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The policy environment for publicly-funded research on cereals and oilseeds

by

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Abstract

The HGCA is conducting an R&D Strategy Review, Challenges and Opportunities for the cereals and oilseeds industries. This report, produced at the request of the HGCA, provides information about the policy environment for publicly funded research on cereals and oilseeds.

The report addresses the activities currently being undertaken by the Research Priorities Group (RPG) and identifies how the HGCA might take advantage of these activities to increase the proportion of collaboratively funded research. The report then addresses in detail the views of the various major bodies (Defra, BBSRC, SEERAD and DARD) providing public funds for research on cereals and oilseeds. The report also addresses the positions of the FSA, EA, PSD and NERC. Information is provided about the current level of funding by the major bodies of relevant research.

Finally the report summarises the current position with respect to public funding of research relevant to cereals and oilseeds and recommends action that might be taken by HGCA.

The Research Priorities Group (RPG)

Defra established the Research Priorities Group in consultation with other public funders of research. This was in response to recommendations made by the Policy Commission under Sir Donald Curry's chairmanship. The main objective of the RPG is to advise Defra on strategic priorities for publicly funded research in support of sustainable farming and food industries in the UK. Other public funders of relevant research have been actively involved in the RPG deliberations: this was done because the research is of much wider interest than to Defra alone and because there were opportunities to create new partnerships. In addition to accepting the need for the RPG, the Defra response to the Policy Commission (The Strategy for Sustainable Farming and Food-Facing the Future) said "Defra will be promoting more collaboration between industry, government and scientific institutions. **Industry must play a more prominent role in identifying research needs for sustainable food and farming, and in supporting that research.** Defra is ready to match increased industry funding for additional LINK research".

The RPG reported in March 2005 recommending new research priorities for Defra and other public funders of relevant research. The research priorities were not commodity facing and addressed climate change; energy, water and waste; environment and landscape; as well as other issues. The recommendations imply a shift in the research agenda for Defra towards more support for the environmental and rural aspects of sustainability with less of the research resource being devoted to competitiveness. As indicated in the section in this report under "Defra" the RPG recommendations have catalysed change within the Defra research agenda both in its structure and priorities.

The RPG has assessed the degree of support for its priorities from the various relevant public funders of research. These funders are: Defra, SEERAD, DARD, BBSRC, NERC, EA, FSA and the ARF (representing levy bodies including the HGCA). The indications are that there is strong support for all the research priorities with the exception of those under the heading of energy, water and waste. There is particularly strong support for the priorities under the heading "environment and landscape".

A second report from the RPG is likely to be published in autumn 2006. This report will not only identify the specific support (by funder and by research type (basic, strategic, applied, experimental development)) for each of its 40 research priorities but will also indicate how the RPG believes collaboration between the various research funders could be improved. Thus there will be in the public domain very clear indications of where research funders have expressed common interests and where there is potential for collaboration. **The HGCA should take advantage of this information** by actively pursuing collaboration with public funders on those research priorities where the HGCA in particular (as opposed to the ARF in general) has a strong interest and where public funders have also expressed an interest.

Defra

The Defra farming and food research programme in the Farming and Food Directorate General has undergone a major reorganisation. This reorganisation has been prompted by recommendations of the Research Priorities Group to meet the needs of Strategy for Sustainable Farming and Food and the Food Industry Sustainability Strategy. New research will be grouped in the following programmes:

Research Programmes	Policy areas
Agriculture and Climate Change	<ul style="list-style-type: none"> • Emissions from agriculture to air • Mitigating nitrogen and carbon emissions • Energy in agriculture and food • Adaptation • Bioenergy • Renewable Materials
Water Quality and Use (Agriculture)	<ul style="list-style-type: none"> • Minimising the impact of agriculture on water quality • Minimising the impact of agriculture and food production on water resources
Sustainable Farming Systems and Biodiversity	<ul style="list-style-type: none"> • Organic farming (including biodiversity and soils) • Sustainable farming systems (including biodiversity and soils)
Food Chain Meeting Consumer Needs	<ul style="list-style-type: none"> • Quality foods for healthy eating • Waste reduction and recycling in the food chain • Efficient food manufacturing and distribution

The Defra research programmes are no longer commodity facing and they indicate a clear shift in emphasis so that the research programmes better map onto the aims of the Defra Strategy for Sustainable Farming and Food. The new structure and contact points in the Farming and Food Science Division are shown in Annex 1. Current Defra spend on research related to HGCA interest is in total about £10.9 M¹, relevant Defra projects are shown in Annexes 2.1-2.4.

There is in existence a substantial block of LINK projects relevant to HGCA interests. Defra will continue to lead the delivery of six sector facing LINK programmes and through these **Defra will continue to sponsor private sector led research where this is appropriate to Defra's priorities**. There will be a need for HGCA to remain in close contact with officials in the Sustainable Farming and Food Directorate General because of the many changes taking place. Not only is sustainable farming and food research more explicitly facing Defra's strategic priorities, the overall direction of Defra's research investment is putting pressure on Defra's resourcing of research for sustainable farming and food. This continues the general decline in the sustainable farming and food budget which has been under pressure from at least as long ago as 1996 (when the budget was cut to provide additional funding for research on BSE).

DARD (Northern Ireland)

DARD is not a major funder of research on cereals and oilseeds nevertheless there is some relevant research being funded. Science in DARD has undergone a considerable change in the past six months. Staff from the DARD Science Service, together with the staff from the Agriculture Research Institute of Northern Ireland (ARINI) and from the food

¹ The cost is approximate only. A more accurate figure could be generated but only at disproportionate cost. The annual figure was calculated by summing total project costs and assuming an average project lifespan of 3 years.

department of Queens University, Belfast, have been brought together in a new agency. The agency is called the Agri-food and Biosciences Institute (AFBI). This change follows the publication of the O'Hare report in 2002. The report recommended changes to the way the science delivery organisations were structured and to the way research was commissioned and monitored. In addition to this the O'Hare report also recommended the establishment of a new independent committee to advise on research and education on behalf of DARD. Coupled to this DARD has recently issued for consultation its first draft strategic plan covering the period 2006-11. The draft plan identifies four primary goals for DARD, these are:

- To improve performance in the marketplace
- To contribute to the social and economic infrastructure of rural areas
- To enhance animal, fish and plant health and welfare
- A sustainable environment.

The majority of the current DARD research programme is aimed at the first of these goals which includes alternative crop production (mostly willow biomass). The bulk of the remaining research funding is directed to enhancing animal, fish and plant health and welfare. There will almost certainly need to be a shift in priorities in the research programme which would inevitably mean a reduction in research "to improve performance in the marketplace". The changes to CAP and the poor profitability of sheep and milk production in Northern Ireland probably mean that agriculture in the province will need to undergo a substantial restructuring. This may have implications for research on cereals and oilseeds, however it is too early to say. Current relevant DARD-funded research is shown in Annex 3. The annual spend on relevant research is £0.05 M.

DARD has also recently established the Research and Education Advisory Panel, directly as a result of the O'Hare report. REAP will advise DARD on its future strategic research priorities.

It would be prudent for HGCA to stay in touch with developments in Northern Ireland. However given the current limited funding directed to cereals and oilseeds this action would not be a high priority.

SEERAD (Scotland)

The SEERAD Science and Research Group (SRG) published its new Research Strategy, "Strategic research for SEERAD 2005-2010, environment, biology and agriculture" in January 2005. The strategy set out, amongst other things, a series of major developments including strengthening the relevance of the research to Scottish Executive policy and to related client interest groups. The strategy identified three main objectives:

- To procure scientific research that is of high quality and strategically relevant to Scottish Ministers' policy, legislative and enforcement functions;
- To improve knowledge and technology transfer from, and public awareness of, the research and its outputs; and
- To ensure that those parts of the research base funded by SEERAD Science and Research Group are effective and efficient.

Various targets were established to measure progress against achieving these objectives. SRG is well on the way to achieving these targets. The new SEERAD Head of Department, Richard Wakeford, wishes to see stronger use of science in the formulation of policy within SEERAD. This has led to the appointment of a Chief Scientific adviser, Professor Maggie Gill, the previous director of the Macaulay Institute. In addition to this, responsibility for oversight of the research programmes with the appropriate scientific support has been devolved to the appropriate policy divisions within SEERAD (previously management/control of the programmes resided within the predecessor to SRG). This has been done to promote the role of the policy divisions as "intelligent customers". Critically the budgets for the research have been retained within SRG; this should make it easier for SRG to ensure that changes in policy divisions' priorities are not so sudden as to damage the research base for which SEERAD is responsible.

SEERAD is changing its commissioning procedures so that rather than commissioning projects it will be commissioning programmes of research. The programmes being supported are shown in Annex 4. The relevant current projects being supported by SEERAD are shown in Annex 5 and the total SEERAD annual spend on research relevant to HGCA is about £6.7 M. The programmes on barley genetics, barley pathology, sustainable crop systems, sustainable farming systems, soil quality, and soil function and value are likely to be of most interest to HGCA. HGCA made a major input in the development of the barley programmes. Knowledge transfer activities have been incorporated into the three main programs of particular interest to HGCA. Proposals for programmes will not be funded without a thorough peer review. In fact each work package described in Annex 4 was considered by at least 10 reviewers. SEERAD is reducing the proportion of basic research that it funds because it believes that this type of research is more appropriate to the Funding and Research Councils. In future the extent of the basic research supported by SEERAD will be less than 10% of the total research budget. At the same time action is being taken to ensure that the proportion of SEERAD SRG funded research which is classified as directly policy relevant will increase to at least 75% of the total budget. Taken together these two measures will probably lead to higher proportion of SEERAD research being of more immediate relevance to HGCA.

The SEERAD Research Strategy committed the Executive to establishing a Strategic Science Advisory Panel (SSAP). This panel is now up and running and one of its main tasks will be to advise on the future development of research programmes through horizon scanning. It is expected that a work plan for the panel will be published by May 2006. **HGCA is advised to keep a close watch on the activities of SSAP (minutes and papers will be available on the SEERAD website) because its recommendations could have a profound influence on the shape of the future SEERAD research programme.**

SEERAD intend to establish a closer engagement with the user community possibly by ensuring that their Main Research Providers are required to do so by making end-user engagement (and associated publicity strategies) an integral part of the new research programmes. **Again HGCA should make efforts to engage in these activities.**

Finally SRG has a target to increase the proportion of SEERAD programmes which align with programmes of other funders and to increase the level of joint funding. The opportunities to do this should be made easier with the publication of the second RPG report. **HGCA is advised to study the RPG report, to identify opportunities for joint funding with SEERAD and to pursue these.** Given the SRG target it could be that HGCA is pushing at an "open door".

