other information comprises the Chairman's statement, Chief Executive's report, unaudited part of the remuneration report and the rest of the management commentary. I consider the implications for my report if I become aware of any apparent misstatements or material inconsistencies with the financial statements. My responsibilities do not extend to any other information.

Basis of audit opinions

I conducted my audit in accordance with International Standards on Auditing (UK and Ireland) issued by the Auditing Practices Board. My audit includes examination, on a test basis, of evidence relevant to the amounts, disclosures and regularity of financial transactions included in the financial statements and the part of the Remuneration Report to be audited. It also includes an assessment of the significant estimates and judgements made by the Council and Accounting Officer in the preparation of the financial statements, and of whether the accounting policies are most appropriate to the Biotechnology and Biological Sciences Research Council's circumstances, consistently applied and adequately disclosed.

I planned and performed my audit so as to obtain all the information and explanations which I considered necessary in order to provide me with sufficient evidence to give reasonable assurance that the financial statements and the part of the Remuneration Report to be audited are free from material misstatement, whether caused by fraud or error and that 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. In forming my opinion I also evaluated the overall adequacy of the presentation of information in the financial statements and the part of the Remuneration Report to be audited.

Opinions

In my opinion:

- a) the financial statements give a true and fair view, in accordance with the Science and Technology Act 1965 and directions made thereunder by the Secretary of State for the Department for Innovation, Universities and Skills, of the state of the Biotechnology and Biological Sciences Research Council's affairs as at 31 March 2009 and of its Net Expenditure, recognised gains and losses and cashflows for the year then ended;
- b) the financial statements and the part of the Remuneration Report to be audited have been properly prepared in accordance with the Science and Technology Act 1965 and Secretary of State for the Department for Innovation, Universities and Skills directions made thereunder; and
- c) information, which comprises the sections titled Organisational developments and the Financial review included within the Annual Report is consistent with the financial statements.

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.

Report

I have no observations to make on these financial statements.

Amyas CE Morse
Comptroller and Auditor General
Date: 14th July 2009

National Audit Office
151 Buckingham Palace Road
Victoria
London SW1W 9SP

Statement of Net Expenditure for the year ended 31 March 2009

	NOTE	2008-09 £'000	2007-08 £'000
EXPENDITURE			
Research and Capital Grants	2	367,462	333,472
Training Awards and Fellowships	2	50,510	46,546
Staff costs	3	10,262	9,152
Other operating costs	4	16,217	13,386
Research Institute staff restructuring	6	3,045	5,494
Depreciation and impairment	9	9,386	7,473
Notional Cost of Capital	5	8,094	8,097
TOTAL OPERATING COST FOR THE YEAR			464,976
INCOME AND OTHER ADJUSTMENTS			
Other Operating Income		1,197	819
Recovery of IT service to institutes		3,109	3,270
Other recoveries		3,486	2,143
Loss on disposals of fixed assets	8	(257)	(157)
			(7,535)
NET EXPENDITURE FOR THE YEAR			457,441
General Reserve Surplus Brought Forward			59,755
Net Expenditure for the year		(457,441)	(417,545)
Net Parliamentary Funding from DIUS	14	412,343	393,626
Net Parliamentary Funding from other Research Councils	14	9,373	7,859
Net Parliamentary Funding from other Government Departments	14	5,661	4,312
Net Parliamentary Funding from other bodies	14	1,602	405
Reversal of Notional Cost of Capital	5	8,094	8,097
Transfer to match depreciation	15	6,465	5,508
Transfer to match net book value of disposals	15	(333)	-
Transfer from general reserve to revaluation reserve	15	(1,284)	-
CHANGE IN GENERAL RESERVE SURPLUS FOR THE YEAR			(15,520)
GENERAL RESERVE SURPLUS CARRIED FORWARD			44,235

All activities are regarded as continuing

The notes on pages 57 to 73 form part of these accounts

Balance Sheet as at 31 March 2009

		31 March 2009		31 March 2008
	NOTE	£'000	£'000	£'000
FIXED ASSETS				
Tangible	11	221,520		224,516
Investments	10	2,159		536
			223,679	225,052
CURRENT ASSETS				
Debtors:				
- due within one year	12i	30,339		29,398
- due after one year	12ii	17,629		17,161
		47,968		46,559
Cash at bank and in hand	16iii	725		8,239
		48,693		54,798
CURRENT LIABILITIES				
Creditors falling due within one year	13	(34,783)		(23,344)
NET CURRENT ASSETS				
			13,910	31,454
TOTAL ASSETS LESS CURRENT LIABILITIES				
			237,589	256,506
Provisions for liabilities and charges	7		(11,615)	(14,104)
NET ASSETS				
			225,974	242,402
Financed by:				
RESERVES				
Revaluation reserve	15		181,739	182,647
General reserve	15		44,235	59,755
TOTAL GOVERNMENT FUNDS				
			225,974	242,402

