

BBSRC Output Framework: 2005/06 Data

The Output Framework forms part of the OSI Performance Management System implemented across all Research Councils in April 2005. The Output Framework contains metrics and narrative information on selected aspects of performance relevant to the Government's two objectives for the science base: 'Output 1', maintaining a healthy UK science & engineering base; and 'Output 2', improving exploitation of research. The Framework deals primarily with research inputs and outputs: information on the broader impacts of BBSRC activities is provided in the BBSRC Annual Report [<http://www.bbsrc.ac.uk/about/pub/policy/annrep.html>].

This is the first year of data and narratives against the Output Framework and should be read in conjunction with the BBSRC's Annual Delivery Report 2005/06 [http://www.bbsrc.ac.uk/about/pub/reports/06_aug_anndevrep.html]. An OSI overview of the Research Councils' Output Frameworks is available via the RCUK website [<http://www.rcuk.ac.uk/>].

Following some general metrics and narratives on the BBSRC's contribution towards Output 1, the Framework is divided up into a series of domains:

1. UK contribution to the global knowledge pool;
2. UK supply of newly trained people;
3. UK science & engineering base trained people pool;
4. Facilities & infrastructure;
5. Positioning & relationships.

The metrics and narratives cover the following characteristics: quality, sustainability, scale, agility, productivity & efficiency, and user focus.

The metrics and narratives for Output 2 apply to quality and scale, and cover:

1. Interaction with business & public services;
2. Collaborative research;
3. Commercialisation of research;
4. Cooperative training;
5. People exchanges between the science base & users.

The Research Councils are working together with OSI and each other to streamline the metrics and maximise their usefulness in interpreting aspects of Research Council performance.

Successes reported for 2005/06 include:

- The UK has now surpassed the US in its world citation impact in biological sciences, in which BBSRC is a key UK funder (output 1, p 4);
- UK bioscience continues to attract new researchers: the numbers of postgraduate students has increased hugely over the last ten years (output 1, p 8)
- Notable scientific achievements in BBSRC-funded areas have included research in stem cells, in aquatic ecosystems and in potential to improve drought resistance in crops (output 1, p 1, link to Annual Report);
- BBSRC has invested £7.1M in Industrial Partnership Awards, ahead of the target for the year (output 2, p 1);

- BBSRC's success with enterprise fellowships and the Young Entrepreneurs Scheme has been clearly demonstrated by external review (output 2, p 4)

OUTPUT 1 – A healthy UK Science & Engineering Base
Research Council: BBSRC

Overview		Current data	Comments																
Quality	International standing - share of citations by domain. Citation rate for RC funded research	<p>By domain: Biological sciences</p> <p>Number and share of citations among OSI comparator group,* 2004</p> <table> <tr> <td>No. of UK citations</td> <td>11,724</td> </tr> <tr> <td>UK rank by no. of citations</td> <td>Second</td> </tr> <tr> <td>% share of citations, OSI group</td> <td>10.03</td> </tr> </table> <p>* 25 countries: all G8, Belgium, Denmark, Finland, Netherlands, Spain, Sweden, Switzerland, Poland, Australia, Brazil, China, India, Iran, Israel, Singapore, S Africa, S Korea, Taiwan</p>	No. of UK citations	11,724	UK rank by no. of citations	Second	% share of citations, OSI group	10.03	<p>Major scientific achievements reported regularly in <i>BBSRC Business</i> and Annual Reports (www.bbsrc.ac.uk/about/pub/Welcome.html).</p> <p>Data from Evidence, <i>PSA target metrics for the UK research base</i>, December 2005, Table 3.02. Figures quoted for the biological sciences, the area of BBSRC's core business; the Council also monitors data for other SUoAs, including pre-clinical sciences, physical sciences, mathematics, engineering, where we have clear interests.</p> <p>Tracking publications and citations specifically arising from a single funder is very resource-intensive and expensive, and are not data to which BBSRC has access.</p>										
No. of UK citations	11,724																		
UK rank by no. of citations	Second																		
% share of citations, OSI group	10.03																		
Sustainability	Functional sustainability measure	<p>Age of HEI staff:</p> <table> <tr> <td>2003-04</td> <td>Under 35</td> <td>35-49</td> <td>50+</td> </tr> <tr> <td>Biological sciences</td> <td>701</td> <td>3,760</td> <td>2,922</td> </tr> <tr> <td>Agriculture and related subjects</td> <td>62</td> <td>254</td> <td>220</td> </tr> <tr> <td>Veterinary science</td> <td>22</td> <td>101</td> <td>57</td> </tr> </table> <p>Two open meetings held in 2005-06, with >170 participants</p> <p>8 consultations held</p>	2003-04	Under 35	35-49	50+	Biological sciences	701	3,760	2,922	Agriculture and related subjects	62	254	220	Veterinary science	22	101	57	<p>Data from report on Health of Disciplines to Funders Forum (Jan 2006).</p> <p>Consultation and dialogue events encourage participation in BBSRC policy, planning and funding decisions, and help build confidence. Attendance at open meetings included policy makers, academics, industrialists and NGO representatives</p> <p>Topics covered included data sharing policy, biodiversity research and priorities for farm animal genomics research.</p>
2003-04	Under 35	35-49	50+																
Biological sciences	701	3,760	2,922																
Agriculture and related subjects	62	254	220																
Veterinary science	22	101	57																

