



UNDERSTANDING THE CHALLENGE OF RESISTANCE IN AGRICULTURE

QUESTIONS AND ANSWERS

These 'questions and answers' are provided as guidance to applicants on common areas requiring clarification. Applicants should contact BBSRC via resistance@bbsrc.ac.uk if further clarification is required or if they have queries which are not covered here or in the main call text.

What is a highlight?

Highlights run within our standard Responsive Mode calls. This is a mechanism by which BBSRC can communicate research challenges which are currently of particular strategic interest, and encourage critical mass of applications in a particular assessment round. Funding for this highlight is not ring-fenced or uplifted; successful applications will be funded through BBSRC's Responsive Mode mechanism.

Further information on these schemes can be found on the BBSRC website and in the [BBSRC Grants Guide](#).

What areas of research are included in this highlight?

The highlight includes research on resistance to fungicides, herbicides, pesticides, anthelmintics and other veterinary medicines. This includes biopesticides as well as agents of synthetic origin. The highlight focuses on the resistance of the pest/pathogen/parasite to the agent used to control it, rather than resistance of the crop or livestock host to the pest/pathogen/parasite.

Studies of the evolution of resistance to these agents is included, as are studies on the mechanism by which resistance is achieved. If you are not sure whether your proposed research fits the aims of this highlight please send a one-page summary of your research to resistance@bbsrc.ac.uk for advice.

Why is host resistance excluded?

BBSRC recognises the importance of developing crops and livestock with increased resistance to pests, pathogens and parasites, as part of its aim to develop more sustainable agricultural systems and reduce waste throughout the food chain. It has already funded a large portfolio of research into understanding and developing host resistance. Applications in this area are received regularly through responsive mode, and there is currently no need to encourage more applications in this area.

What is the rationale behind excluding antibiotic resistance?

BBSRC has recently funded a number of projects on resistance to antibacterial agents through several funding streams, and proposals on bacterial resistance to these agents are encouraged through BBSRC's '[Combatting Antimicrobial Resistance](#)' responsive mode priority. BBSRC continues to encourage applications in this area but now wishes to encourage research to address the broader issue of resistance to other types of agents used in crop protection or veterinary practice.

Which crops and animals are included in this highlight?

In terms of crops, this highlight covers resistance to pests and pathogens of any crops (e.g. cereals, vegetables, fruits) grown for food in the UK, as well as crops grown for non-food uses, e.g. for energy or biorefining. Trees and forestry are also included. It does not include model species unless these are used as research tools.

Livestock are defined as farmed animals (livestock, poultry, fish and shellfish, horses and managed bees). Companion animals are excluded from this call.

I work in antibiotic resistance, can I apply to this highlight call?

It is possible that there are mechanisms used by bacteria to avoid the effects of antibacterial agents which are conserved in other organisms, or have similar modes of action. Researchers studying antibacterial resistance are encouraged to bring their expertise to bear on problems of resistance in other organisms, by collaborating with researchers in other fields. Applications which focus solely on resistance in bacteria should be submitted to responsive mode under the '[Combatting Antimicrobial Resistance](#)' priority area.

The call states “Research with the primary aim of identifying targets for potential new agents is excluded”; can I include any work which may lead to new targets?

BBSRC recognises that research funded through this highlight may identify particular proteins, complexes or receptors which are involved in mechanisms of resisting agents designed to kill or control the organism in question, and that they may be used subsequently as targets for the development of new control agents. Identifying these molecules should form part of a larger programme of research aimed at understanding the mechanism by which resistance is achieved, and should not be the sole objective of the research.

Does the highlight include development of technology or resources?

The research funded through this highlight call will possibly generate some new resources, methods and/or software which can be used to study resistance in various organisms. However, the development of these should not be the primary focus of the research, which should be aimed at understanding the evolution or mechanism of resistance.

Can I include field studies in my proposal?

Field studies may be included as part of a wider research programme looking at evolution of resistance, or understanding the diversity and prevalence of resistant organisms in the farmed environment. Field studies of the effects of new control agents on resistant organisms are not appropriate, unless they are part of wider studies into understanding the evolution and mechanism of resistance.

Can I include the development of new pesticides/herbicides/fungicides/veterinary medicines in my proposal?

The highlight is not aimed at the development of new agents to control pests, weeds, fungi or parasites. Knowledge gained through research projects may lead to the identification of potential targets or development of new strategies for overcoming resistance, but this should not be the primary aim of proposals.

I will need access to collections of resistant material to carry out my research. How can I access these, and can I include any access charges in my costs?

If you need to access any collections of material or databases that are not open-access, you should discuss your requirements with the owner of the materials or data before submitting your proposal, to ensure that you will be able to use them in the way that you need. You should also obtain a letter from the owner confirming that you will be able to use them. This should be attached to your grant application.

Any costs associated with access to resources should be included as a direct cost, and the cost should also be identified in the letter from the resource owner. If you are unsure about how to include the costs, please email resistance@bbsrc.ac.uk with your query.

If I have an industrial contribution does this have to be cash or can it be 'in kind'?

BBSRC welcomes industrial collaborations in all forms, and recognises the importance of non-financial contributions, e.g. access to facilities or materials. Applicants can include cash or 'in kind' contributions from industrial partners in their proposals under the 'Project Partners' heading.

Applications which have a cash contribution which is at least equivalent to 10% of the full project costs will be considered under the [Industrial Partnership Awards \(IPA\) scheme](#). IPA projects are normally funded in preference to standard grants (including those submitted to highlight calls) of equivalent scientific merit. Applications which have a contribution of at least 50% of the full project cost from industry will be considered under the '[Stand-alone LINK](#)' scheme.

My research proposal isn't entirely in BBSRC's remit, what should I do?

Proposals with relevance to more than one research council can be considered under this highlight. If appropriate, they can be co-funded by another research council. The primary aims of the research should fall within BBSRC's remit, but other aspects of the research may fall within other councils' remits. If you are not sure whether your application falls within BBSRC's remit, please send a one-page summary of your proposed research to resistance@bbsrc.ac.uk for advice. Specific guidance about the interface between BBSRC and MRC's remits is available at <http://www.bbsrc.ac.uk/research/science-remit/interfaces/>.

Proposals which fall outside BBSRC's remit will be rejected and the applicant will be advised to resubmit their proposal to the appropriate research council.

What happens if my proposal isn't in the scope of the highlight?

If an application is deemed to fall outside the scope of the highlight call, but is still within BBSRC's remit, it will be assessed by the most appropriate committee and will be considered in competition with the other proposals in that round. The proposal will not be

disadvantaged by not falling within the scope of the highlight as all applications will be assessed on their scientific merit, against the normal assessment criteria used by BBSRC committees.