BBSRC

BBSRC has no particular policy or strategy for funding research on cereals or any other specific crop. BBSRC does however fund projects on cereals where there is a fit with the BBSRC strategy and where the projects have sufficient scientific merit. There are currently over 79 active projects mentioning cereals or oilseeds on the Oasis database held by BBSRC and these are shown in Annexes 6.1, 6.2 and 6.3. The total annual cost of these projects is estimated to be £5.0 M². Some of these are on very basic science issues but there are others of more immediate relevance to HGCA. **The new BBSRC Strategic Plan has been published in 2006 and is available on the BBSRC website; the changes to the plan are most unlikely to have any significance for research on cereals.**

There has been a recent review of crop science undertaken on behalf of BBSRC under the chairmanship of Professor Chris Gilligan. The review report has achieved broad acceptance by BBSRC and has resulted in a crop science initiative which has £13.05 M allocated to it (the original £8 M plus 45% for FEC uplift). Targets for the crop science initiative proposed in the review report include improvements in crops which bring benefits to consumers in terms of improved quality and human health; improvements in drought tolerance and water use efficiency, underpinning a sustainable strategy for pests, diseases and weeds; and improved resource use and minimisation of waste. These targets align very closely with the some of the priorities recommended by the RPG. **HGCA is already well engaged with activities relevant to this review.**

BBSRC has agreed ambitious targets with OST/DTI for joint funding of research with industry. Mechanisms for joint funding of research with industry include LINK and the Industrial Partnership Award scheme, IPA. LINK projects will be mainly funded through the Defra LINK committees, as is usual. LINK projects for BBSRC funding will be peer reviewed and will be accepted by BBSRC for funding provided they are of at least international quality. The IPA is different from LINK. From April 2006 provided an IPA project achieves the lowest score which qualifies the project as being of international quality and provided the project fits with the BBSRC strategy then it is likely be funded (the precise details of the likelihood of an IPA project being funded are complex). Currently Industry needs to provide only 10% cash of the cost of the IPA projects. This means that **for every £1 invested by industry BBSRC will provide £9, this equates to a financial gearing factor of nine for strategic research of relevance to industry.** Given that BBSRC are under some pressure to increase their joint funding of research with industry, the IPA scheme could be very attractive to the HGCA.

Other Funders (NERC, FSA, PSD, EA)

These organisations are most unlikely to fund research on cereals or oilseeds unless interest in these crops happens to be coincidental with the primary functions of the organisation.

EA would be willing to collaborate in joint partnerships with others involved in managing catchments and thus get the best from available funding expertise. EA has no difficulties in collaborating with industry on specific issues where this is appropriate. Given the very

² In calculating this figure it has been assumed that the average cost of a studentship is £16k/year and that the average cost of a CSG project is the same as that for a BBSRC grant (£71k/year) and that the average life of any project is 3 years. More detailed information could have been generated but only at disproportionate cost.

large area of land covered by cereals and oilseeds there may be merit in the HGCA engaging with the EA. However HGCA should note that this collaboration would almost certainly be directed to the research aimed at combating diffuse pollution or enhancing soil quality/function.

The FSA does not generally fund research programmes on commodities. Its programmes tend to address issues related to food safety/quality, for example mycotoxins. Consequently there will be opportunities for collaboration with the FSA but these will arise on an *ad hoc* basis and will, very likely, address reducing food contamination.

NERC research is directed primarily to the natural environment. Consequently any NERC projects on cereals or oilseed would be focused on the impact of their production on the natural environment. Given the very radical changes proposed to the structure of CEH (Centre for Ecology and Hydrology) and a consequent reduction in the NERC core-funded program, it seems likely that the opportunities for collaboration between NERC and HGCA will decrease.

For these three bodies, namely EA, FSA and NERC, their views on the RPG recommendations and the importance they ascribe to each of the RPG research priorities will be a matter of public record later this year. There are certainly research priorities considered to be important to these bodies and to the HGCA. **It is strongly recommended that the HGCA identify these priorities and pursue the opportunity for collaboration immediately after publication of the second RPG report.**

The priorities for PSD and the nature of the research it supports have been changing over the past years, particularly since the advent of Defra. The increased focus on the reduction in use of pesticides and prevention of contamination of water arising from the activities of the cereal and oilseed industries is likely to remain a priority. Funding through LINK remains a possibility but at least part of the research would have to be coincident with the main priorities for PSD.

HGCA

The HGCA strategy published in January 2004 identifies 30 research priorities on the six main themes. Some of these priorities are directed to knowledge transfer and monitoring. In the author's opinion, given the limited research budget available to the HGCA, the effort is spread too thinly, even allowing for collaboration with other funders, to achieve the R&D Mission, namely "protect and enhance the future sustainability, competitiveness and profitability of UK-produce cereals and oilseeds". There would be very few ideas for projects that did not fit, to some extent, with one or other of the current HGCA priorities.

It is accepted that the HGCA has to satisfy many different interests. However it is likely that a sharper focus for the research programme, perhaps based on a risk/benefit analysis, would result in a greater impact for the cereals and oilseeds industries. The methodology used would not be critical, what is critical for HGCA is to have a research portfolio directed to fewer priorities. This approach would require some hard choices to be made; in essence some existing priorities would have to go.

Discussion and Conclusions

Current annual funding of research relevant to cereals and oilseeds by the major public funders is summarised below. The way the figures have been estimated means they are approximate only. The figures should not be taken to mean a continued commitment by funders to continue at the same level of spend in the future.

Funder	Annual Spend £M (approximate)
Defra	10.9
DARD	0.05
SEERAD	6.7
BBSRC	5.0
Total	22.6

The general picture of public funding of research relevant to cereals and oilseeds is one of rapid change. There is no reason to suppose that the rate of change will abate.

The Defra budget for agriculture and food research is under continual pressure as has been the case for many years. The way that the Defra research programmes are being re-brigaded gives a strong indication of the shape of things to come. In the author's opinion the focus of the agriculture and food research programme in Defra will sharpen even further on the delivery of public goods particularly in minimising the impact of agriculture on the environment. A substantial proportion (about 16%) of the total SEERAD research programme is relevant to HGCA interests. The SEERAD strategy is published and HGCA made an input in the development of the barley programmes. The proportion of basic research funded by SEERAD is set to decrease which means that HGCA will become more reliant on basic research funded by BBSRC. Given the changes (CAP reforms and environmental pressures at the least) taking place that are likely to affect the profitability of agriculture, it would be most unwise to assume that the SEERAD strategy will remain unchanged throughout its life (2005-2010). The BBSRC strategic plan is published, the crop science initiative is underway and the Industrial Partnership Award scheme is in operation. HGCA should make full use of the IPA scheme to enhance the amount of basic research likely to underpin the delivery of HGCA strategy: particularly given the 9:1 gearing offered by the scheme (BBSRC will invest £9 for every £1 invested by industry).

It is accepted that the HGCA is under pressure from many directions and has stakeholders with varied interests. It is suggested that the HGCA R&D strategy should be more focused by having fewer priorities. There needs to be a clearer vision of where the industry wants to be in 10 years time and a thorough analysis of how research could be used to deliver part of that vision. It may be that HGCA would benefit from a foresight/horizon scanning exercise such as was recently conducted by the MLC for the red meat industries. Such action would not only help generate a vision for the future but also help ensure buy-in to that vision by stakeholders.

The industry is now facing many challenges. CAP reform is likely to accelerate restructuring in the industry. Against that backdrop there are likely to be difficulties caused by climate change, continued pressure to reduce pesticide inputs, and **without any doubt whatsoever increased pressure to ensure that water is not adversely affected by agriculture.**

Taking into account the information presented in this report the following recommendations are made to the HGCA:

1. HGCA should take full advantage of the information to be presented in the second report from the RPG by actively pursuing collaboration with public funders (Defra, BBSRC, SEERAD) on those research priorities where the HGCA in particular has a strong interest and where public funders have also expressed an interest.
2. HGCA should continue to make use of the LINK scheme.
3. HGCA should keep a close watch on the activities of the Strategic Science Advisory Panel because its recommendations could have a profound influence on the shape of the future SEERAD research programme.
4. HGCA should take advantage of the SEERAD commitment to ensure that its main Research Providers engage with end users.
5. Given the financial gearing offered by the BBSRC IPA scheme HGCA is strongly advised to make full use of this scheme for funding basic/strategic research relevant to its needs.
6. The RPG priorities likely to be supported by the EA, FSA and NERC will be a matter of public record later this year. It is strongly recommended the HGCA identify which of these priorities are also important to the HGCA and pursue the opportunities for collaboration.
7. There would be merit in focusing the HGCA strategy onto fewer priorities. This might be achieved through a foresight/horizon scanning exercise which would also help buy in from stakeholders.
8. Should these recommendations be accepted, even in part, then the likely workload of HGCA staff would increase. Thought needs to be given to how this increased workload would be managed.

Acknowledgements

During the preparation of this report I contacted a range of people with expert knowledge on the public funding of agriculture and food with special reference to cereals and oilseeds. The author gratefully acknowledges the help and assistance received from the following individuals:

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Donal Murphy Defra (Farming and Food Directorate General)

Author's disclaimer

This report has been prepared by John Sherlock (SEKTELO) under contract to the HGCA. The views expressed and conclusions reached are those of the author and do not necessarily represent those of the funding organisations. Those parts of the report describing the relevance of the funding organisations research to HGCA and the opportunities for collaboration were subject to comment by the relevant funding organisations.

The information presented and opinions expressed in this report are not intended to be a comprehensive study of cereals and oilseeds research funding issues. Nor does the report provide legal advice and it should not be relied on or treated as a substitute for specific advice on individual issues. I accept no responsibility to third parties to whom this report is made known; any such party relies on the report at their own risk.

Annex 1. Sustainable Farming and Food Science Division

The Sustainable Farming and Food Science Division (SFFSD) procures scientific research in sustainable farming and food technology to provide an evidence base for Defra's policy formulation and development. Existing sector-focused research programmes will be wound down from April 2006 and all new work will form part of four new programmes that will directly address Defra's strategic priorities.

SFFSD's new Food Chain and Non-food Crops Research Programme has a budget of £34million in 2006/2007. For more details, see below.