Overview		Current data	Comments
Productivity & efficiency	RC management efficiency eg reduction in wasteful tail of unsupported grant applications	BBSRC is in regular discussion, through its Committees and Boards, with the research community, to reduce the number of lower quality applications. Application numbers from BBSRC institutes are capped to help manage demand and the success rates of HEIs in obtaining grants are published on the website. Responsive mode success rates*: 26%	* based on responsive mode applications considered in the 2005 session (April 2005-March 2006).
		Expenditure on administration: £9.3M The Admin spend: Science Budget ratio was 0.07% below target with a 2.78% outturn Gershon savings generated: £0.6M	Figures from Gershon returns.
User focus (SEB)	Survey assessment of SEB confidence in RC	RCUK has recently conducted a survey of university researchers and administrators across the UK which shows that a very substantial majority believe that the Councils' grant application administration and peer review processes are excellent or good. The Joint Electronic Submission System is believed to have made the grant application process more efficient, particularly in reducing time and paperwork and enabling the development of collaborative proposals. The report will be published in the autumn. The first open meeting (see sustainability line) focused on BBSRC's decision making processes – no major problems registered.	
User focus (business and public services)	Survey assessment of user confidence in RC. See also indicators in output 2.	The House of Commons Science and Technology Select Committee Report on Research Councils support for knowledge transfer identifies a need for the Councils to engage business users more effectively. Whilst Research Councils have striven to develop effective engagement with business over recent years, they take such feedback seriously and will be consulting with their stakeholders on strengthening this aspect of their operations. BBSRC has a 'Bioscience for Industry' Strategy Panel with representatives from relevant sectors, which provides regular feedback on industrial views.	

1) UK Contribution to global knowledge pool		Current data	Comments
Quality	Citations/publication by domain, and for RC funded research	By domain: Biological sciences Citation impact relative to world baseline, 1999-2003: Rank: second No figures for RC funded research	Data from Evidence, <i>PSA target metrics for the UK research base</i> , December 2005, Table 3.07. The UK is now ahead of the US on this measure. Figures quoted for the biological sciences, the area of BBSRC's core business; see also note to overview: quality section above.
	Outcome of final year evaluations	% of grants in each category: 2005-06 A B C D 32 46 20 2	Individual research projects are evaluated by refereed final reports assessed against the original objectives of the project; responsive research initiatives are evaluated by review panels. A: Very high class work that has met all or almost all of the key objectives B: Work that has met the majority of its key objectives C: Work that has fallen short of the expectations of the original proposal even though it may have met some or all of its key objectives D: Work that has failed to address the key objectives
Sustainability	Participation of women in SEB. See also sustainability data in overview.	% women BBSRC-funded principal investigators at universities and in senior science grades at BBSRC-sponsored institutes: Universities Institutes 2005-06 18.7 17.7	
Scale	No. of publications produced per annum by domain	Numbers of biological sciences publications with UK authors in refereed journals, 2000-2004: Total 94,589	Figures from Evidence Report, December 2005, pp 51, 55; note to overview: quality section also applies.
		Publications data for BBSRC-sponsored institutes (calendar year): 2005 All publications* Refereed pubs X/N figure** 1257.5 605.5 Total number of publications 1836 1082	Figures from annual returns from BBSRC-sponsored institutes * 'All publications' include: refereed papers, books and book chapters, edited conference contributions, technical reports, theses and popular articles. ** Number of publications is calculated according to the X/N formula in the Funding Councils' RAE where, for a given publication, X is the number of authors at the institute and N the total number of authors.

