Brussels, 13 November 2018

COST 086/18

DECISION

Subject: **Memorandum of Understanding for the implementation of the COST Action "Risk-based meat inspection and integrated meat safety assurance" (RIBMINS) CA18105**

The COST Member Countries and/or the COST Cooperating State will find attached the Memorandum of Understanding for the COST Action Risk-based meat inspection and integrated meat safety assurance approved by the Committee of Senior Officials through written procedure on 13 November 2018.

MEMORANDUM OF UNDERSTANDING

For the implementation of a COST Action designated as

COST Action CA18105
RISK-BASED MEAT INSPECTION AND INTEGRATED MEAT SAFETY ASSURANCE (RIBMINS)

The COST Member Countries and/or the COST Cooperating State, accepting the present Memorandum of Understanding (MoU) wish to undertake joint activities of mutual interest and declare their common intention to participate in the COST Action (the Action), referred to above and described in the Technical Annex of this MoU.

The Action will be carried out in accordance with the set of COST Implementation Rules approved by the Committee of Senior Officials (CSO), or any new document amending or replacing them:

a. "Rules for Participation in and Implementation of COST Activities" (COST 132/14 REV2);
b. "COST Action Proposal Submission, Evaluation, Selection and Approval" (COST 133/14 REV);
c. "COST Action Management, Monitoring and Final Assessment" (COST 134/14 REV2);
d. "COST International Cooperation and Specific Organisations Participation" (COST 135/14 REV).

The main aim and objective of the Action is to combine and strengthen European-wide research efforts on modern meat safety control systems. This will be achieved through the specific objectives detailed in the Technical Annex.

The economic dimension of the activities carried out under the Action has been estimated, on the basis of information available during the planning of the Action, at EUR 56 million in 2018.

The MoU will enter into force once at least seven (7) COST Member Countries and/or COST Cooperating State have accepted it, and the corresponding Management Committee Members have been appointed, as described in the CSO Decision COST 134/14 REV2.

The COST Action will start from the date of the first Management Committee meeting and shall be implemented for a period of four (4) years, unless an extension is approved by the CSO following the procedure described in the CSO Decision COST 134/14 REV2.

TECHNICAL ANNEX

OVERVIEW

Summary

The European Food Safety Authority has recently proposed a generic framework for a modern, flexible and dynamic risk-based meat safety assurance system. Implementation of such a system is expected to be a slow and careful process that would involve its thorough development, fine-tuning and testing its practical feasibility and general impacts. There are many research groups in Europe that currently perform studies, mostly at national level, to fill the knowledge gaps related to such a new system. The main aim of the RIBMINS network is to combine and strengthen European-wide research efforts on modern meat safety control systems. The network will allow exchange of ideas, experience and results of country-level research studies. Furthermore, the aim is to create a platform for training of relevant participants in the new meat safety system and thus help its operability, as well as to inform relevant stakeholders about the requirements, benefits and consequences of the new system. The RIBMINS network will consist of five Working Groups: 1. on scope and targets of meat safety assurance, 2. on farm-level controls and risk categorisation of farms, 3. on abattoir-level controls and risk categorisation of abattoirs, 4. on meat safety assurance system impact with changes, addition and alternatives to meat inspection, and 5. on meat safety assurance system training, communication and monitoring. Overall, the network shall help the full development and implementation of the general principles of meat safety assurance system across Europe for the benefit of consumers, industry and protection of animal health and welfare.

Areas of Expertise Relevant for the Action	Keywords
● Veterinary science: Veterinary medicine (miscellaneous) ● Animal and dairy science: Microbiology ● Other engineering and technologies: Food science and technology	● meat ● safety ● inspection ● risk analysis

Specific Objectives

To achieve the main objective described in this MoU, the following specific objectives shall be accomplished:

Research Coordination

● To create a network to coordinate research on the risk-based meat inspection and the whole meat safety assurance system in Europe.

● To establish strong, dynamic and effective links between science, official authorities and meat industry (including primary meat production) in this field.