Food Chain and Non-food Crops Research Programme Head of Division: Dr Sue Popple Area 4B Nobel House, Tel: 020 7238 2025, Fax: 020 7238 1540		
Work area	Policy areas	Key contact
Agriculture and Climate Change	<ul style="list-style-type: none"> • Emissions from agriculture to air • Mitigating nitrogen and carbon emissions • Energy in agriculture and food • Adaptation • Bioenergy • Renewable Materials 	Dr Donal Murphy-Bokern Area 4C Nobel House Tel: 020 7238 1506
Water Quality and Use (Agriculture)	<ul style="list-style-type: none"> • Minimising the impact of agriculture on water quality • Minimising the impact of agriculture and food production on water resources 	Dr Emma Hennessey Area 4B Nobel House Tel: 020 7238 1528
Sustainable Farming Systems and Biodiversity	<ul style="list-style-type: none"> • Organic farming (including biodiversity and soils) • Sustainable farming systems (including biodiversity and soils) 	Dr David Cooper Area 4C Nobel House Tel: 020 7238 1508
Food Chain Meeting Consumer Needs	<ul style="list-style-type: none"> • Quality foods for healthy eating • Waste reduction and recycling in the food chain • Efficient food manufacturing and distribution 	Dr Christina Goodacre Area 4B Nobel House Tel: 020 7238 1518

LINK:

SFFSD also provides the secretariat for six farming and food science LINK programmes. LINK is a Government wide framework for supporting collaborative research between industry and the research base. LINK encourages pre-commercial research which has significant potential for and seeks to promote commercial exploitation for the benefit of the industry. Defra, other Government Departments and Research Councils provide up to 50% of the eligible cost of the project, with 75% available for Feasibility projects and 25% for Development projects. The balance of the funding comes from a consortium of industrial partners. For more details on each LINK programme, see below.

Farming and Food LINK programmes		
LINK programme	Priority areas for the programme	Key contacts
Advanced Food Manufacturing	<ul style="list-style-type: none"> • Principles and tools for design of processes • Improved process capabilities • Higher operational efficiency through diagnostics and control • Higher resource efficiency 	<p>LINK Co-ordinator: Dr Christina Goodacre Area 4B Nobel House Tel: 020 7238 1518</p> <p>LINK Secretariat: Pauline Spetsioti Area 4B Nobel House Tel: 020 7238 1519</p>
Food Quality and Innovation	<ul style="list-style-type: none"> • Raw material quality • Food ingredients, food safety and materials science • Quality and safety measurement • Delivery of improved nutritional quality • Sensory quality and consumer perception 	<p>LINK Co-ordinator: Dr Mike Doel Area 4B Nobel House Tel: 020 7238 1520</p> <p>LINK Secretariat: Dr Hayley Terlevich Area 4B Nobel House Tel: 020 7238 1519</p>
Horticulture	<ul style="list-style-type: none"> • The efficient use of resources • Novel and more efficient production and harvesting systems • Efficient, environmentally acceptable and sustainable pest and disease control, contributing to integrated crop protection management (ICMS) • Technologies to ensure the availability of quality UK produce at times required by the market • Crops targeted to provide novel or improved food products • Reduction and management of waste in production and processing • Exploiting genomics for improving horticultural crop quality and productivity 	<p>LINK Co-ordinator: Dr David Cole Area 4B Nobel House Tel: 020 7238 1541</p> <p>LINK Secretariat: Zoe Edmonds Area 4B Nobel House Tel: 020 7238 1543</p>

<p>Renewable Materials</p>	<ul style="list-style-type: none"> • Developing improved manufacturing processes for extracting and isolating materials for products • Identifying and developing products from renewable materials with novel or improved functionality that make intelligent use of renewable resources • Gaining an understanding of supply chains to support their optimisation in the context of sustainable development • Generating information and knowledge needed to make informed decisions about the environmental sustainability of producers derived from renewable materials, and their impact on ecosystem services and natural resource assets • Improving understanding of primary production and the associated impacts of land use 	<p>LINK Co-ordinator: Professor Peter Street Area 4C Nobel House Tel: 020 7238 1515</p> <p>LINK Secretariat: Daniel Max-Orumbie Area 4C Nobel House Tel: 020 7238 1516</p>
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<p>Sustainable Arable</p>	<ul style="list-style-type: none"> • Novel methods of pest, disease and weed control • Diagnostics and monitoring • Strategies for controlled resistance to pests • Biotechnology, breeding and agronomy for specific end-uses • Novel strategies for applying nutrients and reducing their loss to the environment • Sustainable soil management systems • Decision support systems 	<p>LINK Co-ordinator: Professor Peter Street Area 4C Nobel House Tel: 020 7238 1515</p> <p>LINK Secretariat: Daniel Max-Orumbie Area 4C Nobel House Tel: 020 7238 1516</p>
<p>Sustainable Livestock Production</p>	<ul style="list-style-type: none"> • Genetic approaches to improving efficiency and quality of UK livestock production • Improvement of animal health and welfare in sustainable systems • Improving the sustainability of livestock production through optimal nutrition • Integration of livestock production with crop enterprises, including organic agriculture and integrated farm management systems • Development and improvement of livestock husbandry systems • Improving environmental management of livestock systems • Optimising carcass processing efficiency at the abattoir • Social science aspects of sustainable livestock production 	<p>LINK Co-ordinator: Dr Zoë Davies Area 4B Nobel House Tel: 020 7238 1535</p> <p>LINK Secretariat: Lucy Barnard Area 4B Nobel House Tel: 020 7238 1536</p>

For more information on the farming and food LINK programmes, visit the website at:-
<http://defrafarmingandfoodscience.csl.gov.uk/linkprogrammeoverview.cfm>

For further information on projects within the programmes, please visit the following websites:

Advanced Food Manufacturing LINK:

<http://defrafarminandfoodscience.csl.gov.uk/unit/floatingtable.cfm?id=5>

Horticulture LINK:

<http://defrafarminandfoodscience.csl.gov.uk/unit/floatingtable.cfm?id=3>

Sustainable Arable LINK:

<http://defrafarminandfoodscience.csl.gov.uk/unit/floatingtable.cfm?id=2>

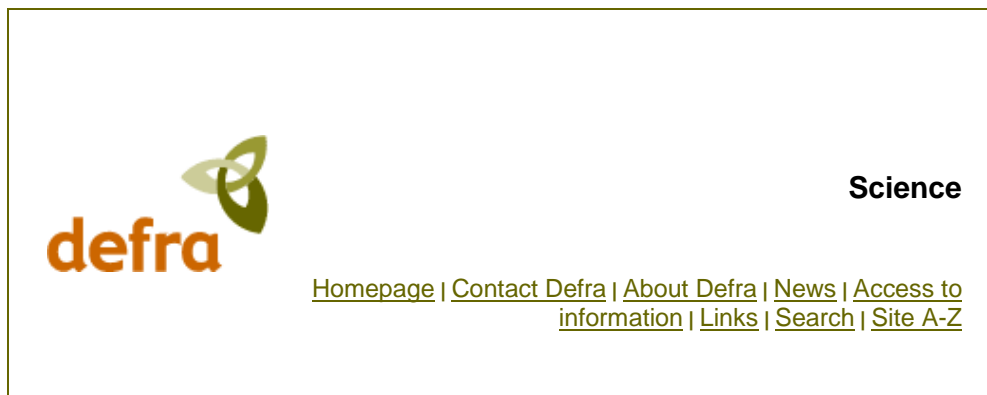
Sustainable Livestock Production LINK:

<http://defrafarminandfoodscience.csl.gov.uk/unit/floatingtable.cfm?id=4>

To search all Defra-funded projects, including those that are run through SFFSD's research programmes, visit the searchable database at:

http://www2.defra.gov.uk/research/project_data/Default.asp

Annex 2.1. Defra projects (Arable crops)



Arable Crops

AR0316 : Oilseed rape crop ecology: optimising crop husbandry for conservation biological control and greater biodiversity

[More Project Details](#)

From **2004** To **2008** , Cost: **£415,000**

Contractors/Funded Organisations : [Rothamsted Research \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Sustainable Production](#)

AR0317 : Assessing the environmental impact of crop production practice: beyond the GM farm-scale evaluation (joint with CGMP)

[More Project Details](#)

From **2005** To **2006** , Cost: **£790,675**

Contractors/Funded Organisations : [Rothamsted Research \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Sustainable Production](#)

AR0318 : Habitat diversification and aphid-specific natural enemies in arable ecosystems: optimising crop protection and environmental benefits

[More Project Details](#)

From **2004** To **2007** , Cost: **£768,750**

Contractors/Funded Organisations : [Rothamsted Research \(BBSRC\)](#)

Keywords: [Environmental Protection](#) - [Climate and Weather](#) - [Climate Change](#) - [Sustainable Production](#)

AR0503 : Crop health status and protection practice in major UK combinable crops

[More Project Details](#)

From **2003** To **2006** , Cost: **£1,152,672**

Contractors/Funded Organisations : [Central Science Laboratory](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Sustainable Production](#)

AR0511 : Fellowship in Crop Environment Interactions with Pathogenic Fungi

[More Project Details](#)

From **2003** To **2007** , Cost: **£813,484**

Contractors/Funded Organisations : [ADAS Consulting Ltd](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Diseases](#)

AR0513 : Risk prediction algorithms for diseases in combinable crops.