1) UK Contribution to global knowledge pool		Current data	Comments									
Agility	Rate of change in per annum publication numbers in relation to identified priorities		BBSRC cannot provide publications figures against priority areas: publications will often be relevant to multiple areas/priorities.									
Productivity & efficiency	Publications/research leader	Publications data for BBSRC-sponsored institutes per research leader (calendar year): <table border="0"> <tr> <td>2005</td> <td>All publications</td> <td>Refereed pubs</td> </tr> <tr> <td>X/N figure</td> <td>4.5</td> <td>2.2</td> </tr> <tr> <td>Total number of publications</td> <td>6.6</td> <td>3.9</td> </tr> </table>	2005	All publications	Refereed pubs	X/N figure	4.5	2.2	Total number of publications	6.6	3.9	Figures from annual returns from BBSRC-sponsored institutes.
2005	All publications	Refereed pubs										
X/N figure	4.5	2.2										
Total number of publications	6.6	3.9										
User focus (business and public services)	Growing the level of co-funding of research	Investment in new collaborative research, 2005-06: £2.01M	Figure from Gershon returns									
	No. joint publications with business	Publications data for BBSRC-sponsored institutes (calendar year): <table border="0"> <tr> <td></td> <td>Refereed pubs*</td> <td>Per scientist</td> <td>% of all refereed pubs</td> </tr> <tr> <td>2005</td> <td>65</td> <td>0.2</td> <td>6</td> </tr> </table>		Refereed pubs*	Per scientist	% of all refereed pubs	2005	65	0.2	6	Figures from annual returns from BBSRC-sponsored institutes. * Actual number of refereed publications, not calculated as X/N.	
		Refereed pubs*	Per scientist	% of all refereed pubs								
2005	65	0.2	6									
License income	Data for BBSRC-sponsored institutes: <table border="0"> <tr> <td></td> <td>Income (£K)</td> </tr> <tr> <td>2005-06</td> <td>656</td> </tr> </table>		Income (£K)	2005-06	656	Figures from annual returns from BBSRC-sponsored institutes. Figures include income from IP licences held by the institutes and from licenses assigned to collaborators. See also Output 2, pp 3-4						
	Income (£K)											
2005-06	656											

2) UK Newly Trained People		Current data	Comments
Quality	Rate of PhD unemployment	Of BBSRC-funded PhDs leaving for known destinations, % unemployed*: Start year 1998-99 % 6	*see below
	PhD completion rates	Start year 2001-02 % students submitting by end of 4 th year 73	BBSRC monitors submission rates rather than completion rates as the time to submission is under the control of the student and supervisor; the time to completion is not.
Sustainability	<i>Recruitment and retention trend in HEIs by domain [PSA]</i> Pattern of first destinations of new PhDs	Of BBSRC-funded PhDs, % leaving for known destinations, start year 1998-99*: Permanent academic employment 1 Fixed-term academic employment 39 Further training (excl. teaching) 2 School teaching or teacher training 3 Private sector, industry or commerce 21 Government or other public sector 8 Other employment 2 Not employed 6 Overseas 18	*In 2003 the Research Councils contracted HESA to collect data on the first destinations of PhD award holders. Some transitional difficulties mean that the data for 2003 finishers are not reliable. The Research Councils are working with HESA to improve this position. In the meantime, BBSRC is reporting data for 2002 finishers, the most recent year for which reliable data are available.
	Diversity of new PhDs relative to society norms	No. of PhD starters by gender: Male Female 2005-06 265 357 % PhD starters by ethnic origin: White Black Asian Other Not specified 2005-06 89.7 1.2 3.4 1.2 4.4	

