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| **Specification Reference** |
| **FS301059** |
| ***Specification Title*** |
| **A Critical Review of the Impact of Food Processing on AMR Bacteria in Meat & Meat Products** |
| **Contract Duration** |
| **12 months (1 year)** |

This specification, which forms part of the Invitation to Tender (ITT), comprises of three individual sections: -

1. **SPECIFICATION:** An outline of the requirement
2. **PROCUREMENT TIMETABLE:** An estimated timetable for the procurement of the proposed requirement
3. **TENDER REQUIREMENTS AND EVALUATION CRITERIA:** Provides guidance to applicants on the information that should be included within tenders and on the evaluation criteria and weightings used by appraisers when assessing and scoring tenders

Tenders for FSA funded projects must be submitted through the FSA E-sourcing and contract management system, ECMS, using the following link: <https://food.bravosolution.co.uk/web/login.html>. Failure to do so may result in the tender response not being processed by the system or the response being automatically disqualified during the evaluation stage of the tender process*.*

**THE SPECIFICATION, INCLUDING PROJECT TIMETABLE**

**AND EVALUATION OF TENDERS**

**GENERAL INTRODUCTION**

The Food Standards Agency (FSA) is a non-ministerial government department governed by a Board appointed to act in the public interest, with the task of protecting consumers in relation to food. It is a UK-wide body with offices in London, Cardiff, Belfast and York.

The FSA is committed to openness, transparency and equality of treatment to all suppliers. As well as these principles, for science projects the final project report will be published on the FSA website ([www.food.gov.uk](http://www.food.gov.uk)). For science projects we will encourage contractors to publish their work in peer reviewed scientific publications wherever possible. Also, in line with the Government’s Transparency Agenda which aims to encourage more open access to data held by government, the FSA is developing a policy on the release of underpinning data from all its science- and evidence-gathering projects. Underpinning data should also be published in an open, accessible, and re-usable format, such that the data can be made available to future researchers and the maximum benefit is derived from it. The FSA has established the key principles for release of underpinning data that will be applied to all new science- and evidence-gathering projects which we would expect contractors to comply with. These can be found at <http://www.food.gov.uk/about-us/data-and-policies/underpinning-data>.

The objective of the microbiological food safety research themes is to provide robust information on the presence, growth, survival and elimination of pathogenic microorganisms throughout the food chain; the extent, distribution, causes, risks and cost of foodborne disease will also be considered where appropriate.

The main objective from the FSA’s Strategic Plan for 2015-2020 is to protect public health from risks which may arise through the consumption of food (including risks caused by the way in which it is produced or supplied) and otherwise to protect the interest of consumers in relation to food. This would include the reduction of foodborne disease to ensure ‘food is safe’. This proposed study will assess the impact food processing has on the presence and spread of antimicrobial resistance (AMR) in bacteria in meat and meat products. This is relevant to the FSA’s Science, Evidence and Information Strategy for 2015-2020 as the anticipated outputs will contribute to our understanding of AMR and food and help identify and fill current gaps in knowledge in this area to inform future risk assessments on AMR and identify where further research is required.

Whilst AMR is not explicit in the FSA’s new strategy for 2015-2020, it does highlight the importance of food being safe and consumers having the right to be protected from an unacceptable level of risk. This could include hazards involving AMR.

**A. THE SPECIFICATION**

**Background**

Antimicrobial resistance (AMR) threatens the effective treatment of an increasing range of infections and has become a global public health concern. It has been estimated that the global impact of AMR could be 10 million deaths annually by 2050, and cost up to US $100 trillion in cumulative lost economic output (O’Neill Report, 2014). The FSA works to protect consumer interests in relation to food. As part of that mandate, the role that food plays in the problem of AMR is of concern and one of the areas where relatively little is known is the impact food processing has on the presence and spread of AMR bacteria in meat and meat products.