[More Project Details](#)

From **2003** To **2007** , Cost: **£406,913**

Contractors/Funded Organisations : [Rothamsted Research \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Diseases](#)

AR0515 : Epidemiology of ear blight and biology of toxigenic Fusarium species and related pathogenic fungi in cereal crops

[More Project Details](#)

From **2003** To **2006** , Cost: **£417,641**

Contractors/Funded Organisations : [Rothamsted Research \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Diseases](#)

AR0603 : Interaction of biology and behaviour of storage insects with environmental conditions in bulk grain

[More Project Details](#)

From **2002** To **2006** , Cost: **£655,327**

Contractors/Funded Organisations : [Central Science Laboratory](#)

Keywords: [Plants and Animals](#) - [Pest and Weed Control](#) - [Pest Control](#) - [Grain Pests](#)

AR0604 : Safe storage of grain by preventing and controlling the development of mite pests

[More Project Details](#)

From **2002** To **2006** , Cost: **£614,325**

Contractors/Funded Organisations : [Central Science Laboratory](#)

Keywords: [Plants and Animals](#) - [Pest and Weed Control](#) - [Pest Control](#) - [Grain Pests](#)

AR0703 : The Defra Oilseed Rape Genetic Improvement Centre - OREGIN

[More Project Details](#)

From **2003** To **2006** , Cost: **£676,500**

Contractors/Funded Organisations : [Horticulture Research International](#), [Rothamsted Research \(BBSRC\)](#), [Warwick - HRI](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Improvement](#)

AR0709 : The Defra Wheat Genetic Improvement Network

[More Project Details](#)

From **2003** To **2008** , Cost: **£1,803,035**

Contractors/Funded Organisations : [Rothamsted Research \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Wheat Production](#) - [Crop Improvement](#)

AR0712 : Biology and genetics of durable resistance to biotrophic pathogens of cereals

[More Project Details](#)

From **2003** To **2007** , Cost: **£914,053**

Contractors/Funded Organisations : [IGER, Inst. of Grasslands and Environment \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Cereal Production](#) - [Crop Diseases](#)

AR0914 : Generating and evaluating a novel genetic resource in wheat in diverse environments

[More Project Details](#)

From **2001** To **2008** , Cost: **£391,620**

Contractors/Funded Organisations : [Elm Farm Research Centre](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Wheat Production](#) - [Crop Improvement](#)

AR0916 : EUREKA SWAN - Reduction of water use in the EU Malting Industry

[More Project Details](#)

From **2003** To **2006** , Cost: **£87,007**

Contractors/Funded Organisations : [MAGB SWAN Ltd](#)

Keywords: [Food and Drink](#) - [Food manufacturing industry](#) - [Food Chain](#) - [Process Technology](#)

AR1005 : BRAC - Biotechnology Resources for Arable Crop Transformation

[More Project Details](#)

From **2003** To **2007** , Cost: **£898,468**

Contractors/Funded Organisations : [John Innes Centre \(BBSRC\)](#), [Rothamsted Research \(BBSRC\)](#)

Keywords: [Biotechnology](#) - [Genetically modified food and crops](#) - -

FT1009 : Investigating Wheat Functionality Through Breeding and End Use (FQS 23)

[More Project Details](#)

From **2001** To **2007** , Cost: **£285,308**

Contractors/Funded Organisations : [Campden & Chorleywood Food Research Association](#), [Federation of Bakers](#), [Home Grown Cereals Authority](#), [John Innes Centre \(BBSRC\)](#), [Monsanto UK Ltd](#), [National Association of British and Irish Millers \(NABIM\)](#), [New Farm Crops LTD](#), [Nickerson UK Ltd](#), [Rothamsted Research \(BBSRC\)](#), [University - East Anglia](#)

Keywords: [Food and Drink](#) - [Food manufacturing industry](#) -

IS0216 : Optimising reduced-input agriculture with respect to environmental burdens and use of resources

[More Project Details](#)

From **2004** To **2006** , Cost: **£50,000**

Contractors/Funded Organisations : [Rothamsted Research \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Sustainable Production](#)

IS0219 : Underpinning the computer based decision support to agriculture - Agricultural decision support (ADS)

[More Project Details](#)

From **2005** To **2009** , Cost: **£747,132**

Contractors/Funded Organisations : [University - Cranfield](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Sustainable Production](#)

IS0222 : Developing and delivering environmental Life-Cycle Assessment (LCA) of agricultural systems

[More Project Details](#)

From **2005** To **2009** , Cost: **£306,491**

Contractors/Funded Organisations : [University - Cranfield](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Sustainable Production](#)

LK0927 : Prediction of wheat protein

[More Project Details](#)

From **2002** To **2006** , Cost: **£214,302**

Contractors/Funded Organisations : [ADAS Consulting Ltd](#), [Bruker Optics Ltd](#), [Campden & Chorleywood Food Research Association](#), [Heygates Ltd](#), [Home Grown Cereals Authority](#), [Rothamsted Research \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Wheat Production](#) - [Crop Improvement](#)

LK0930 : Controlling soil-borne wheat mosaic virus in the UK by developing resistant wheat cultivars

[More Project Details](#)

From **2003** To **2006** , Cost: **£134,468**

Contractors/Funded Organisations : [Advanta UK Ltd](#), [Central Science Laboratory](#), [Home Grown Cereals Authority](#), [Lochow-Petkus GmbH](#), [National Institute of Agricultural Botany](#), [Nickerson UK Ltd](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Cereal Production](#) - [Crop Improvement](#)

LK0932 : Reduced fusarium ear blight and mycotoxins through improved resistance (REFAM)

[More Project Details](#)

From **2003** To **2007** , Cost: **£238,068**

Contractors/Funded Organisations : [Advanta UK Ltd](#), [Central Science Laboratory](#), [Elsoms Seeds Ltd](#), [Home Grown Cereals Authority](#), [John Innes Centre \(BBSRC\)](#), [Monsanto UK Ltd](#), [National Institute of Agricultural Botany](#), [Nickerson UK Ltd](#), [RHM Technology](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Cereal Production](#) - [Crop Improvement](#)

LK0945 : Improved Resistance to Septoria in Superior Varieties (IMPRESSIV)

[More Project Details](#)

From **2004** To **2009** , Cost: **£759,310**

Contractors/Funded Organisations : [Advanta UK Ltd](#), [Elsoms Seeds Ltd](#), [Home Grown Cereals Authority](#), [John Innes Centre \(BBSRC\)](#), [Nickerson UK Ltd](#), [Sejet Planteforaedling I/S](#), [SW Seeds Ltd](#), [Syngenta Crop Protection UK Ltd](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Sustainable Production](#)

LK0950 : Lupins in Sustainable Agriculture - LISA

[More Project Details](#)

From **2004 To 2008** , Cost: **£1,256,530**

Contractors/Funded Organisations : [IGER, Inst. of Grasslands and Environment \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#)

LK0954 : The incorporation of important traits underlying sustainable development of the oat crop through combining conventional phenotypic selection with molecular marker technologies

[More Project Details](#)

From **2004 To 2009** , Cost: **£1,547,980**

Contractors/Funded Organisations : [IGER, Inst. of Grasslands and Environment \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Weed Control](#) - [Technology Transfer](#)

LK0956 : Components of resistance to diseases in winter oilseed rape cultivars

[More Project Details](#)

From **2004 To 2008** , Cost: **£455,226**

Contractors/Funded Organisations : [ADAS Consulting Ltd](#), [CPB Twyford Ltd](#), [Elsoms Seeds Ltd](#), [Home Grown Cereals Authority](#), [Monsanto UK Ltd](#), [National Institute of Agricultural Botany](#), [Nickerson UK Ltd](#), [Rothamsted Research \(BBSRC\)](#), [Saaten-Union Ltd](#), [Syngenta Crop Protection UK Ltd](#), [University - Scottish Agricultural College](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Diseases](#)

LK0957 : Understanding Sclerotinia infection in oilseed rape to improve risk assessment and disease escape

[More Project Details](#)

From **2004 To 2007** , Cost: **£118,007**

Contractors/Funded Organisations : [ADAS Consulting Ltd](#), [CPB Twyford Ltd](#), [Home Grown Cereals Authority](#), [Rothamsted Research \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Diseases](#)

LK0958 : Identification of genetic markers for lodging resistance in wheat

[More Project Details](#)

From **2004 To 2008** , Cost: **£342,027**

Contractors/Funded Organisations : [ADAS Consulting Ltd](#), [Advanta UK Ltd](#), [Home Grown Cereals Authority](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Wheat Production](#) - [Crop Improvement](#)

LK0959 : Genetic Reduction of Energy use and Emissions of Nitrogen in cereal production, GREEN grain

[More Project Details](#)

From **2004 To 2009** , Cost: **£693,076**

Contractors/Funded Organisations : [ADAS Consulting Ltd](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Wheat Production](#) - [Crop Improvement](#)

LK0961 : Targeting winter barley disease management

[More Project Details](#)

From **2004 To 2008** , Cost: **£107,441**

Contractors/Funded Organisations : [ADAS Consulting Ltd](#), [Agrovista UK Ltd](#), [BASF plc](#), [Bayer UK Ltd](#), [CSC Crop Protection Ltd](#), [Home Grown Cereals Authority](#), [Masstock Arable \(UK\) Ltd](#), [UAP Ltd](#), [University - Scottish Agricultural College](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Cereal Production](#) - [Crop Diseases](#)

LK0962 : Towards a sustainable whole-farm approach to the control of ergot

[More Project Details](#)

From **2004 To 2008** , Cost: **£273,389**

Contractors/Funded Organisations : [National Institute of Agricultural Botany](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Sustainable Production](#)

LK0964 : Novel resources for oilseed rape breeding. Improving harvest index. (ORB-LINK)

[More Project Details](#)

From **2005 To 2009** , Cost: **£233,151**

Contractors/Funded Organisations : [Biogemma UK Ltd](#), [CPB Twyford Ltd](#), [Elsoms Seeds Ltd](#), [Home Grown Cereals Authority](#), [John Innes Centre \(BBSRC\)](#), [Monsanto UK Ltd](#), [Nickerson UK Ltd](#), [Saaten-Union Ltd](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Improvement](#)

LK0967 : Biopesticides for the control of storage insect pests

[More Project Details](#)

From **2005 To 2009** , Cost: **£393,114**

Contractors/Funded Organisations : [BOCM Pauls Ltd](#), [CABI Bioscience](#), [Central Science Laboratory](#), [Exosect](#), [Home Grown Cereals Authority](#), [Igrox Ltd](#), [Marks and Spencer plc](#), [RHM Technology](#), [Smiths Flour Mills](#), [Somycel](#), [Weetabix Ltd](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Pests](#)

LK0969 : Assessment of wheat blossom midge risk and exploitation of resistant and tolerant varieties

[More Project Details](#)

From **2005 To 2008** , Cost: **£238,181**

Contractors/Funded Organisations : [ADAS Consulting Ltd](#), [Advanta Seeds UK Ltd](#), [AgriSense BSC Ltd](#), [Dow Agrosiences Ltd](#), [Elsoms Seeds Ltd](#), [Home Grown Cereals Authority](#), [John Innes Centre \(BBSRC\)](#), [Nickerson UK Ltd](#), [Rothamsted Research \(BBSRC\)](#), [The Arable Group](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Wheat Production](#) - [Crop Improvement](#)

LK0975 : An Integrated Approach to Stabilising HFN in Wheat: Screens, Genes & Understanding.