3) UK SEB trained people pool		Current data	Comments												
Sustainability	Capacity at undergraduate and postgraduate levels	% change in numbers of undergraduates, 1994/95 to 2003/04: Biological sciences 109.7 Veterinary science 39.8 Agriculture and related subjects 32.1 % change in numbers of postgraduates, 1994/95 to 2003/04: Biological sciences 224.5 Veterinary science -24.2 Agriculture and related subjects 37.8	Data from report on Health of Disciplines to Funders Forum (Jan 2006).												
	Recruitment and retention	Staff joining and leaving BBSRC (Institutes and BBSRC Office): <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">Recruited</td> <td style="text-align: center;">Leaving</td> </tr> <tr> <td>2005-06</td> <td style="text-align: center;">246</td> <td style="text-align: center;">379</td> </tr> </table>		Recruited	Leaving	2005-06	246	379							
	Recruited	Leaving													
2005-06	246	379													
Scale	No. of active researchers per domain	<table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: right;">2004-05</td> </tr> <tr> <td>Professors</td> <td style="text-align: right;">1,940</td> </tr> <tr> <td>Senior Lecturers</td> <td style="text-align: right;">3,020</td> </tr> <tr> <td>Lecturers</td> <td style="text-align: right;">4,550</td> </tr> <tr> <td>Researchers</td> <td style="text-align: right;">8,275</td> </tr> <tr> <td>Total</td> <td style="text-align: right;">17,785</td> </tr> </table>		2004-05	Professors	1,940	Senior Lecturers	3,020	Lecturers	4,550	Researchers	8,275	Total	17,785	Figures from HESA, for biological sciences and related disciplines; BBSRC also monitors equivalent data for other relevant areas, including physical sciences, mathematics and computer sciences.
	2004-05														
Professors	1,940														
Senior Lecturers	3,020														
Lecturers	4,550														
Researchers	8,275														
Total	17,785														

4) Facilities and Infrastructure		Current data	Comments						
Quality	International standing of RC funded strategic facilities	The 2005 Institute Assessment Exercise showed that 45 out of the 55 assessed programmes scored high international/international (quality of science) or outstanding/good (strategic relevance).							
Sustainability	Capital investment in institutes	Institute annual surplus level £682.6M Capital expenditure as % of total estate 3.0% building replacement Maintenance as % of replacement cost 1.2%							
Scale	New facilities entering service as a result of RC funding	Total expenditure on institute facilities £15.8M							
Agility	Rate of change in RC spend on & between facilities	Following IAE 2005, BBSRC will: <ul style="list-style-type: none"> • increase proportion of core institute funding for animal health and welfare from 22% to 26% by 2009-10 • provide £35M in capital funding for the proposed Edinburgh Bioscience Research Centre • increase core institute funding in sustainable agriculture and land use • increase core institute funding in biomedical and food sciences 							
Productivity & efficiency	Efficiency of BBSRC-sponsored institutes	Saving generated, 2005-06: £2.33M	Closure of Silsoe Research Institute and withdrawal of funds from Edward Jenner Institute; disposal of Houghton Grange and Greens Yard, Compton Information from Gershon returns.						
User focus (SEB)	Utilisation rate	Institute collaborations with HEIs: <table border="1"> <thead> <tr> <th></th> <th>Number</th> <th>Value (£k)</th> </tr> </thead> <tbody> <tr> <td>2005-06</td> <td>993</td> <td>14,062</td> </tr> </tbody> </table>		Number	Value (£k)	2005-06	993	14,062	Figures from annual returns from BBSRC-sponsored institutes.
			Number	Value (£k)					
2005-06	993	14,062							
		Uptake of facilities at Integrative Systems Biology Centres.	ISBs will be monitored for uptake by the community in future years.						
User focus (business/ public services)	Level of business/services capital investment in disciplinary areas	The BBSRC 10 year Estates Strategy shows current planned investment of £432M. Two projects to highlight are the £121M investment in Pirbright and the Babraham redevelopment of £21M, of which BBSRC will fund £23M and £15M respectively.							