Professor Douglas Kell
Chief Executive and Accounting Officer

Date: 6th July 2009

The notes on pages 57 to 73 form part of these accounts

Cash Flow Statement for the year ended 31 March 2009

	NOTE	2008-09 £'000	2007-08 £'000
NET CASH OUTFLOW FROM OPERATING ACTIVITIES	16(i)	(437,790)	(399,125)
CAPITAL EXPENDITURE			
Payments to acquire tangible fixed assets	16(v)	(662)	(379)
Purchase of investments	16(v)	(1,191)	-
Receipts from sale of fixed assets	16(vi)	3,150	(24)
NET CASH OUTFLOW FROM CAPITAL EXPENDITURE AND RECEIPTS		1,297	(403)
NET CASH OUTFLOW BEFORE FINANCING		(436,493)	(399,528)
NET CASH INFLOW FROM FINANCING	14	428,979	406,202
(DECREASE)/INCREASE IN CASH	16(ii)	(7,514)	6,674

Statement of Recognised Gains and Losses for year ended 31 March 2009

		2008-09 £'000	2007-08 £'000
Valuation additions	11	20,362	10,200
Revaluation by indexation	9	(16,422)	8,571
TOTAL RECOGNISED GAINS FOR THE YEAR		3,940	18,771

The notes on pages 57 to 73 form part of these accounts

1. ACCOUNTING POLICIES

a) Basis of Accounting

- i) These accounts have been prepared in accordance with the Accounts Direction issued by the Secretary of State for the Department for Innovation, Universities and Skills (DIUS), pursuant to Section 2(2) of the Science and Technology Act 1965 and follow the 2008-09 Government Financial Reporting Manual (FReM) www.financial-reporting.gov.uk. The accounting policies contained in the FReM follow UK generally accepted accounting practice for companies (UK GAAP) to the extent that it is meaningful and appropriate to the public sector. BBSRC's accounting policies have been applied consistently in dealing with items considered material in relation to the accounts.
- ii) BBSRC is dependent on funding from DIUS to meet liabilities falling due within future years. As part of the Comprehensive Spending Review 2007, funding has been agreed to 2010-11. BBSRC have no reason to believe that future funding from DIUS will not be forthcoming after this spending review period, therefore the accounts are produced on a going-concern basis.

b) Accounting Convention

- i) These accounts have been prepared under the historical cost convention modified to account for the revaluation of fixed assets.

c) Tangible and Intangible Fixed Assets

- i) Capital expenditure includes the purchase of land and buildings, and equipment valued at £3,000 or more.
- ii) Tangible and intangible fixed assets are included at cost or valuation in existing use. The Council owns land and buildings, that 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 Statement of Net Expenditure.

Where institutes carry out developments that result 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 Balance Sheet date.

- iii) The basis of valuation is depreciated replacement cost in the case of specialised scientific buildings or open market value for non-specialised buildings. Valuations are adjusted annually to the Balance Sheet date by using 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 for valuation and depreciation purposes.

- iv) 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, the element of the revaluation reserve that becomes realised as a result is also transferred to the general reserve.
- v) 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.
- vi) Provision is made for depreciation on all tangible fixed assets at rates calculated to write off the cost or the valuation of each asset (or group of assets) to its estimated residual value evenly over its expected useful life. An expected useful life is assessed at each location by the valuer. Buildings are not depreciated in the year of acquisition, whilst a full year's depreciation is charged in the year of disposal. Expected useful lives are as follows:

Freehold Land	-	not depreciated
Depreciated replacement cost buildings	-	up to 60 years
Agricultural Buildings	-	up to 60 years
Dwellings	-	up to 60 years
Office and Computing Equipment	-	3 to 5 years
System Software	-	5 years
Motor Vehicles	-	up to 4 years
Assets Under Construction	-	not depreciated until brought into use

d) Investments

Investments are stated at cost less provision for any impairment in value.

e) 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 tangible fixed assets 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.

f) Grant-in-aid

Grant-in-aid for revenue purposes is recognised as a financing flow and thus credited to the General Reserve. Grant-in-aid applied for the finance of specific assets is credited to the Government Grant Reserve and is released to income over the estimated useful lives of the related assets.

g) Research Grants

Research grants are charged to the Statement of Net Expenditure in the period to which they relate.