[More Project Details](#)

From **2005 To 2009** , Cost: **£483,784**

Contractors/Funded Organisations : [Rothamsted Research \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Wheat Production](#) - [Crop Improvement](#)

Annex 2.2. Defra projects (Organic crops)



Organic Farming

AR0914 : Generating and evaluating a novel genetic resource in wheat in diverse environments

[More Project Details](#)

From **2001** To **2008** , Cost: **£391,620**

Contractors/Funded Organisations : [Elm Farm Research Centre](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Wheat Production](#) - [Crop Improvement](#)

HH3406SX : Understanding the relative establishment times of crops and weeds within the changing seedbed

[More Project Details](#)

From **2004** To **2008** , Cost: **£673,313**

Contractors/Funded Organisations : [Warwick - HRI](#)

Keywords: [Farming](#) - [Horticulture](#) - [Vegetables](#)

HL0174LFV : Companion Planting for Pest Control in Field Crops

[More Project Details](#)

From **2005** To **2009** , Cost: **£202,932**

Contractors/Funded Organisations : [Elsoms Seeds Ltd](#), [Horticultural Development Council](#), [Horticulture Research International](#), [Marshall Brothers \(Butterwick\) Ltd](#), [R Fountain & Son](#)

Keywords: [Plants and Animals](#) - [Plant health](#) - [Crop diseases](#)

LK0928 : Advance automation technologies for sustainable agricultural production

[More Project Details](#)

From **2002** To **2005** , Cost: **£186,483**

Contractors/Funded Organisations : [Silsoe Research Institute \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Sustainable Production](#)

LK0950 : Lupins in Sustainable Agriculture - LISA

[More Project Details](#)

From **2004** To **2008** , Cost: **£1,256,530**

Contractors/Funded Organisations : [IGER, Inst. of Grasslands and Environment \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#)

LK0951 : Developing new management options for soil-borne pests of organic system

[More Project Details](#)

From **2004** To **2007** , Cost: **£151,890**

Contractors/Funded Organisations : [University - Plymouth](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Sustainable Production](#)

LK0954 : The incorporation of important traits underlying sustainable development of the oat crop through combining conventional phenotypic selection with molecular marker technologies

[More Project Details](#)

From **2004** To **2009** , Cost: **£1,547,980**

Contractors/Funded Organisations : [IGER, Inst. of Grasslands and Environment \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Weed Control](#) - [Technology Transfer](#)

LK0960 : Better Organic Bread: Integrating Raw Material and Process Requirements for Organic Bread Production

[More Project Details](#)

From **2005** To **2010** , Cost: **£862,166**

Contractors/Funded Organisations : [A.J.P Wilkinson](#), [ADM Milling](#), [Alara Wholefoods Ltd](#), [Bread Matters Ltd](#), [Campden & Chorleywood Food Research Association](#), [Courtyard Farm](#), [F W P Matthews Ltd](#), [Field Science Ltd](#), [Home Grown Cereals Authority](#), [Norton Organic Grain Ltd](#), [Rathbones Bakeries](#), [RHM Technology](#), [Sheepdrove Organic Farm](#), [University - Newcastle](#), [W&H Marriage & Sons Ltd](#), [Warburtons Ltd](#)

Keywords: [Farming](#) - [Organic Farming](#) - [Crops](#)

LK0962 : Towards a sustainable whole-farm approach to the control of ergot

[More Project Details](#)

From **2004** To **2008** , Cost: **£273,389**

Contractors/Funded Organisations : [National Institute of Agricultural Botany](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Sustainable Production](#)

LK0967 : Biopesticides for the control of storage insect pests

[More Project Details](#)

From **2005** To **2009** , Cost: **£393,114**

Contractors/Funded Organisations : [BOCM Pauls Ltd](#), [CABI Bioscience](#), [Central Science Laboratory](#), [Exosect](#), [Home Grown Cereals Authority](#), [Igrox Ltd](#), [Marks and Spencer plc](#), [RHM Technology](#), [Smiths Flour Mills](#), [Somycel](#), [Weetabix Ltd](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Pests](#)

OF0315 : Participatory investigation of the management of weeds in organic production systems (CTE0201)

[More Project Details](#)

From **2002** To **2006** , Cost: **£400,839**

Contractors/Funded Organisations : [Henry Doubleday Research Association](#)

Keywords: [Farming](#) - [Organic Farming](#) - [Crops](#)

OF0316 : The development of improved guidance on the use of fertility building crops in organic farming (CTE0204)

[More Project Details](#)

From **2002** To **2006** , Cost: **£379,919**

Contractors/Funded Organisations : [ADAS Consulting Ltd](#), [IGER](#), [Inst. of Grasslands and Environment \(BBSRC\)](#)

Keywords: [Farming](#) - [Organic Farming](#) - [Crops](#)

OF0345 : Collation and dissemination of information on the performance of vegetable and cereal varieties under organic and non-organic conditions (COSI)

[More Project Details](#)

From **2004** To **2007** , Cost: **£75,235**

Contractors/Funded Organisations : [National Institute of Agricultural Botany](#)

Keywords: [Farming](#) - [Organic Farming](#) - [Vegetables](#)

OF0347 : Providing access, collation and analysis of Defra research for the organic sector

[More Project Details](#)

From **2005** To **2008** , Cost: **£145,763**

Contractors/Funded Organisations : [Institute of Organic Trainers and Advisers](#)

Keywords: [Farming](#) - [Organic Farming](#) - [Crops](#)

OF0348 : Quality and Environmental benchmarking for organic agriculture

[More Project Details](#)

From **2005** To **2006** , Cost: **£120,315**

Contractors/Funded Organisations : [Elm Farm Research Centre](#)

Keywords: [Farming](#) - [Organic Farming](#) - [Crops](#)

[More Project Details](#)

From **2005** To **2006** , Cost: **£63,321**

Contractors/Funded Organisations : [Duchy College](#)

Keywords: [Farming](#) - [Organic Farming](#) - [Animal Production](#)

**OF0355 : The use of agro-ecological and other spatial data to inform
prioritisation of organic farming research in Europe**

[More Project Details](#)

From **2005** To **2006** , Cost: **£24,983**

Contractors/Funded Organisations : [University - Cranfield](#)

Keywords: [Farming](#) - [Organic Farming](#) - [Crops](#)

Annex 2.3. Defra projects (PSD)



Pesticide Safety

LK0948 : Novel pest control based on insect immune suppression and endocrine disruption

[More Project Details](#)

From **2004** To **2007** , Cost: **£698,187**

Contractors/Funded Organisations : [Central Science Laboratory](#), [Isagro-Ricerca S.r.l.](#), [University - Durham](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Pests](#)

LK0953 : Stewardship of neonicotinoid insecticides

[More Project Details](#)

From **2004** To **2007** , Cost: **£174,474**

Contractors/Funded Organisations : [Bayer UK Ltd](#), [British Beet Research Organisation](#), [British Potato Council](#), [Rothamsted Research \(BBSRC\)](#), [Syngenta](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Diseases](#)

LK0965 : Integrated Management of Herbicide Resistance

[More Project Details](#)

From **2005** To **2009** , Cost: **£483,385**

Contractors/Funded Organisations : [ADAS Consulting Ltd](#), [BASF plc](#), [Bayer UK Ltd](#), [Dow Agrosiences Ltd](#), [Du Pont \(UK\) Ltd](#), [Home Grown Cereals Authority](#), [Rothamsted Research \(BBSRC\)](#), [Syngenta Crop Protection UK Ltd](#)

Keywords: [Plants and Animals](#) - [Pest and Weed Control](#) - [Herbicide use](#)

LK0967 : Biopesticides for the control of storage insect pests

[More Project Details](#)

From **2005** To **2009** , Cost: **£393,114**

Contractors/Funded Organisations : [BOCM Pauls Ltd](#), [CABI Bioscience](#), [Central Science Laboratory](#), [Exosect](#), [Home Grown Cereals Authority](#), [Igrox Ltd](#), [Marks and Spencer plc](#), [RHM Technology](#), [Smiths Flour Mills](#), [Somycel](#), [Weetabix Ltd](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Pests](#)

PS2103 : Manipulation of insect immune defences to optimize biological control.

[More Project Details](#)

From **2003** To **2006** , Cost: **£461,964**

Contractors/Funded Organisations : [Central Science Laboratory](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Pests](#)

PS2104 : Insect endocrine-based pest management strategies to reduce conventional pesticide use

[More Project Details](#)

From **2003** To **2006** , Cost: **£461,567**

Contractors/Funded Organisations : [Central Science Laboratory](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Pests](#)

PS2105 : Delivery of Semiochemicals within Plant-Pest-Natural Enemy Systems

[More Project Details](#)

From **2003** To **2006** , Cost: **£1,076,250**

Contractors/Funded Organisations : [Rothamsted Research \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Pests](#)

PS2107 : A framework for the practical use of semiochemicals in field crops

[More Project Details](#)

From **2003** To **2006** , Cost: **£307,500**

Contractors/Funded Organisations : [Rothamsted Research \(BBSRC\)](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Crops](#) - [Crop Pests](#)

PS2113 : Further development of a framework for the practical application of semiochemicals in field crops

[More Project Details](#)

From **2006** To **2009** , Cost: **£308,173**

Contractors/Funded Organisations : [Rothamsted Research \(BBSRC\)](#)

Keywords: [Plants and Animals](#) - [Pest and Weed Control](#) - [Pesticide use](#) - [Minimisation](#)

PS2114 : Further work on semiochemical tools for use within plant pest natural enemy systems in ICM

[More Project Details](#)

From **2006** To **2007** , Cost: **£486,000**

Contractors/Funded Organisations : [Rothamsted Research \(BBSRC\)](#)

Keywords: [Plants and Animals](#) - [Pest and Weed Control](#) - [Pesticide use](#) - [Minimisation](#)

PS2218 : Design of a targeted mitigation system for transport of pesticides in drainflow in the UK

[More Project Details](#)

From **2004** To **2007** , Cost: **£264,257**

Contractors/Funded Organisations : [Central Science Laboratory](#)

Keywords: [Environmental Protection](#) - [Land](#) - [Agricultural Land](#) - [Soil](#)

PS2223 : Transport of pesticides in drainage water from longer term releases: applicability of current soil leaching models to time-release applications

[More Project Details](#)

From **2005** To **2006** , Cost: **£62,145**

Contractors/Funded Organisations : [ADAS Consulting Ltd](#)

Keywords: [Plants and Animals](#) - [Pest and Weed Control](#) - [Pesticide use](#) - [Environmental Effects](#)

PS2310 : Further estimates of wildlife exposure to pesticides in arable crops

[More Project Details](#)