5) Positioning & Relationships		Current data	Comments										
Quality	Aggregate indicator as under scale etc below	Recognition from Demos, FEC, etc, of developing role in public engagement (<i>Nature</i> editorial, Demos report). Positive feedback from participants in dialogue events, from visitors at public exhibitions and from schools, and through formal evaluation by consultants.	Recommendations from independent evaluations of exhibits will inform development of future exhibitions.										
Sustainability	Survey trends in public attitudes to science issues	BBSRC is a member of the Coalition for Medical Progress (CMP) Steering Group. Yearly public attitude studies commissioned by CMP on the use of animals in medical research shows approximately 75% can accept the use of animals in research as long as it is for medical purposes. The proportion of people trusting the regulatory system, and trusting scientists not to cause unnecessary suffering, has increased steadily since 1999.	A MORI report for OST reported in March 2005 showed a largely positive attitude among the UK public about science and perception of science issues. Over 80% of adults think that science makes a good contribution to society and that science will make our lives easier.										
		BBSRC, MRC and the Wellcome Trust have developed a joint statement on Managing Risks of Misuse Associated with Grant Funding Activities; and BBSRC has updated its position statement on stem cell research.	Openness and responsiveness to issues of public concern are a key element of BBSRC's activities to maintain public trust in UK bioscience.										
Scale	Aggregate indicator (possibly maturity scale) including:												
	distribution of funding amongst funders; joint funding as % total funding; membership of networks;	2005-06 funding to BBSRC-sponsored institutes: <table border="0"> <tr> <td>BBSRC</td> <td>61%</td> </tr> <tr> <td>Defra/FSA</td> <td>14%</td> </tr> <tr> <td>Industry</td> <td>5%</td> </tr> <tr> <td>International</td> <td>4%</td> </tr> <tr> <td>Other (including research charities)</td> <td>16%</td> </tr> </table> <pre-audit figures)<="" td=""> <td></td> </pre-audit>	BBSRC	61%	Defra/FSA	14%	Industry	5%	International	4%	Other (including research charities)	16%	
	BBSRC	61%											
Defra/FSA	14%												
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Other (including research charities)	16%												
interactions with partners and users	Media releases: 60 Media coverage: from April-mid August 2005: 321 clippings, 250% rise on same period in 2004 Corporate publications released: 12 Requests for schools resources in 2005: 882	BBSRC has regular formal and informal interactions with relevant Government Departments and agencies, RCUK and the other research councils (see also Output 2. Interaction with business; and Overview section).											

5) Positioning & Relationships		Current data	Comments								
Scale (ctd)	Interaction and responsiveness to public inputs (or attitude survey associated with KT work)		BBSRC runs web-based consultations in relation to selected new research initiatives, with views taken into account by initiative managers. From this year the Bioscience for Society Strategy Panel will be responsible for advising Council on its interactions with the public, including responding to issues of public concern.								
User focus (SEB)	Level of interaction with HEIs	<p>HEI representation on BBSRC Council, Boards, Research Committees (%):</p> <table border="1"> <thead> <tr> <th></th> <th>Council/ Boards</th> <th>Research Committees</th> <th>Strategy Panels</th> </tr> </thead> <tbody> <tr> <td>2005-06</td> <td>54</td> <td>74</td> <td>54</td> </tr> </tbody> </table> <p>2 meetings held with heads of UK HEI Bioscience Departments.</p>		Council/ Boards	Research Committees	Strategy Panels	2005-06	54	74	54	Interactions with HEIs are a routine part of BBSRC business, and take place at all levels. In addition to formal Committee/Panel/Board meetings, the Council holds scientific workshops, meetings with heads of HEI bioscience departments, public events, all involving interchanges with HEIs. There is also a significant amount of daily business in relation to grant, fellowship and studentship applications, and funded awards.
	Council/ Boards	Research Committees	Strategy Panels								
2005-06	54	74	54								
User focus (business and public services)	% business/services people on RC governing bodies, etc	<p>User representation on BBSRC Council, Boards, Research Committees (%):</p> <table border="1"> <thead> <tr> <th></th> <th>Council/ Boards</th> <th>Research Committees</th> <th>Strategy Panels</th> </tr> </thead> <tbody> <tr> <td>2005-06</td> <td>29</td> <td>15</td> <td>33</td> </tr> </tbody> </table>		Council/ Boards	Research Committees	Strategy Panels	2005-06	29	15	33	Interactions with users are many and varied (see comments in scale section). This year a new panel, the Bioscience for Industry Strategy Panel will focus in particular on interactions with the private sector.
			Council/ Boards	Research Committees	Strategy Panels						
	2005-06	29	15	33							
<p>User representation on BBSRC-sponsored institute Governing Bodies and institute policy committees (%):</p> <table border="1"> <thead> <tr> <th></th> <th>Governing Bodies</th> <th>Policy committees</th> </tr> </thead> <tbody> <tr> <td>2005-06</td> <td>57</td> <td>44</td> </tr> </tbody> </table>		Governing Bodies	Policy committees	2005-06	57	44	Figures from annual returns from BBSRC-sponsored institutes.				
	Governing Bodies	Policy committees									
2005-06	57	44									
	RC involvement/membership of business/regional networks	<p>Institute collaborations with local organisations:</p> <table border="1"> <thead> <tr> <th></th> <th>Number</th> <th>Value (£k)</th> </tr> </thead> <tbody> <tr> <td>2005-06</td> <td>183</td> <td>1,539</td> </tr> </tbody> </table>		Number	Value (£k)	2005-06	183	1,539	Figures from annual returns from BBSRC-sponsored institutes		
	Number	Value (£k)									
2005-06	183	1,539									