BBSRC accrue for the costs of work undertaken at research institutions at the Balance Sheet date, but which remain unpaid by BBSRC. Future commitments in respect of costs of work yet to be undertaken within approved cash limits at the Balance Sheet date are disclosed in note 17.

h) Foreign Currencies

Assets and Liabilities denominated in foreign currencies are translated at the rates of exchange ruling at the Balance Sheet date. Transactions in foreign currencies are recorded at the rate ruling at the time of the transaction. All exchange differences are taken to the Statement of Net Expenditure.

i) Value Added Tax

As the Council is partially exempt for VAT purposes, all expenditure and fixed asset additions are shown inclusive of VAT. Residual input tax reclaimable by the application of the partial exemption formula is taken to the Statement of Net Expenditure as Other Operating Income. Income is shown net of VAT.

j) Retirement Costs

Contributions to pension schemes (currently 21.3%) are recorded as expenditure. Payments by the Council of early retirement lump sums are recoverable from the Research Councils' Pension Schemes when recipients reach normal retirement age. Recoverable amounts are recognised as debtors in these accounts and set off against annual staff restructuring costs. See page 60 for further details.

k) 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% (2007-08: 3.5%), on the average of opening and closing assets less liabilities, except for balances with HM Paymaster General.

l) Provisions

When BBSRC has taken a decision to fund a programme of redundancies, then the associated costs are provided for. The provision for the on-going 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 FRS 12 for redundancy costs and system termination fees arising from the transition to the Shared Services Centre. See note 7b.

m) Derivatives and other Financial Instruments

Due to the non-trading nature of its activities and the way in which BBSRC is financed, BBSRC is not exposed to the degree of financial risk faced by non public sector 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 FRS 25, 26 and 29 mainly apply. 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 BBSRC in undertaking its activities.

Debtors and creditors which mature or become payable within 12 months from the Balance Sheet date have been omitted from the currency profile.

n) Research and Development

As a research funding organisation, BBSRC's research and development expenditure is charged to the Statement of Net Expenditure when it is incurred.

The ownership of the intellectual property arising from a research project is made clear from the outset. As stated in the cross council Research Grants Guide, this normally rests with the university or institution receiving the BBSRC award, unless specifically stated to the contrary.

Future intellectual property rights arising from BBSRC's research and development have not been included in the accounts as their value in terms of future income is not material and is unpredictable.

2. RESEARCH & CAPITAL GRANTS AND TRAINING AWARDS

	2008-09 £'000	2007-08 £'000
Responsive Research Grants	163,734	143,057
Core Strategic Grants	58,504	68,952
Research Initiatives	69,005	60,767
Equipment and Facilities	12,314	12,553
Capital and Buildings	63,905	48,143
	367,462	333,472
Training Awards and Fellowships	50,510	46,546
	417,972	380,018
Beneficiaries:		
Universities	260,445	220,084
Research Institutes	125,170	138,314
Other Research Councils and other organisations	32,357	21,620
	417,972	380,018

3. STAFF COSTS

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

	2008-09 £'000	2007-08 £'000
Salaries and wages	9,574	8,666
Social Security costs	749	686
Pension costs	1,882	1,719
Other fees and honoraria	324	328
	12,529	11,399
Less Joint Services staff	(2,510)	(2,361)
Administrative and BITS staff on payroll	10,019	9,038
Temporary Administration and BITS agency staff	243	114
TOTAL	10,262	9,152

AVERAGE STAFF NUMBERS

	Full Time Equivalents (FTE)	
	2008-09 No.	2007-08 No.
Administrative	189.9	183.2
BITS	40.6	40.9
Administrative and BITS staff on payroll	230.5	224.1
Joint Services	62.6	59.5
Staff on payroll	293.1	283.6
Temporary agency staff	11.6	5.5
	304.7	289.1

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 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 7.1 FTE staff who were TUPE transferred to the RCUK SSC Ltd on 1 April 2008 and immediately seconded back to BBSRC for 2008-09. £225k is included within the staff cost for 2008-09 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.

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 FRS 17 'Retirement Benefits', accounts for the scheme as if it were a defined contribution scheme. As a result, the amount charged to the Statement of Net Expenditure account 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 is available and discussions have commenced about a possible increase in the employer contribution rate to 26% 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 calculated as at 31 March 2010. Details are available in the accounts of the RCPS, which can be found at www.bbsrc.ac.uk."

For 2008-09, employers' contributions of £1,852k were payable to the RCPS (2007-08 £1,719k) 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.

4. OTHER OPERATING COSTS

	2008-09	2007-08
	£'000	£'000
Maintenance, repairs and cleaning	634	611
Rent, rates and insurance	330	237
External audit	56	44
Internal audit	264	207
Office supplies	405	378
Computing expenses	669	947
Travel, subsistence and hospitality	1,203	1,068
Professional fees and management consultancy	2,528	1,788
Central Purchasing by BITS	3,420	3,586
Shared Services Centre operating costs	1,136	122
Shared Services Centre set-up costs	3,970	2,456
Other	1,602	1,942
	16,217	13,386

RCUK SSC Ltd started providing BBSRC with strategic procurement in May, IT services from June and recruitment services from November 2008. The service agreement costs for provision of these services are included within Shared Services Centre operating costs.