From **2003** To **2006** , Cost: **£725,625**

Contractors/Funded Organisations : [Central Science Laboratory](#)

Keywords: [Plants and Animals](#) - [Pest and Weed Control](#) -

PS2313 : Development of indicator species to measure pesticide impact on farmland wildlife

[More Project Details](#)

From **2005** To **2006** , Cost: **£41,579**

Contractors/Funded Organisations : [Game Conservancy Trust](#)

Keywords: [Plants and Animals](#) - [Pest and Weed Control](#) - [Pesticide use](#) - [Environmental Effects](#)

PS2709 : Herbicide resistant broad-leaved weeds:research required to address policy needs

[More Project Details](#)

From **2006** To **2008** , Cost: **£397,057**

Contractors/Funded Organisations : [Rothamsted Research \(BBSRC\)](#)

Keywords: [Plants and Animals](#) - [Pest and Weed Control](#) - [Pesticide use](#) - [Resistance](#)

PS2711 : Assessing the performance of currently available azole fungicide products against septoria tritici

[More Project Details](#)

From **2006** To **2007** , Cost: **£30,000**

Contractors/Funded Organisations : [ADAS Consulting Ltd](#)

Keywords: [Farming](#) - [Arable Farming](#) - [Cereal Production](#) - [Crop Diseases](#)

Annex 2.4. Defra projects (PVS)



Plant Varieties and Seeds

VS0126 : Prediction, sampling and management of GM impurities in fields and harvested yields of oilseed rape

[More Project Details](#)

From **2003** To **2006** , Cost: **£332,515**

Contractors/Funded Organisations : [Scottish Crop Research Institute](#)

Keywords: [Plants and Animals](#) - [Plant Varieties and Seeds](#) - [Variety Testing](#)

VS0136 : A Combined Protocol for PCR Detection of GM in Seed

[More Project Details](#)

From **2005** To **2006** , Cost: **£49,346**

Contractors/Funded Organisations : [Central Science Laboratory](#)

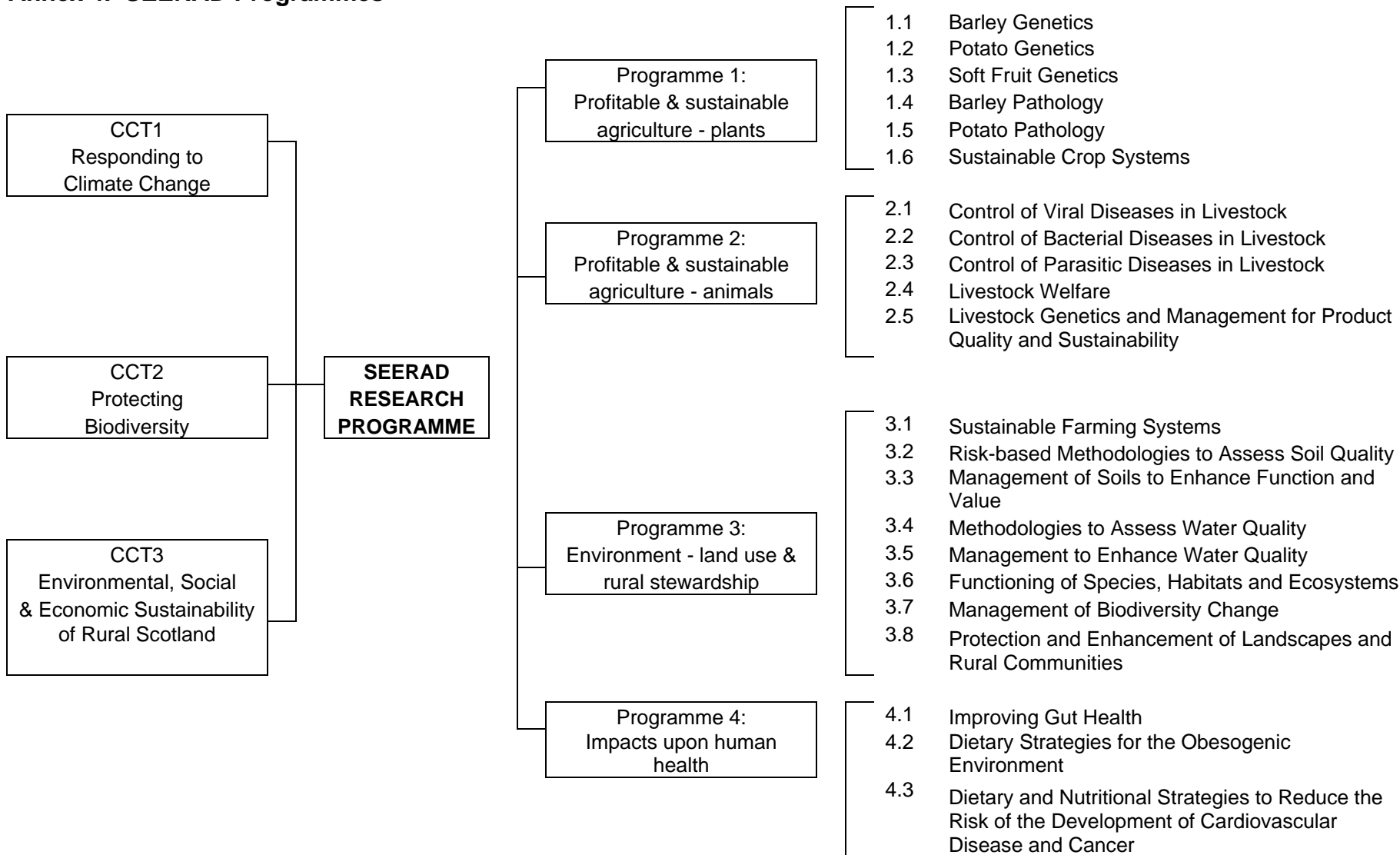
Keywords: [Plants and Animals](#) - [Plant Varieties and Seeds](#) - [Seed Testing](#) - [Certification](#)

Annex 3. DARD Projects

Research Project	Activity Code	Title	PL	Status 04-05	Length of project (yrs)	Programme	Staff (FEC)	Capital	Total
		Research Projects							
9910	41875	Integrated control of cereal diseases.	Mercer, P.	Active	3	651	21,768		22,419
9913	41888	Appropriate herbicide rates for arable crops.	Mercer, P.	Active	4	30	20,186		20,216
0332	42024	Management of diseases & weeds of cereal crops under organic conditions	Mercer, P.	Active	4	7,253	-		7,253
0049		Mechanisms causing variation in ease of dehulling in oats.	White, E.	Final Report	4	-	895		895
		Specialist Advice/Statutory							
N/A	46422	N. Ireland Recommended List trials - Cereals	White, E.	Active	N/A	18,762	183,508	79,113*	210,181
N/A	46757	Advisory Scientific Services - Cereals	White, E.	Active	N/A	1,355			1,355
N/A	46420	UK National List trials - Cereals	White, E.	Active	N/A	1,831	35,609		37,440
		Totals				29,881	261,966	7,911	299,758

* **Exceptional item** - new combine purchased and capitalised over at least 10 years

Annex 4. SEERAD Programmes



Annex 5. SEERAD Projects

<u>Commission Reference</u>	<u>Contractor</u>	<u>Project Title</u>	<u>Date Project Start</u>	<u>Date Project End</u>	<u>Estimated Cost 2006</u>	<u>Estimated Cost 2007</u>	<u>Estimated Cost 2008</u>
Work within the Programmes of Research							
BSS01106	Biomathematics and Statistics Scotland	Work Package 1.1 - Barley Genetics	01/04/2006	05/03/2011	£143,800	£143,800	£143,800
SAC01106	Scottish Agricultural College	Work Package 1.1 - Barley Genetics	01/04/2006	05/03/2011	£35,300	£35,300	
SCR01106	Scottish Crop Research Institute	Work Package 1.1 - Barley Genetics	01/04/2006	31/03/2011	£1,713,600	£1,713,600	£1,713,600
SAC01406	Scottish Agricultural College	Work Package 1.4 - Barley Pathology	01/04/2006	31/03/2011	£901,700	£901,700	£901,700
SCR01406	Scottish Crop Research Institute	Work Package 1.4 - Barley Pathology	01/04/2006	31/03/2011	£474,100	£474,100	£474,100
MLU01706	Macaulay Land Use Research Institute	Work Package 1.7 - Sustainable Crop Systems	01/04/2006	31/03/2011	£121,600	£118,600	£115,900
SAC01706	Scottish Agricultural College	Work Package 1.7 - Sustainable Crop Systems	01/04/2006	31/03/2011	£615,400	£615,400	£615,400
SCR01706	Scottish Crop Research Institute	Work Package 1.7 - Sustainable Crop Systems	01/04/2006	31/03/2011	£1,470,000	£1,470,000	£1,470,000
MLU03106	Macaulay Land Use Research Institute	Work Package 3.1 - Sustainable Farming Systems	01/04/2006	31/03/2011	£303,300	£296,300	£294,300
SAC03106	Scottish Agricultural College	Work Package 3.1 - Sustainable Farming Systems	01/04/2006	31/03/2011	£510,200	£510,200	£510,200

Work within the Flexible Fund

ADA00305	ADAS	Targeting Winter Barley Disease Management	01/07/2004	30/06/2008	£73,673	£73,673	£18,419
IGE00104	Institute of Grassland and Environmental Reserch	The Incorporation Of Important Traits Underlying Sustainable Development Of The Oat Crop Through Combining Conventional Phenotypic Selection With Molecular Market Technologies	01/04/2004	31/03/2009	£139,667	£139,667	£139,667
MAG00103	The Malsters Association of Great Britain	Eureka Project : Reduction Of Water Use In The Eu Malting Industry	15/09/2003	14/09/2006	£27,824		
SCL00605	SAC Commercial Limited	The Effect Of Autumn Nitrogen On The Growth And Yield Of Winter Barley In Scotland - Are There Sustained Agronomic Benefits Or Does It Contribute Significant Nitrate Leaching	01/10/2005	31/12/2007	£9,787	£10,126	
SCR58902	Scottish Crop Research Institute	Novel Methodologies And Tools For The Analysis Of Germplasm Collections. (ff)	01/10/2002	31/07/2007	£50,459	£16,816	
SCR90302	Scottish Crop Research Institute	A Comparative Snp Based Approach To Identify And Mime Genes Controlling Root Traits In The Triticeae. (ff)	01/11/2002	30/04/2006	£3,830		
SCR91004	Scottish Crop Research Institute	The Genetics Of Gene Expression In Barley	01/11/2004	31/10/2007	£100,259	£43,093	
SCR91405	Scottish Crop Research Institute	Genetic Reduction Of Energy Use And Emissions Of Nitrogen Through Cereal Production (greengrain)	01/07/2004	30/06/2009	£12,500	£12,500	£12,500
Total funding for:			2006	2007	2008	2009	2010
				£6,706,999	£6,574,875	£6,409,586	£6,232,200
				£6,220,200			