● To develop a crude roadmap that will identify current status, multiple objectives and desired goals of meat inspection and meat safety assurance, including all in between steps, resources and responsibilities needed to achieve these goals.

● To identify knowledge gaps and establish a consensus roadmap to foster excellence and innovative scientific research.

● To consolidate and extend the results from national research programmes and other international networking activities.

● To harmonise and integrate research outputs and develop new methods and tools for cost- effective meat safety assurance.

● To assess impacts of the new meat safety assurance system on public health, animal health and welfare, socio-economics, and trade.

● To provide scientific advice/information/recommendations and engage with policy-makers at national and European levels and meat industry to receive their feedback on possible challenges and opportunities related to meat safety assurance system.

● To develop a platform for training of all participants in the new meat safety assurance system.

● To promote European risk-based meat inspection and meat safety assurance system to other world

regions, especially to overseas countries with the most intensive meat trade with Europe.

Capacity Building

● To create a collaborative network of experts who will drive scientific progress in veterinary public health focused on meat safety.
● To foster connection and collaboration of different actors involved in the new meat safety systems.
● To promote collaborative interdisciplinary approaches to achieve breakthroughs in meat safety (i.e. between food microbiologists, parasitologists, veterinary and public health epidemiologists, food technologists and engineers, etc.).
● To identify the competency profile of food risk managers and suggest suitable training.
● To train young researchers (PhD students and other Early Career Investigators), representatives of national food safety and veterinary public health authorities and representatives of meat industry in the new meat safety assurance system.

1. S&T EXCELLENCE

1.1. CHALLENGE

1.1.1. DESCRIPTION OF THE CHALLENGE (MAIN AIM)

The safety of meat may be jeopardized by numerous biological, chemical and physical hazards; to tackle them, meat controls have traditionally been based on official meat inspection and/or on laboratory end-product testing. The system of traditional *post-mortem* meat inspection, comprising visual inspection, palpation and incision of carcasses and organs of slaughtered animals, was developed in the nineteenth century to deal with zoonotic diseases such as trichinellosis, brucellosis, tuberculosis and cysticercosis/taeniasis. These diseases were relatively prevalent in Europe at that time, meaning that the meat inspection was risk-based originally. During the last decades, the scope of meat inspection has been substantially extended. Other public health issues have attracted attention, such as presence of residues of veterinary medicines or other chemical substances, as well as TSE/BSE controls (Specified Risk Material), but also animal health and welfare protection, meat quality assurance, control of slaughter by-products and even protection of the environment. Such a multi-purpose framework of control measures may provide valuable contribution to public health protection. Many diseases for which meat inspection procedures had been principally developed are rare today or even eradicated in many European countries. Moreover, other meat-borne diseases have emerged. However, although the nature of the problems in meat safety has significantly changed over time, the system of meat inspection has practically remained unchanged (according to the Regulation EC 854/2004). The traditional meat inspection is not designed to deal with the currently most relevant meat-borne hazards such as *Salmonella*, *Campylobacter*, *Yersinia enterocolitica,* verocytotoxigenic *Escherichia coli* (VTEC) or *Toxoplasma gondii*, nor with chemical hazards (residues of veterinary drugs, mycotoxins, etc.) as these hazards usually do not cause clinical disease or result in macroscopic lesions in animals. Contrary, presence of lesions resulting from an infection months earlier will in many cases lead to condemnation, although the food safety burden is negligible. A non-flexible interpretation of the meat inspection legislation will lead to unnecessary condemnation, and hence, food waste. This implies that meat inspection is not risk-based in respect of public health protection nowadays. Furthermore, manual handling and inspection procedures (palpations and/or incisions) of carcasses and viscera during *post-mortem* inspection can mediate microbial cross-contamination. The outlined drawbacks of traditional meat inspection are well recognized in scientific and regulatory circles, and meat inspection is nowadays considered limited in public health protection, although it is still useful for animal health and welfare protection. Use of end-product laboratory testing as a substitute for meat inspection in detecting most relevant human health hazards is also very limited - it is expensive and non-proactive while tested food samples may not be sufficiently representative due to the heterogeneous distribution of pathogens. Also, the results are delayed, dependant on tests' performances, and relate only to the hazard examined for; overall, testing and negative results certainly do not guarantee safety of meat ("the absence of evidence is not the evidence of absence"). Therefore, to tackle the main food/meat-borne hazards, meat inspection must be revised to be risk-based and as such to be a part of the modern, longitudinally integrated system that entails control throughout the meat chain with the main focus on farm and abattoir stages. European Food Safety Authority (EFSA) has produced scientific opinions and proposed generic framework for a new meat safety assurance system (MSAS) that incorporates official meat inspection with food safety management systems managed by Food Business Operators (FBOs) into a coherent whole. This framework represents a sound basis of a modern, flexible and dynamic risk-based meat safety system. It is expected that such a system will be further developed and fully implemented in the future. The development process will among others involve identification of principle for tailor-made measures, based on risk assessment and applied at those points in the meat chain, where they are of