**OUTPUT 2: BETTER EXPLOITATION BBSRC:
MEASURES – RC/DOMAIN LEVEL**

COLLABORATIVE RESEARCH

Total current value of BBSRC commitment to research involving collaboration with industry and/or research relevant to technology priorities (CR&D product, networks, clubs and underpinning research): **£9.9M**

Total value of new BBSRC commitment to research involving collaboration with industry and/or research relevant to technology priorities (CR&D product, networks, clubs and underpinning research): **£2.6M**

Total value of new BBSRC commitment to Industrial Partnership Awards (IPAs): **£7.1M**

Current commitment to LINK

BBSRC participates in the LINK scheme, an initiative aimed at promoting academic/industrial research collaboration in a pre-competitive research area.

	2005-06
Number of projects	61
Number of industrial participants	86
New projects	10
Total value of BBSRC commitment	£9,873k
Total value of new BBSRC commitment	£2,651k

Commitment to collaborative R&D activities such as CRD, clubs and other initiatives underpinning industrial need

In 2005-06 applications were sought in Bioprocessing, Integrative Mammalian Biology and through the national Technology Programme CR&D product (Regenerative Medicine & Bioscience for Industry), all jointly run with industry. Awards will be made in 2006-07.

Industrial Partnership Awards (IPAs)

IPAs encourage industrial awareness of, and involvement in, research projects funded by BBSRC. They are science base-led responsive mode research grants that have significant industrial involvement and where industry contributes 10% to the cost of a responsive mode project.

In 2005-06, 24 awards were made, with a total value of £7,148k.

BBSRC-sponsored institutes

LINK collaborations

	2005-06
Number of projects	54
New projects	16
Number of industrial participants	222
Annual value to institutes	£3,575k

Industrial contracts and collaborations

Institutes receive funding for ‘contracts’, to carry out routine testing or contract research for a contractor, and ‘collaborations’, where they work jointly with others on a project where all partners contribute intellectually.

	2005-06
Contracts: annual value to institutes	£6,082k
Collaborations: annual value to institutes	£2,747k

Quality
<ul style="list-style-type: none">• Longer-term excellence demonstrated through assessments of final reports, publications records and evaluation of science programmes.
<ul style="list-style-type: none">• Satisfaction of industrial collaborators with the collaboration (<i>measure to be developed</i>)
<ul style="list-style-type: none">• All collaborative research projects supported to be internationally competitive. This to be ensured through peer review by appropriate assessment panels or research committees.

COMMERCIALISATION OF RESEARCH

Total annual value of activities to support the commercialisation of R&D: £3.8M

Total number of individuals trained/mentored through these activities: 1,246

Biotechnology YES

The Biotechnology YES (Young Entrepreneurs Scheme) is an innovative competition developed to raise awareness of the commercialisation of bioscience ideas among postgraduate students and postdoctoral scientists.