Addressing the threat of AMR is a priority for the UK Government and the devolved administrations, which are committed to an integrated approach at national and international levels, through actions set out in the UK Five Year Antimicrobial Resistance Strategy (DH, 2013). This strategy aims to slow the development and spread of AMR and adopts a “One-Health” approach spanning people, animals, agriculture and the wider environment. The FSA is contributing to the delivery of the strategy alongside other departments including DH, PHE, DEFRA, APHA and the VMD. The FSA’s role is to contribute to reducing levels of AMR and specifically working to fully establish the link with food. The strategy has the goal of slowing the development and spread of AMR, focussing action across all sectors on:

* Improving the knowledge and understanding of AMR
* Conservation and stewardship of the effectiveness of existing treatments, and
* Stimulating the development of new antibiotics, diagnostics and novel therapies.

The FSA has a role in the first two of these areas through furthering our understanding of the role of the food chain and AMR, encouraging momentum in the food industry to reduce usage of antimicrobials where possible and not using them as a substitute for poor hygiene.

The FSA established a ‘Task & Finish’ Group in March 2017 drawing on experts from the Advisory Committee on the Microbiological Safety of Food (ACMSF) AMR Working Group together with additional expertise from academia and PHE. The objectives of this group were to decrease uncertainty about any linkage between use of antimicrobials in food production, the incidence of AMR in pathogens and commensals in food production, and the growing AMR-related public health burden, and allow us to model the impacts of changes in use of antimicrobials in food production. A paper was presented to ACMSF in January 2018 and one of the areas highlighted by this group, was that there is currently a gap in our knowledge and further research is required, relating to the impact that food processing has on AMR bacteria in meat and meat products.

A FSA-funded systematic review on AMR found that there is a lack of prevalence data in retail foods, in particular raw chicken and pork (FSA, 2016).

Following the AMR systematic review; recommendations for further surveillance on AMR bacteria in chicken and pork on retail sale in the UK, the FSA commissioned a new survey to look at AMR in selected pathogens and commensal bacteria in fresh and frozen retail poultry meat and pork mince. The report is expected to be published late Summer 2018.

Additional research and surveillance activities on AMR being carried out by the FSA includes the EU Harmonised Survey on AMR in Retail Meats. We are currently funding the fourth year of this survey, which is looking at the presence of ESBL, AmpC and Carbapenemase-producing *E. coli* in fresh retail chicken, beef & pork. The FSA are also investigating the presence of AMR as part of the *Campylobacter* whole fresh retail chicken survey. The second-year reports for both surveys were published in November 2017 and January 2018 respectively.

Most of the FSA’s surveillance activities have focussed on the presence of AMR bacteria in raw retail meat in the UK. However, as highlighted by the ACMSF ‘Task and Finish’ Group, there is currently a lack of evidence on the impact of secondary food processing on the presence and spread of AMR in bacteria in meat and meat products. It is important to strengthen the evidence base in this area as it will help inform future risk assessments on AMR and identify areas within secondary meat processing where further interventions and research/surveillance are required. By doing this, we will be making a positive contribution to the cross-governmental objective of protecting consumers from the risks associated with AMR.

*References*

O’Neill, (2014), Antimicrobial Resistance: Tackling a crisis for the health and wealth of nations

<https://amr-review.org/>

DH, (2013). UK 5 Year Antimicrobial Resistance Strategy 2013 to 2018: <https://www.gov.uk/government/publications/uk-5-year-antimicrobial-resistance-strategy-2013-to-2018>

ACMSF Task & Finish Group Report on AMR, 2018:

<https://acmsf.food.gov.uk/sites/default/files/acm_1278_amr_report.pdf>

FSA (2016). A systematic review of AMR bacteria in pork, poultry, dairy products, seafood and fresh produce at UK retail level. <https://www.food.gov.uk/research/foodborne-diseases/a-systematic-review-of-amr-bacteria-in-pork-poultry-dairy-products-seafood-and-fresh-produce-at-uk-retail-level>

EU Harmonised Survey on AMR in Retail Meats:

<https://www.food.gov.uk/sites/default/files/eusurvey-amr-retail-meats.pdf>

AMR *Campylobacter* Survey in Retail Chicken:

<https://www.food.gov.uk/sites/default/files/campylobacter-amr-report.pdf>

**The Specification**

Tenders are invited to carry out a critical review of the impact of secondary food processing on AMR bacteria in meat and meat products.