5. NOTIONAL COST OF CAPITAL

	2008-09	2007-08
	£'000	£'000
Notional Cost of Capital	8,094	8,097

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% (2007-08: 3.5%) rate of return on average net assets employed at cost or valuation. The net assets were £231.2M (2007-08: £231.6M) excluding the average cash balance with the Paymaster General of £2.9M (2007-08: £3.1M).

The reported notional cost is subsequently reversed in the general reserve in accordance with Government Financial Reporting Manual.

6. RESEARCH INSTITUTE STAFF RESTRUCTURING

	2008-09 £'000	2007-08 £'000
Annual Compensation Payments (ACP)	2,956	3,031
Redundancy payments	690	1,436
Early Retirement Lump Sums (ERLS)	822	887
Pension transfer costs*	3,520	-
Other costs	138	70
	8,126	5,424
Recoverable ACP and redundancy payments	(1,332)	(1,370)
Recoverable ERLS	(1,236)	(459)
Provided for (See Note 7)	(3,663)	(2,452)
	1,895	1,143
Increase provision for ACP and Institute Related costs (See Note 7)	3,855	4,604
Release from existing restructuring provisions (See Note 7)	(2,705)	(253)
Net Cost	3,045	5,494

* During 2008-09, BBSRC contributed £3,520k toward the bulk transfer pension cost of members leaving the Research Councils' Pension Schemes as a result of the transfer of the former BBSRC-sponsored IGER and Roslin Institutes to the university sector.

The total number of redundancies during 2008-09 was 42 (2007-08: 60)

7. PROVISIONS FOR LIABILITIES AND CHARGES

7a. PROVISIONS:

	Annual Compensation Payments £'000	Institute Related £'000	Shared Services Centre (See Note 7b) £'000	Total 2008-09 £'000	Total 2007-08 £'000
At 1 April 2008	5,452	7,863	789	14,104	11,416
Amount provided in year	1,505	2,350	24	3,879	5,393
Amount released in year	-	(2,705)	-	(2,705)	(253)
Transfers between provisions	990	(990)	-	-	-
Amount expended in year	(1,685)	(1,978)	-	(3,663)	(2,452)
Total Provisions At 31 March 2009	6,262	4,540	813	11,615	14,104

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 (£0.2M at 31 March 2009), provision for associated accommodation expenditure (£1.9M at 31 March 2009) and legal costs (£2.5M at 31 March 2009).

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. See Accounting Policies L. During 2008-09 a number of institute restructuring programmes came to an end and at 31 March 2009 £990k of on-going ACP costs were transferred between provisions.

7b. 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 IT 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 necessary redundancies. The Councils calculated their likely redundancy liabilities in order to make a 2007-08 provision which has been updated for movements during 2008-09. 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 of provision 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.

	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	152	-	-	999	1,620	-	2,839
Opening provision required for system termination fee	-	-	-	-	1,000	-	-	1,000
Opening total provision	68	152	-	-	1,999	1,620	-	3,839
Net movement in provisions	-	279	-	-	31	(711)	520	119
Requested total provision before sharing	68	431	-	-	2,030	909	520	3,958
% of liability to be borne by each Council	1.33%	20.54%	1.83%	8.24%	26.98%	20.54%	20.54%	100%
Provision required to be borne by each Council	53	813	72	326	1,068	813	813	3,958

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

8. LOSS ON DISPOSAL OF FIXED ASSETS

	2008-09 £'000	2007-08 £'000
Proceeds of disposals of fixed assets	2,452	(126)
Less: Net Book Value of assets sold/demolished	(2,709)	(31)
Loss on disposal of fixed assets	(257)	(157)

9. FIXED ASSETS

	TANGIBLE (See Note 11) £'000	INVESTMENTS (See Note 10) £'000	Total £'000
At 1 April 2008			
At cost or valuation	337,198	536	337,734
Depreciation and impairment	(112,682)	-	(112,682)
Net Book Value	224,516	536	225,052
Additions including valuation additions*	25,521	1,623	27,144
Depreciation and impairment	(9,386)	-	(9,386)
Disposals	(2,709)	-	(2,709)
Revaluation by indexation	(16,422)	-	(16,422)
Net Book Value At 31 March 2009	221,520	2,159	223,679
Comprising:			
At cost or valuation	332,945	2,159	335,104
Depreciation and impairment	(111,425)	-	(111,425)
	221,520	2,159	223,679

* See Accounting Policies (c) (ii)

10. INVESTMENTS

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

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.pbltechnology.com

The impairment follows BBSRC Executive's assessment of the current carrying value of the investment based on independent consultants' forecast of income to 31 March 2012.