In 2005-06, 198 individuals participated in this scheme.

Research Council Business Plan Competition

The Competition, which builds on the success of the earlier bioscience Competitions, is designed to help entrepreneurial researchers from across the UK find successful routes to market. It provides regional training workshops and coaching and mentoring, with a prize being awarded to the team producing the best business plan.

In 2005-06, 110 teams participated in the competition.

Enterprise Fellowships

This scheme is run jointly by BBSRC and the Royal Society of Edinburgh, and supports researchers who wish to be actively involved in commercialising their research. The Fellowships provide business training, access to networks of mentors, business experts and professional advisers, and a salary to allow them to concentrate on developing the commercial potential of their research.

In 2005-06, 4 Fellowships were awarded, with a total value of £195k.

Intellectual Property Workshops

Workshops are run to encourage awareness of IP and KT issues within the research community. They inform existing and potential BBSRC-funded scientists of the issues surrounding the identification, protection and exploitation of intellectual property and cover all aspects of the commercialisation process.

In 2005-06, 29 courses were run, training 934 individuals.

Follow-on Fund

This scheme, run jointly with EPSRC, NERC and PPARC, aims to increase the level and accelerate the rate of commercialisation of ideas arising from the research community. It provides funds for proof-of-concept studies to enable ideas to be brought to a stage where commercial opportunities (e.g. licensing, seed or equity funds) can be secured.

In 2005-06, BBSRC made 15 awards, with a total value of £1,083k.

Funding biotechnology SMEs through SBRI

The Small Business Research Initiative scheme aims to encourage more Small to Medium-sized Enterprises (SMEs) to start up or develop new research capacity.

In 2005-06, 10 awards were made, with a total value of £2,300k.

University exploitation activities

Exploitation metrics are collected from the leading BBSRC-funded university departments. The most recent data are from academic year 2004-05:

	2004-05
Number of departments	15
BBSRC funding	£39,670k
Exploitation income	£1,946k
Spin-out companies	38

BBSRC-sponsored institutes

Exploitation data

	2005-06
Number of patents and plant breeders rights currently held by institute	126
Number of current licensing agreements arising from above	37
Royalty income from above	£415k
Number of patents and plant breeders rights currently held by collaborators	15
Number of current licensing agreements arising from above	8
Royalty income from above	£241k
Number of patents and plant breeders rights which generated income	76
Number of licensing agreements involving companies with significant research or manufacturing capacity in the UK	26
Income from sale of equity in start-up companies	£449k
Income from any other exploitation of research	£612k
Total exploitation income	£1,717k
Total cost associated with Intellectual Property protection	£530k
Number of employees involved in commercialisation activities	13.5

Spin-out companies

BBSRC encourages the formation of new business ventures and has funded a number of activities to assist in establishing spin-out companies, including trading arms, service companies and entrepreneurial life science companies.

	2005-06
Number of companies incorporated	1
Number of companies trading	16
Number of dormant companies	7

Awards to inventors

A proportion of income received by BBSRC-sponsored institutes from the exploitation of IP is distributed among the relevant staff involved in the exploitation. Forms of income include: royalties and licensing payments, sale of IP, and advance or milestone payments for a licence.

In 2005-06, 19 awards were made, with a total value of £80,830.

Quality
<ul style="list-style-type: none"> Longer term excellence demonstrated through the assessment of final reports and evaluation studies. <p>The external evaluation of the two Bioscience Business Plan Competitions undertaken in 2003 is currently being updated to report autumn 2006.</p>
<ul style="list-style-type: none"> For enterprise fellowships and YES through career progression of individuals involved. <p>A longer term review highlighting the career progression of past participants in YES was completed in 2006 in collaboration with University of Nottingham (UNIEI). The Review showed that:</p> <ul style="list-style-type: none"> 3 entrepreneurs, past participants of Biotechnology YES, have raised over £5M of equity investment for their ventures; 43% of participants have gone on to work in the private sector; 77% of participants now working in private industry said the competition helped them gain their current position; 12% of participants are working in technology transfer or IP management roles.
<ul style="list-style-type: none"> Assessment of feedback from participants in YES/BPC and IP workshops as measure of increased commercial awareness
<ul style="list-style-type: none"> Ensure all proposals supported through Business Plan Competition, Follow-on Fund, SBRI, and Enterprise Fellowships assessed as excellent (both science and commercial) by appropriate assessment panel. Ensure risk capital secured by companies supported through SBRI.