Overview

This critical review will focus on the meat production chain and will consider the key meat processing stages (poultry and pigs being the main ones, but also to include other meats as possible sources of AMR such as those where antibiotic use is higher or where there is more use of the critically important antibiotics) which will help to identify where future surveillance activities are needed to plug important evidence gaps.

Until relatively recently, concerns about the development and spread of AMR bacteria and AMR genes have focussed principally on the widespread use of antibiotics in human and animal health. Thus, the intermediate elements of the human food chain were viewed as ‘a conveyor belt’ from farm to fork, where the main microbiological challenges were “quantitative” focussing on reducing the gross numbers of contaminating spoilage and pathogenic bacteria persisting in/on food products, with less emphasis on potential “qualitative” changes in the virulence or antimicrobial resistance of sub-lethally stressed bacteria in/on such food products.

Secondary food processing is an area where relatively little knowledge is available on the impact this has on AMR in the food chain and the AMR risks associated with bacterial stress responses during food processing. One aspect, identified as a high priority by the ACMSF ‘Task & Finish’ Group, is the AMR impact of the use of bacteriostatic treatments during food processing. Recently, there has been a sustained movement away from bactericidal (lethal) processes toward milder bacteriostatic (inhibitory) processes, which can leave considerable populations of stress inhibited/damaged bacteria in treated foods. These sub-lethally stressed bacteria can recover and grow if the bacteriostatic stresses are reduced or removed, increasing the risk of the development and spread of AMR genes within a food product.

Other aspects of food processing, identified by the ACMSF ‘Task & Finish’ Group as areas of interest and of medium priority to FSA, include the impact of new and emerging food contact surface decontamination technologies in encouraging the emergence/persistence of AMR on such surfaces and the impact on AMR from the formation and persistence of biofilms on food contact surfaces and inadequate biocide/sanitiser decontamination treatments.

This critical review will provide an insight into the impact that meat processing has on the presence of AMR bacteria in meat and meat products, including a consideration of bacterial stress responses and the use of sub-lethal food processing technologies.

Details

The key elements of the work are as follows:

1. To design and carry out a critical review of the available scientific literature to identify whether secondary food processing has an impact on the presence and spread of AMR bacteria/genes in meat and meat products. The main focus should be on meat from poultry and pigs, but consideration should also be given to meats from other species as possible sources of AMR.
2. The review should consider both pathogenic and commensal AMR bacteria and their AMR genes. Pathogens should specifically consider but not be limited to *Campylobacter* spp. in poultry meat and *Salmonella* spp. in pork meat. Commensals should include ESBL, AmpC & Carbapenemase-producing *E. coli*, *Klebsiella* spp. and Enterococci.
3. Secondary food processing activities should include post-harvest/slaughter removal of damaged or undesirable/inedible elements, portioning and preparing the raw material e.g. deboning, portioning and forming, as well as value modification (marination, fermentation), mixing with other edible materials, including processing aids, decontamination treatments (including heat treatment & chlorination), and stabilising by chilling/freezing/MAP/packaging.
4. The review should consider the priorities outlined in the ACMSF ‘Task & Finish’ Group report on secondary food processing, to include studies focussing on the AMR impact of the use of bacteriostatic treatments during food processing and the impact of new and emerging food contact surface decontamination technologies.
5. The review should consider including information on the effect of food processing on the survival of genetic material outside of the bacterial cell.
6. The critical review should adopt a comprehensive search strategy considering peer-reviewed articles, grey literature, relevant Government reports (e.g. FSA published studies, ACMSF reports, etc.), European and International literature (e.g. EFSA Scientific Opinions) from 2000 through to the reporting of this project. The proposal should include a rough estimate of the number of studies likely to be available.
7. The proposal should list all the databases and key search terms to be used and any indicative criteria for inclusion and rejection based on the quality of the studies being considered. Finalised terms may be agreed with the FSA prior to project initiation.
8. It is expected that this will be a one-year (12 months) study costing between £50K and £75K; however please note that proposals received will be assessed against a number of criteria including value for money (see Section C).
9. Applicants must have experience in carrying out critical reviews and expertise in antimicrobial resistance and food processing technologies. The FSA encourages collaborative proposals to ensure all the relevant background and expertise is suitably covered to undertake this proposed work.
10. The General Data Protection Regulation (GDPR) came into force on 25th May 2018 and is a mandatory requirement for all contracts and agreements that involve the transfer and processing of Personal Data. For this contract however, we do not anticipate a requirement to transfer or process Personal Data.