RCUK Shared Services Centre (SSC Ltd)

During the year the council increased its investment in the RCUK Shared Services Centre Limited (SSC Ltd) through the acquisition of £1,623k of 'B' ordinary shares. 'B' ordinary shares convey ownership rights to the holder, including any distributions or proceeds from sale of the 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 year ended 31 March 2009 the draft financial statements for the company show a loss of £1.4M (2008: £Nil) against a turnover of £25.8M (2008: £1.3M). The balance sheet total is £6.52M (2008: £7) represented by £7.9M (2008: £7) share capital issued to the Research Councils and £1.378M (2008: £Nil) retained loss.

As no Research Council owns more than 21% of the issued share capital, the investment has been classified as "other investment".

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

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

11. TANGIBLE FIXED ASSETS

	Land and Completed Buildings £'000	Buildings Under Construction £'000	SSC Assets Under Construction £'000	Plant & Equipment £'000	Total £'000
Cost or Valuation					
At 1 April 2008	318,393	11,150	3,224	4,431	337,198
Additions	-	-	4,497	662	5,159
Valuation additions*	76	20,286	-	-	20,362
Disposals	(5,624)	-	-	(157)	(5,781)
Revaluation	(23,993)	-	-	-	(23,993)
At 31 March 2009	288,852	31,436	7,721	4,936	332,945
Depreciation and Impairment					
At 1 April 2008	109,469	-	-	3,213	112,682
Provided during the year	8,807	-	-	579	9,386
Disposals	(2,915)	-	-	(157)	(3,072)
Revaluation	(7,571)	-	-	-	(7,571)
At 31 March 2009	107,790	-	-	3,635	111,425
Net Book Value					
At 31 March 2009	181,062	31,436	7,721	1,301	221,520
At 1 April 2008	208,924	11,150	3,224	1,218	224,516

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.

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

* See Accounting Policies (c) (ii)

Analysis of Land and Buildings

	2008-09 £'000	2007-08 £'000
Land and Completed Buildings:		
Research and Administration Buildings at Institutes	148,591	176,162
Dwellings at Institutes	29,341	28,745
Institute Occupied Land and Buildings	177,932	204,907
Swindon Office	3,130	4,017
	181,062	208,924
Buildings Under Construction	31,436	11,150
Total Freehold Land and Buildings	212,498	220,074

12. DEBTORS

	2008-09	2007-08
	£'000	£'000
i) Due within one year:		
Trade debtors	5,629	9,133
Other debtors	3,576	2,492
Repayment of Early Retirement Lump Sums*	1,513	967
	10,718	12,592
Prepayments and accrued income:		
- Research grants	3,251	4,645
- Training awards	9,725	9,024
- Other	6,645	3,137
	19,621	16,806
	30,339	29,398
ii) Due after one year:		
Repayment of Early Retirement Lump Sums*		
Sums*	4,545	4,972
Other**	13,084	12,189
	17,629	17,161
	47,968	46,559

* Cash received from Research Councils' Pension Scheme (RCPS) in 2008-09 in repayment of Early Retirement Lump Sums (ERLS) was £1,116,136 (2007-08: £1,590,796)

** Other debtors due after one year include a £10.3M loan to Babraham Bioscience Technologies (BBT) for the development of Babraham BioPark. BBT is 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.

13. CREDITORS: Amounts falling due within one year

	2008-09	2007-08
	£'000	£'000
Trade creditors	156	105
Deferred income	720	1,941
Shared Services Centre capital costs	7,721	3,224
Other creditors	115	408
	8,712	5,678
Accruals:		
- Research grants	15,768	10,706
- Other	10,303	6,960
	26,071	17,666
	34,783	23,344

14a. GRANT-IN-AID

	2008-09	2007-08
	£'000	£'000
Provided by the Department for Innovation, Universities and Skills under Request for Resources (RfR) 2 Subhead O	412,218	393,530
Grant-in-aid RfR 2 Subhead W	125	96
Net Parliamentary Funding	412,343	393,626

14b. NET PARLIAMENTARY FUNDING FROM OTHER BODIES

From other Research Councils	9,373	7,859
From other Government Departments	5,661	4,312
From other bodies	1,602	405
	16,636	12,576
TOTAL FINANCING	428,979	406,202

15. RECONCILIATION OF MOVEMENTS IN GOVERNMENT FUNDS

	Revaluation Reserve	General Reserve	Total Government Funds
	£'000	£'000	£'000
At 1 April 2008	182,647	59,755	242,402
Net Expenditure for year	-	(457,441)	(457,441)
Net Parliamentary Funding from DIUS - see Note 14a	-	412,343	412,343
Net Parliamentary Funding from other bodies - see Note 14b	-	16,636	16,636
Reversal of Notional Cost of Capital	-	8,094	8,094
Valuation additions*	20,362	-	20,362
Transfer to match depreciation	(6,465)	6,465	-
Transfer to match disposals	333	(333)	-
Professional revaluation	(16,422)	-	(16,422)
Revaluation alignment	1,284	(1,284)	-
At 31 March 2009	181,739	44,235	225,974