Annex 6.1. BBSRC projects (barley)

Studentship number: BBSSH200512064

Registered Institution: University of East Anglia

PhD Work Site: John Innes Centre (JIC)

Supervisor: Boyd L A

Title: [Does Dir1-mediated systemic acquired resistance exist in barley?](#)

Grant Reference: BBC5184811 ,£404k

Current Institution of Principal Investigator/Co-Applicant: Scottish Crop Research Institute, Rothamsted Research (RR)

Institution of Grant: Scottish Crop Research Institute

Leader: Waugh R, Shewry P

Title: [Targeted induced mutation discovery in barley](#)

Grant Reference: BBC5030971 ,£156k

Current Institution of Principal Investigator/Co-Applicant: University of Birmingham

Institution of Grant: University of Birmingham

Leader: Kearsey M, Luo Z

Title: [The genetics of gene expression in barley](#)

Project Reference: BBSEJ0000A220 ,CSG

Institute: John Innes Centre (JIC)

Title: [Evolution of elicitor \(avirulence\) genes in powdery mildew fungi \(Diversity and evolution of avirulence in powdery mildews\). MILDEWAVRGENES](#)

Grant Reference: BBC5105911 ,£69k

Current Institution of Principal Investigator/Co-Applicant: Rothamsted Research (RR), University of Reading, University of Bristol

Institution of Grant: Rothamsted Research (RR)

Leader: Shewry P, Dunwell JM , Edwards K , Holdsworth M , Snape J , Waugh R

Title: [Integration and coordination of UK research on the genomics, genetics and improvement of small grain cereals](#)

Grant Reference: BBC5062991 ,£243k

Current Institution of Principal Investigator/Co-Applicant: John Innes Centre (JIC)

Institution of Grant: John Innes Centre (JIC)

Leader: Brown J, Ridout C

Title: [Pathogenicity function of an avirulence gene family in barley powdery mildew](#)

Project Reference: BBSEJ0000A210 ,CSG
Institute: John Innes Centre (JIC)
Title: [Pathogenicity function of an avirulence gene family in barley powdery mildew](#)

Grant Reference: BBSB12466 ,£135k
Current Institution of Principal Investigator/Co-Applicant: University of Oxford
Institution of Grant: University of Oxford
Leader: Smith LJ
Title: [Protein unfolding and aggregation and the mechanical stability of interfaces](#)

Project Reference: BBSEJ0000A205 ,CSG
Institute: John Innes Centre (JIC)
Title: [Identification and mapping of flowering genes in barley using bioinformatics](#)

Grant Reference: BBSB12393 ,£131k
Current Institution of Principal Investigator/Co-Applicant: Institute of Food Research (IFR)
Institution of Grant: Institute of Food Research (IFR)
Leader: Mills ENC, Jenkins J , Wilde PJ , Rigby N
Title: [Protein unfolding and aggregation and the mechanical stability of interfaces](#)

Grant Reference: D19952 ,£271k
Current Institution of Principal Investigator/Co-Applicant: John Innes Centre (JIC)
Institution of Grant: John Innes Centre (JIC)
Leader: Laurie D
Title: [Using circadian clock mutants to understand the control of flowering in barley](#)

Project Reference: BBSEJ0000A172 ,CSG
Institute: John Innes Centre (JIC)
Title: [Using circadian clock mutants to understand the control of flowering in barley](#)

Project Reference: BBSEJ00000608 ,CSG
Institute: John Innes Centre (JIC)
Title: [Genetic Regulation of Shoot Architecture](#)

Grant Reference: BBSB1552X ,£391k
Current Institution of Principal Investigator/Co-Applicant: Rothamsted Research (RR)
Institution of Grant: Rothamsted Research (RR)
Leader: Asher M, Mutasa-Gottgens ES
Title: [Development of broad spectrum resistance to soil-borne viruses through resistance to the vector, Polomyxa](#)

Grant Reference: P20155 ,£243k
Current Institution of Principal Investigator/Co-Applicant: The University of Manchester
Institution of Grant: The University of Manchester
Leader: Bray CM, Prince R J , Waterworth W M
Title: [Pivotal roles for peptide transporters in barley grain germination and development](#)

Grant Reference: D18107 ,£172k
Current Institution of Principal Investigator/Co-Applicant: John Innes Centre (JIC)
Institution of Grant: John Innes Centre (JIC)
Leader: Laurie D
Title: [Using comparative genomics to isolate the major photoperiod response gene of barley](#)

Project Reference: BBSEJ00000605 ,CSG
Institute: John Innes Centre (JIC)
Title: [Population genetics of interactions between plants and biotrophic pathogens](#)

Project Reference: BBSEJ0000A132 ,CSG
Institute: John Innes Centre (JIC)
Title: [Using comparative genomics to isolate the major photoperiod response gene of barley](#)

Project Reference: BBSEJ0000A149 ,CSG
Institute: John Innes Centre (JIC)
Title: [Reduced fusarium ear blight and mycotoxins in UK wheat through improved resistance \(REFAM\)](#)

Grant Reference: P18283 ,£164k
Current Institution of Principal Investigator/Co-Applicant: University of Paisley, University of Glasgow
Institution of Grant: University of Paisley
Leader: Fricke W, Jarvis MC
Title: [Cuticle formation in growing grass leaves - a race against time during epidermal-cell development?](#)

Annex 6.2. BBSRC projects (oats)

Grant Reference: BBC5044351 ,£224k

Current Institution of Principal Investigator/Co-Applicant: John Innes Centre (JIC)

Institution of Grant: University of East Anglia

Leader: Osbourn A, Shaw PJ , Wegel E

Title: [Functional significance of clustering of genes for the tissue- specific synthesis of defence-related secondary metabolites in cereals](#)

Project Reference: BBSEJ0000A220 ,CSG

Institute: John Innes Centre (JIC)

Title: [Evolution of elicitor \(avirulence\) genes in powdery mildew fungi \(Diversity and evolution of avirulence in powdery mildews\). MILDEWAVRGENES](#)

Grant Reference: BBC5105911 ,£69

Current Institution of Principal Investigator/Co-Applicant: Rothamsted Research (RR), University of Reading, University of Bristol

Institution of Grant: Rothamsted Research (RR)

Leader: Shewry P, Dunwell JM , Edwards K , Holdsworth M , Snape J , Waugh R

Title: [Integration and coordination of UK research on the genomics, genetics and improvement of small grain cereals](#)

Project Reference: BBSEG00003002 ,CSG

Institute: Institute of Grassland and Environmental Research (IGER)

Title: [Genomics based trait analysis in Monocots](#)

Annex 6.3. BBSRC projects (wheat)

Grant Reference: BBD0010801, £263 k

Current Institution of Principal Investigator/Co-Applicant: Oxford Brookes University

Institution of Grant: Oxford Brookes University

Leader: Hawes C

Title: [High pressure freezing to capture secretory pathway dynamics](#)

Grant Reference: BBD00733X1, £226k

Current Institution of Principal Investigator/Co-Applicant: John Innes Centre (JIC)

Institution of Grant: John Innes Centre (JIC)

Leader: Snape J, Flintham J

Title: [An Integrated Approach to Stabilising HFN in Wheat: Screens, Genes and Understanding](#)

Grant Reference: BBD5251131, £160k

Current Institution of Principal Investigator/Co-Applicant: Harper Adams University College

Institution of Grant: Harper Adams University College

Leader: Kettlewell PS

Title: [An integrated approach to stabilising HFN in wheat: screens, genes and understanding](#)

Studentship number: BBSSN200512340

Registered Institution: University of Bristol

PhD Work Site: Rothamsted Research (RR)

Supervisor: Shewry P

Title: [The impact of nutrition on the metabolome, protein composition and end-use quality of wheat](#)

Studentship number: BBSSH200512067

Registered Institution: University of Bristol

PhD Work Site: Rothamsted Research (RR)

Supervisor: Hedden P

Title: [Understanding the role of gibberellins in the development of the wheat plant](#)

Studentship number: BBSSN200512382

Registered Institution: University of Bristol

PhD Work Site: Rothamsted Research (RR)

Supervisor: Hammond-Kosack KE

Title: [Investigation of fungal genes involved in wheat infection by *Mycosphaerella graminicola*](#)

Studentship number: BBSSH200512062
Registered Institution: University of Nottingham
PhD Work Site: University of Nottingham
Supervisor: Bennett MJ
Title: [Investigating the importance of AXR4 function for nitrogen use efficiency in wheat](#)

Grant Reference: BBC5140661, £318k
Current Institution of Principal Investigator/Co-Applicant: Rothamsted Research (RR)
Institution of Grant: Rothamsted Research (RR)
Leader: Hawkesford M, Barraclough PB , Beale MH , Verrier PJ , Ward J
Title: [An integrative transcriptome and metabolic profiling study of resource mobilization in wheat](#)

Grant Reference: BBC5128531, £313k
Current Institution of Principal Investigator/Co-Applicant: University of Aberdeen
Institution of Grant: University of Aberdeen
Leader: Killham K, Jaspars M , Prosser J , Standing D
Title: [Manipulating the rhizosphere for function](#)

Grant Reference: BBC5110561, £130
Current Institution of Principal Investigator/Co-Applicant: Rothamsted Research (RR)
Institution of Grant: Rothamsted Research (RR)
Leader: Hammond-Kosack KE, Hedden P , Kanyuka K , Karp A , Phillips AL
Title: [High throughput screening of sequence variation in crop and model plants](#)

Project Reference: BBSEJ0000A220, CSG
Institute: John Innes Centre (JIC)
Title: [Evolution of elicitor \(avirulence\) genes in powdery mildew fungi \(Diversity and evolution of avirulence in powdery mildews\). MILDEWAVRGENES](#)

Grant Reference: BBC5086341, £169k
Current Institution of Principal Investigator/Co-Applicant: Rothamsted Research (RR), University of Reading
Institution of Grant: Rothamsted Research (RR)
Leader: Halford NG, Parry MAJ , Elmore JS
Title: [Genetic and agronomic approaches to reducing acrylamide formation in foods derived from potato and cereals](#)