Outcomes

It is anticipated that the following will be delivered to the FSA as part of this work:

* A full technical report addressing the relevant areas of the critical review, which is suitable for publication on the FSA website. The report will need to include a lay summary, executive summary, introduction (including the background and aims/objectives of the study), methodology, key findings of the review, discussions, conclusions and recommendations for further work. Please note that the final report will undergo a peer-review process before it can be accepted by the FSA. A draft report should be submitted at least four weeks before the final report is due to allow FSA officials time to comment.
* The critical review should be both transparent and reproducible. A full database of all the relevant publications included in the critical review should be provided to the FSA. The database should be in a format suitable for publication on the FSA website.
* A meeting with FSA officials at Clive House to discuss the key findings and recommendations arising from the research. Findings may also be required to be presented to ACMSF at a future meeting.

Collaborative applications with an appropriate management framework are encouraged to promote well-balanced, innovative proposals that offer value for money and make use of the best available research and analytical approaches.

Openness:

FSA has values and specific policy on being open and transparent, which includes publishing the full dataset of its research and surveillance studies. Both the lead contractor and their sub-contractors must agree to this openness policy. Any potential issues with this should be highlighted within the proposals.

1. **PROCUREMENT TIMETABLE**

Table 1 details an **estimated** project timetable for the project. Tenderers should however be aware that the Agency needs to acquire the evidence outlined in this ITT in a timely manner and you should justify your timings in your work plan.

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| **TABLE 1. ESTIMATED PROJECT TIMETABLE** |
| **EXPECTED DATE** | **INVITATION TO (ITT) TENDER**  |
| 14th June 2018 | Invitation to Tender (ITT) issued by the Agency  |
| 14th June 2018 | ITT Clarification period opens\* |
| 28th June 2018 | ITT Clarification period closes\*\* |
| 13th July 2018 | Closing date for submission of ITT responses\*\*\* |
| 31st July 2018 | Evaluation of ITT responses  |
| 3rd August 2018 | Tenderers contacted with points raised by appraisers for clarification on their tender, with 2 weeks to respond |
| By mid August 2018 | Appraisal panel meeting held to consider clarified ITT responses |
| By end of August 2018  | Tenderers notified of outcome of appraisal and preferred Tenderer (or Tenderers) identified |
| By end-September 2018 | Contract awarded and signed |
| 1st October 2018 | Project initiation meeting takes place and project commences  |
| 30th September 2019 | Latest date for submission of final report to FSA |

\* If a Tenderer wishes to raise any points of clarification over the procurement process, the actual project objectives or any other query these must be raised through the ECMS by the date specified.

\*\* Queries will not be answered after this date.

\*\*\* Submissions must be uploaded onto the ECMS before the closing date and time.

§ These stages are optional

**Further Information**

For any technical queries or issues regarding the use of ECMS please contact the eSourcing Helpdesk:

Phone: 0800 368 4850

Email: help@bravosolution.co.uk

For any points of clarification regarding this specification or the FSA’s procurement procedures please submit through ECMS.