* See Accounting Policies (c) (ii)

16. NOTES TO THE CASHFLOW STATEMENT

i) Reconciliation of net operating expenditure to net cash outflow from operating activities		
	2008-09	2007-08
	£'000	£'000
Net Expenditure for year	(457,441)	(417,545)
Reversal of depreciation and impairment charge	9,386	7,473
Reversal of notional Cost of Capital	8,094	8,097
Reversal of net loss on disposals and demolition of fixed assets	257	157
(Decrease)/increase in provision for liabilities and charges	(2,489)	2,688
Increase in debtors excluding those for fixed assets	(2,107)	(1,601)
Increase in creditors excluding those for fixed assets	6,510	1,606
Net cash outflow from operating activities	(437,790)	(399,125)
ii) Reconciliation of movement in cash to movement in net funds		
	2008-09	2007-08
	£'000	£'000
Cash as at 1 April 2008	8,239	1,565
(Decrease)/increase from operating activities	(7,514)	6,674
Cash as at 31 March	725	8,239
iii) Breakdown of Balances		
	2008-09	2007-08
	£'000	£'000
HM Paymaster General	241	5,647
Barclays Bank plc	1,020	3,286
Less held for third parties (see(iv))	(536)	(694)
	725	8,239
iv) Third Party Assets: Cash held on behalf of Institutes to cover unforeseen losses		
	2008-09	2007-08
	£'000	£'000
At 1 April 2008	694	453
Net (Outflow)/ Inflow	(158)	241
At 31 March 2008	536	694
v) Movement in creditors and payments for fixed assets		
	2008-09	2007-08
	£'000	£'000
Tangible fixed asset additions	5,159	3,573
Purchase of investments	1,191	-
Less increase in fixed asset creditors	(4,497)	(3,194)
Payments to acquire tangible fixed assets	1,853	379
vi) Movement in debtors and receipts for fixed assets		
	2008-09	2007-08
	£'000	£'000
Fixed asset debtors	-	698
Other debtors	47,968	45,861
Total debtors (see Note 12)	47,968	46,559
Receipts/(Payments) on disposals of fixed assets (see Note 8)	2,452	(126)
Decrease in fixed asset debtors	698	102
Cash received from sale of fixed assets	3,150	(24)

17. FORWARD COMMITMENTS ON APPROVED RESEARCH GRANTS

	2008-09	2007-08
	£M	£M
2008-09	-	221.3
2009-10	205.9	145.4
2010-11	141.8	81.7
2011-12	73.8	23.1
2012-13	23.2	9.5
After 2012-13	10.4	-
	455.1	481.0

18. 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:

	2008-09	2007-08
	£'000	£'000
Shared Services Centre	3,512	4,930
Authorised for contracts to be let, subject to full business case	113,198	28,150
Funding approved in principle:		
- BBSRC contribution to the Pirbright redevelopment	-	16,536
- BBSRC contribution to IAH business continuity and compliance	-	22,223
- Babraham works	16,210	-
- North Wyke science redevelopment	1,970	-
- BBSRC contribution to the Easter Bush Research Centre	-	37,000
- Other	-	24,295
	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 2009 have been recognised through the Statement of Net Expenditure Account and the SSC Assets in the Course of Construction. The capital commitment transferred to the RCUK SSC Ltd in April 2009.

19. OPERATING LEASE COMMITMENTS

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

	2008-09	2007-08
	£'000	£'000
Between 2 and 5 years	30	30
After 5 years	-	582
	30	612

BBSRC has a lease on office accommodation occupied by SSC Ltd. Two of three floors of this lease are sublet to SSC Ltd. BBSRC recovers the full cost of the head lease (£582k per annum) from SSC Ltd and at the 31 March 2009 was in the process of transferring the head lease from BBSRC to SSC Ltd.

20. 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 were no claims for redundancy costs in 2008-09. Provision has been made for one known redundancy due for payment in 2009-10 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 direct costs that arise as a result of past actions of the institute and indemnity of up to £1M 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 2008-09 and no indication of need for provision at the balance sheet date.

21. 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 Financial Reporting Standard 8, 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 Principal 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.

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	1	48,221
Professor John Coggins FRSE	1	160,442
Professor Anne Dell FRS	1	229,399
Professor Chris Gilligan Sc.D	3	455,100
Dame Nancy Rothwell FRS	2	679,052

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

Dr David Brightman CBIol MIBiol	Rothamsted Research
Dr David Lawrence	Rothamsted Research
Professor Quintin McKellar FRSE	Institute for Animal Health

Registers of interest for Council, Boards and Committees can be found at www.bbsrc.ac.uk

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 each institute's 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

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.