Grant Reference: BBC5044861, £349k
Current Institution of Principal Investigator/Co-Applicant: John Innes Centre (JIC)
Institution of Grant: John Innes Centre (JIC)
Leader: Moore G
Title: [A BBSRC contribution to the international IGROW initiative: a protocol for systematically generating wheat mutants and a 1Mb sequenced region in wheat](#)

Project Reference: BBSEJ0000A203, CSG
Institute: John Innes Centre (JIC)
Title: [A BBSRC contribution to the international IGROW initiative: a protocol for systematically generating wheat mutants and a 1Mb sequenced region in wheat](#)

Grant Reference: BBC5105911, £69k
Current Institution of Principal Investigator/Co-Applicant: Rothamsted Research (RR), University of Reading, University of Bristol
Institution of Grant: Rothamsted Research (RR)
Leader: Shewry P, Dunwell JM , Edwards K , Holdsworth M , Snape J , Waugh R
Title: [Integration and coordination of UK research on the genomics, genetics and improvement of small grain cereals](#)

Grant Reference: BBSB02118, £322k
Current Institution of Principal Investigator/Co-Applicant: University of Bristol
Institution of Grant: University of Bristol
Leader: Edwards K, Wilson I
Title: [Genotype-dependant effects of cold temperatures on the transcriptomes of wheat vegetative and crown tissues](#)

Grant Reference: BBC5086691, £179k
Current Institution of Principal Investigator/Co-Applicant: University of Reading
Institution of Grant: University of Reading
Leader: Mottram DS, Elmore JS
Title: [Genetic and agronomic approaches to reducing acrylamide formation in food derived from potato and cereals](#)

Studentship number: BBSSN200411501
Registered Institution: University of Reading
PhD Work Site: Rothamsted Research (RR)
Supervisor: Shewry P
Title: [Elucidating the role of LMW glutenin subunits in wheat quality](#)

Studentship number: BBSSA200411018
Registered Institution: University of Reading
PhD Work Site: University of Reading
Supervisor: Frazier RA
Title: [Puroindoline binding to lipids in relation to wheat endosperm texture](#)

Project Reference: BBSEJ0000A211, CSG
Institute: John Innes Centre (JIC)
Title: [UK-CIMMYT wheat genetic/genomics community information/gene exchange](#)

Grant Reference: BBSB01839, £247k
Current Institution of Principal Investigator/Co-Applicant: University of Bristol
Institution of Grant: University of Bristol
Leader: Edwards K, Barker G
Title: [Towards association genetics in wheat via a very high throughput genotyping method](#)

Grant Reference: BBSB11931, £246k
Current Institution of Principal Investigator/Co-Applicant: John Innes Centre (JIC)
Institution of Grant: John Innes Centre (JIC)
Leader: Moore G
Title: [Dissecting the Ph1 candidates: enhancing gene transfer into wheat by a non-GM route](#)

Project Reference: BBSEJ0000A186, CSG
Institute: John Innes Centre (JIC)
Title: [Dissecting the Ph1 candidates: Enhancing gene transfer into wheat by a non-GM route](#)

Project Reference: BBSEJ0000A225, CSG
Institute: John Innes Centre (JIC)
Title: [Improved Resistance to Septoria in Superior Varieties \(IMPRESSIV\)](#)

Project Reference: BBSEJ00000608, CSG
Institute: John Innes Centre (JIC)
Title: [Genetic Regulation of Shoot Architecture](#)

Grant Reference: BBSB10846, £237k
Current Institution of Principal Investigator/Co-Applicant: University of Nottingham
Institution of Grant: University of Nottingham
Leader: Grierson D, Han Y
Title: [The mechanism of target mRNA degradation in post-transcriptional gene silencing in plants](#)

Grant Reference: G20322, £177k
Current Institution of Principal Investigator/Co-Applicant: University of Bristol
Institution of Grant: University of Bristol
Leader: Edwards K, Barker G
Title: [In silico discovery of functional single nucleotid polymorphisms](#)

Grant Reference: EGA20487, £4k
Current Institution of Principal Investigator/Co-Applicant: Scottish Crop Research Institute
Institution of Grant: Scottish Crop Research Institute
Leader: Waugh R
Title: [UK Cereal Genomics Consortium](#)

Studentship number: BBSSN200310563
Registered Institution: University of Exeter
PhD Work Site: Rothamsted Research (RR)
Supervisor: Hammond-Kosack KE
Title: [Fusarium culmorum and F. graminearum pathogenicity on wheat ears](#)

Studentship number: BBSSK200310168
Registered Institution: University of East Anglia
PhD Work Site: John Innes Centre (JIC)
Supervisor: Koebner RMD
Title: [Homoeologous gene silencing in polyploid wheat](#)

Studentship number: BBSSL200310268
Registered Institution: University of East Anglia
PhD Work Site: John Innes Centre (JIC)
Supervisor: Moore G
Title: [Molecular outcomes of variation in mutagenic pressure in wheat](#)

Project Reference: BBSEJ0000A174, CSG
Institute: John Innes Centre (JIC)
Title: [The DEFRA Wheat Genetic Improvement Network](#)

Project Reference: BBSEJ0000A159 ,CSG
Institute: John Innes Centre (JIC)
Title: [Biotechnology Resources for Arable Crop Transformation \(BRACT\)](#)

Grant Reference: EGA17706, £134k
Current Institution of Principal Investigator/Co-Applicant: University of Bristol
Institution of Grant: University of Bristol
Leader: Miles M
Title: [A genomic approach to improving wheat grain quality for breadmaking](#)

Grant Reference: EGA17701, £219k
Current Institution of Principal Investigator/Co-Applicant: University of Bristol
Institution of Grant: University of Bristol
Leader: Edwards K
Title: [A genomic approach to improving wheat grain quality for breadmaking](#)

Grant Reference: D18107, £172k
Current Institution of Principal Investigator/Co-Applicant: John Innes Centre (JIC)
Institution of Grant: John Innes Centre (JIC)
Leader: Laurie D
Title: [Using comparative genomics to isolate the major photoperiod response gene of barley](#)

Project Reference: BBSEJ00000605, CSG
Institute: John Innes Centre (JIC)
Title: [Population genetics of interactions between plants and biotrophic pathogens](#)

Project Reference: BBSEJ00000606, CSG
Institute: John Innes Centre (JIC)
Title: [Resistance to necrotrophic fungi and mycotoxins](#)

Project Reference: BBSEJ0000A132, CSG
Institute: John Innes Centre (JIC)
Title: [Using comparative genomics to isolate the major photoperiod response gene of barley](#)

Project Reference: BBSEJ0000A102, CSG
Institute: John Innes Centre (JIC)
Title: [A genomic approach to improving wheat grain quality for breadmaking](#)

Grant Reference: EGA17705, £151k
Current Institution of Principal Investigator/Co-Applicant: John Innes Centre (JIC)
Institution of Grant: John Innes Centre (JIC)
Leader: Snape J
Title: [A genomic approach to improving wheat grain quality for breadmaking](#)

Grant Reference: EGA17697, £155k
Current Institution of Principal Investigator/Co-Applicant: University of East Anglia
Institution of Grant: University of East Anglia
Leader: Belton P
Title: [A genomic approach to improving wheat grain quality for breadmaking](#)

Grant Reference: REI18430, £76k
Current Institution of Principal Investigator/Co-Applicant: John Innes Centre (JIC)
Institution of Grant: John Innes Centre (JIC)
Leader: Shaw PJ, Doonan JH
Title: [Real time live cell imaging in plants and cells](#)

Grant Reference: EGA17694, £536k
Current Institution of Principal Investigator/Co-Applicant: Rothamsted Research (RR), University of Nottingham
Institution of Grant: Rothamsted Research (RR)
Leader: Shewry P, Holdsworth M
Title: [A genomic approach to improving wheat grain quality for breadmaking](#)

Grant Reference: EGA17695, £161k
Current Institution of Principal Investigator/Co-Applicant: University of Cambridge
Institution of Grant: University of Cambridge
Leader: Donald A M
Title: [Exploitation of genomics to improve wheat grain quality for breadmaking](#)

Project Reference: BBSEC00004301, CSG
Institute: Rothamsted Research (RR)
Title: [Transposon tagging of wheat to isolate new promoters and genes involved in stress tolerance](#)

Project Reference: BBSEC00004557, CSG
Institute: Rothamsted Research (RR)
Title: [Biosynthesis, function and manipulation of branched chain compounds related to CA1P](#)

Project Reference: BBSEC00004560, CSG
Institute: Rothamsted Research (RR)
Title: [Regulation and manipulation of gene expression during cereal development](#)

Project Reference: BBSEJ00000604, CSG
Institute: John Innes Centre (JIC)
Title: [Induced resistance through wheat mutation](#)

Project Reference: BBSEJ0000A149, CSG
Institute: John Innes Centre (JIC)
Title: [Reduced fusarium ear blight and mycotoxins in UK wheat through improved resistance \(REFAM\)](#)

Project Reference: BBSEJ0000A160 ,CSG
Institute: John Innes Centre (JIC)
Title: [Biology and genetics of durable resistance to biotrophic pathogens of cereals](#)

Grant Reference: FQL19097, £294k
Current Institution of Principal Investigator/Co-Applicant: John Innes Centre (JIC)
Institution of Grant: John Innes Centre (JIC)
Leader: Snape J
Title: [Investigating wheat functionality through breeding and end use](#)

Project Reference: BBSEJ0000A131, CSG
Institute: John Innes Centre (JIC)
Title: [Investigating wheat functionality through breeding and end use](#)

Studentship number: 02A4D08608
Registered Institution: University of East Anglia
PhD Work Site: John Innes Centre (JIC)
Supervisor: Laurie D, Greenland A J
Title: [Inflorescence characteristics that enhance hybrid wheat production](#)

Grant Reference: EGA17713, £211k
Current Institution of Principal Investigator/Co-Applicant: Institute of Food Research (IFR)
Institution of Grant: Institute of Food Research (IFR)
Leader: Mills ENC, Kemsley EK , Wilson RH
Title: [A genomic approach to improving wheat grain quality for breadmaking](#)

Grant Reference: D17385, £264k
Current Institution of Principal Investigator/Co-Applicant: University of Bristol, University of Reading
Institution of Grant: University of Bristol
Leader: Edwards K, Dunwell JM , Barker G
Title: [Exploiting environment-genotype interactions in the developing wheat grain via SAGE technology](#)