COOPERATIVE TRAINING

Total value of annual spend on education and training activities involving industry: £11.6M

BBSRC provides funding for industrially relevant training:

CASE/Industrial CASE

CASE and Industrial CASE awards fund top quality bioscience graduates to undertake a three-year programme of research (leading to a PhD) on a subject selected and supervised jointly by academic and industrial partners.

In 2005-06, a total of 251 studentships were awarded (studentships commence 1 October 2006).

Modular Training for Industry

The Modular Training for Industry Programme provides up to date, industrially-relevant technical training for graduates working in industry. Support is provided for the development of individual training modules.

In 2005-06, a total of 10 awards were made, totalling £298k and supporting 67 companies.

BBSRC-sponsored institutes

CASE/Industrial CASE

	2005-06
Number of CASE awards	49
Number of Industrial CASE awards	9

Quality

- % BBSRC funded PhDs leaving for the private sector: **21%**
(see also Output 1 Part 2. Newly trained people)
- For MTI ensure delegate attendance and quality of outcomes of modules evaluated by assessment Panel.
Evaluation currently underway to be completed autumn 2006.
- All Industrial CASE awards to provide an excellent training environment for postgraduate students. This will be ensured through assessment of Industrial CASE proposals by the Studentships and Fellowships Panel.
- All Modular training courses supported to be of high quality and meeting industrial need as assessed by an expert panel. Assessment Panel to ensure all supported modules have significant industrial involvement.
Evaluation currently underway to be completed autumn 2006.

INTERACTION WITH BUSINESS

Members of Council, Boards, Research Committees and Strategy Panels are drawn from the user communities and industry. The user communities are also well represented on BBSRC-sponsored institute governing bodies and other policy committees.

% user and industry representation on BBSRC Council, Boards, Strategic Panels and Research Committees:

Year	Council/Boards		Research Committees		Strategy Panels	
	Users	Industry	Users	Industry	Users	Industry
2005-06	29	21	15	12	33	21

BBSRC-sponsored institutes

% user and industry representation on institute governing bodies and other policy committees:

Year	Governing body		Policy committees	
	Users	Industry	Users	Industry
2005-06	57	34	44	32

PEOPLE EXCHANGES: SEB/USERS

Total annual spend on activities involving the interchange of people and knowledge between the science base and industry: £0.2M

Annual spend on interchanges between the science base and industry

BBSRC encourages the flow of people and knowledge between science and industry. In 2005-06, a flexible interchange scheme was launched between industry and academe.

In 2005-06, 6 awards were made totalling £180k.

Knowledge Transfer Partnerships

KTPs enable collaborative partnerships between the bioscience base and industry. They serve as a mechanism to transfer knowledge and to develop graduate and postgraduate personnel for industrial careers.

	2005-06
Number of programmes	7
Total expenditure	£45,422

BBSRC-sponsored institutes

Interactions between institutes and industry

Institute staff working in industry, and industrialists working in institutes, which result in a significant outcome or output. Institute staff also carry out formal consultancies, for which the institute receives a financial return.

	2005-06
<i>Staff exchanges</i>	
No. of staff exchanged with industry	
No. of industrial staff exchanged with institutes	2
<i>Staff industrial consultancies</i>	
No. of staff involved	69
No. of industrial customers	60

Quality

- Ensure quality of outcomes through the assessment of Final Reports and evaluation studies.

An external evaluation of BBSRC-supported KTP Programmes was undertaken in 2005-06 in collaboration with Momenta and with co-funding from DTL. The Report of the evaluation was considered by the BBSRC Bioscience for Industry Panel and KTP Management Board in March 2006. The Report indicates that life science companies benefit less from KTP as compared to other sectors, thus supporting BBSRC plans to reduce Council investment in this Programme.

- All interchanges supported to be of high quality as determined through peer review against the criteria for the scheme