Following the Follett and Costigan reports, the governance models of each of the BBSRC-sponsored institutes has been under review. As a result of changes in governance at the Institute for Animal Health (IAH), Mr Swinburne and Mr Gemmill act as members of the Corporate Trustee Team of five for IAH. To avoid any conflict of interest, Mr Swinburne and Mr Gemmill abstain from any BBSRC funding discussions with regard to IAH.

The North Wyke Research Centre is due to become part of the operations of Rothamsted Research during 2009-10. In the interim a temporary trustee board was created to govern the operations of the centre. Mr Stapley, as a BBSRC employee and interim trustee board member, abstains from any BBSRC funding discussions with regard to the North Wyke Research Centre.

Between 2004 and 2006 BBSRC invested £2M for one third of the issued share capital of Plant Biosciences Ltd. Details are shown in Note 10.

Each of the seven Research Councils own a joint share of the RCUK Shared Services Centre Ltd. The investment is classified as 'other investment'. Details are shown in Note 10.

Related Party Transactions

	Grants		Debtors (including loans)		Creditors		Major Provision In Year	
	08-09 £M	07-08 £M	08-09 £M	07-08 £M	08-09 £M	07-08 £M	08-09 £M	07-08 £M
Transactions with BBSRC-sponsored institutes:								
Babraham Institute*	32.2	25.1	0.5	0.4	0.1	0.1	-	-
Institute for Animal Health*	34.2	31.9	1.2	1.2	2.1	0.3	-	-
Institute of Food Research*	12.1	12.8	0.4	0.3	0.2	0.1	-	-
John Innes Centre	24.3	23.2	2.6	2.9	0.5	0.4	-	-
Rothamsted Research	20.7	23.7	4.1	3.4	0.3	0.2	-	0.1
North Wyke Research Centre*	1.7	-	-	-	-	-	-	-
The Genome Analysis Centre	3.8	-	-	-	-	-	-	-
	129.0	116.7	8.8	8.2	3.2	1.1	-	0.1
Transactions with former BBSRC-Sponsored Institutes:								
Institute of Grassland and Environmental Research	-	10.0	-	0.1	-	0.1	0.2	3.2
Roslin Institute	-	11.6	-	0.6	-	0.2	-	-
	-	21.6	-	0.7	-	0.3	0.2	3.2
Transactions with other related parties:								
Plant Biosciences Ltd	0.2	-	-	-	-	-	-	-
RCUK Shared Services Centre Ltd	1.1	-	-	-	1.3	-	-	-
	1.3	-	-	-	1.3	-	-	-
Total	130.3	138.3	8.8	8.9	4.5	1.4	0.2	3.3

*Institutes occupying BBSRC owned estate at peppercorn rents.

	Debtors		Creditors	
	2008-09	2007-08	2008-09	2007-08
	£M	£M	£M	£M
Non-Institute:	(see Note 12)		(see Note 13)	
Within the WGA Boundary:				
Other Research Councils	3.0	2.7	11.0	9.2
Other Government Organisations	2.2	2.0	0.7	2.4
Research Councils' Pensions Schemes	6.1	5.9	-	-
Non WGA:				
Babraham Bioscience Technologies Ltd	10.3	10.3	-	-
Other Debtors (including Universities)	17.6	16.8	18.2	10.3
	39.2	37.7	29.9	21.9
BBSRC-sponsored institutes & other related parties	8.8	8.9	4.5	1.5
	48.0	46.6	34.4	23.4

22. DERIVATIVES AND OTHER FINANCIAL INSTRUMENTS

FRS 29, 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 FRS 25,26 and 29 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 Balance Sheet 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 the Department for Business, Innovation and Skills, 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 DIUS 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 Balance Sheet date BBSRC held no significant foreign currency assets or liabilities.

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.

23. POST BALANCE SHEET EVENTS

FRS21 Events after the balance sheet date require the disclosure of the date on which the financial statements were “authorised for use” and who gave that authorisation. There were no Post Balance Sheet events between the Balance Sheet date and 14th July 2009, the date when the Accounting Officer approved the accounts. The Financial Statements do not reflect events after this date.

On 5th June 2009 the Government announced the creation of a new Department for Business, Innovation and Skills 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). There is no reason to believe that the expected government funding underlying the Council’s going concern assertion will be affected by this change.