**Closing Date**

Tenders should be submitted on ECMS **by the 13th July 2018.**

**Tenders received after this time will not be considered or evaluated.** **Please allow sufficient time to upload your tender and all supporting evidence before the closing date.**

**Notification of Submission of Tender**

On successfully submitting your tender you should see a popup box appear on the screen indicating that your tender has been successfully submitted. In addition you will receive an automatic email from ECMS with a reference code.

# EVALUATION OF TENDERS

# The Tenderers Application consists of the:

# Technical envelope (80% of overall value), in which applicants should detail the approach, the work plan and their ability to undertake the work, and

# Financial envelope (20% of overall value), in which applicants should outline all costs to conduct the proposed work, and

# Any other relevant supporting information

# Tenders will be evaluated by FSA internal appraisers and external experts using a numerical system. The table below shows the weightings that have been allocated to each section of the application form and these will be used by the appraisers:

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| **TABLE 2. EVALUATION CRITERIA FOR SELECTION OF SUCCESSFUL TENDERER** |
| **CRITERIA** | **PERCENTAGE WEIGHTINGS** |
| TECHNICAL CRITERIA – **80% overall Value** | Made up of |
| 1. Tender summary and objectives
 | 10% |
| 1. The approach/scope of work, including innovation
 | 20% |
| 1. The plan and deliverables
 | 10% |
| 1. Organisational experience, expertise and staff effort
 | 15% |
| 1. Project management
 | 10% |
| 1. Risk management
 | 5% |
| 1. Quality management, ethics, data protection, dissemination and sustainability
 | 10% |
| FINANCIAL CRITERIA – **20% overall value** | 20% |

## The Technical Envelope

The Technical envelope is split in to 7 sections for evaluation. Guidance on how to complete each section is provided within the actual application form.

A numerical appraisal scoring system will be used to assess the information given in the Technical envelope of the tender. Appraisers will allocate a score of 0, 30, 60, 80 or 100 to each part of the Technical envelope, depending on the quality and relevance of evidence provided. The scores will then be subjected to the weightings given in Table 2.

All technical criteria will be evaluated as follows:

|  |  |
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| SCORE | DESCRIPTION FOR SCORE OF EACH CRITERIA |
| 100 | Tender fully meets or exceeds the criteria set  |
| 80 | Tender would require minor modification but almost fully meets the criteria with only a few gaps in the evidence remaining  |
| 60 | Tender would require some modification but addresses most of the criteria, but may not be detailed enough and/or has several gaps remaining |
| 30 | Tender would require significant modification due to significant gaps  |
| 0 | Tender does not meet the specification or policy |

If the applicant does not reach a minimum score of 30 in the technical evaluation they will be automatically eliminated from the process.

## The Financial Envelope

The Financial envelope is split in to 5 sections. Guidance on how to complete each section is provided within the actual application form.

A numerical appraisal scoring system will be used to assess the information given in the financial envelope of the tender. Appraisers will allocate a score of 0, 30, 60, 80 or 100 to the financial envelope, depending on the quality and relevance of evidence provided. The scores will then be subjected to the weighting given in Table 2.

**Requirement for the financial envelope**

Please complete the Finance template provided. Costs should be quoted excluding VAT for the purpose of comparison of tenders. The Agency’s financial year runs from 1 April to 31 March. All costings should be recorded in line with this timescale.

**Evaluation of the financial envelope**

**Financial criteria will be evaluated as follows:**

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| SCORE | DESCRIPTION FOR SCORE OF THE CRITERIA |
| 100 | There is full justification for the costs and the overall resources are appropriate. The tender is the best value for money for the work proposed to meet the specific evidence requirement advertised |
| 80 | There is some justification for the costs and the overall resources requested. The tender is reasonable value for money for the work proposed to meet the specific evidence requirement advertised. |
| 60 | Limited rational is given for the resources requested and/or the tender does not offer very good value for money, but is not poor value |
| 30 | The tender is relatively poor value for money with little/no justification for costs or resources requested. |
| 0 | The tender costs are not considered value for money and the applicant provided no rationale for costs or resources requested |