ACCOUNTS DIRECTION GIVEN BY THE SECRETARY OF STATE FOR INNOVATION, UNIVERSITIES AND SKILLS (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 2009 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 2009 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 for Innovation, Universities and Skills

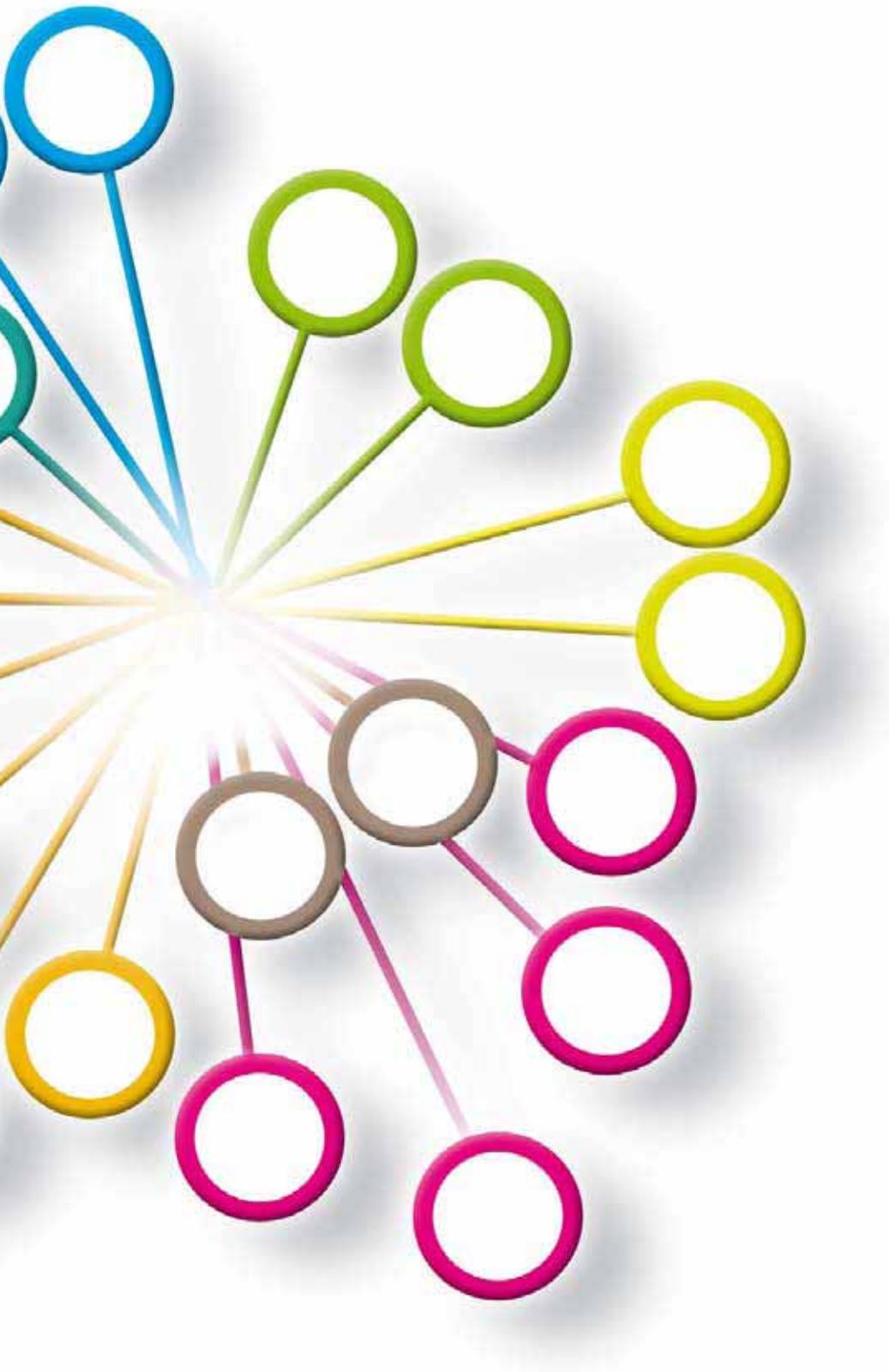
R Louth

Dated 5 April 2007

BBSRC Institutes and centres

- **Babraham Institute**
- **Institute for Animal Health**
- **Institute of Food Research**
- **John Innes Centre**
- **Rothamsted Research**
- **North Wyke Research** (formerly part of the former Institute of Grassland and Environmental Research) is due to become 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 (CISBAN)** (Newcastle University)
- **Centre for Integrative Systems Biology at Imperial College (CISBIC)** (Imperial College, London)
- **Manchester Centre for Integrative Systems Biology (MCISB)** (University of Manchester)
- **Centre for Systems Biology at Edinburgh (CSBE)** (University of Edinburgh)
- **Centre for Plant Integrative Biology (CPIB)** (University of Nottingham)
- **Oxford Centre for Integrative Systems Biology (OCISB)** (University of Oxford)

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





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