highest cost-effectiveness in reducing meat-borne risks. Hence, the implementation of MSAS is expected to be a slow and careful process that would involve its thorough development, fine-tuning and testing its practical feasibility and general impacts. In the interest of fair competition in the meat industry sector and more efficient regulatory controls across Europe, different existing meat safety systems must be gradually harmonized under the MSAS's umbrella to the extent possible. There are many research groups in Europe that currently perform studies, mostly at national level, to fill the knowledge gaps in specific segments of the MSAS. Therefore, the main aim of the network is to combine and strengthen European-wide research efforts on modern meat safety control systems. The network will allow exchange of ideas, experience and results of country-level research studies. Furthermore, the aim is to create a platform for training of relevant participants in the new MSAS and thus help its operability, as well as to exchange views with relevant stakeholders (meat industry, consumers and policymakers), at a national and European wide levels, about the requirements, benefits and consequences of the MSAS. Also, sharing of experiences with developed overseas countries (such as Australia, United States of America, Canada, etc.) in meat safety assurance systems would be mutually beneficial and assist in ensuring recognition of equivalence allowing free trade. Overall, the network shall help the full development and implementation of the general principles of MSAS across Europe.

1.1.2. RELEVANCE AND TIMELINESS

Zoonotic pathogens that are "invisible" for current meat inspection are reported to cause more than 350,000 food-borne illnesses and at least 400 deaths in Europe yearly (EFSA/ECDC, 2017) with significant proportion attributable to meat. Considering outlined shortcomings, a revision of meat inspection and overall meat safety system is deemed necessary. EFSA began a work on the revision of meat inspection in 2010, aiming to: i) identify and rank the main biological and chemical risks for public health that should be addressed; ii) assess the strengths and weaknesses of the current meat inspection and recommend possible alternatives; and iii) recommend additional inspection methods for hazards of increased risk that are not addressed currently. This work was done taking into account the impact of the revision of meat inspection on animal health and welfare as well. EFSA opinions were adopted in period September 2011 to June 2013 to represent a basis of legislation changes that would lead towards risk-based meat inspection and meat safety assurance in the European Union (EU). To this point, only pig and poultry meat control legislation have been partially changed (Regulation EC 216-219/2014 and Regulation EC 2017/1495) and for other meat species, changes are expected in the near future (e.g. for bovines some changes are expected at the end of 2018). Also, the new legislation on official controls to ensure, among other, the application of food law and rules on animal health and welfare (Regulation EU 2017/625) will mainly apply from the end of 2019. To put the new MSAS in place, European Commission needs further scientific inputs that will enable the revision of relevant legislation. Also, private food safety standards that are set by the Food Business Operators (meat industry) will need to be aligned with the MSAS and vice versa. Therefore, it is now very timely and crucial to finalise the development of the MSAS, and subsequent implement it, which requires a well-constructed network to joint and direct the research and knowledge capacities.

1.2. OBJECTIVES

1.2.1. RESEARCH COORDINATION OBJECTIVES

Many research groups from European countries are investigating new approaches to modernise meat inspection and develop individual components of a future meat safety assurance system. These activities are usually performed with an active collaboration with FBOs and also Competent Authorities that are in charge for practical implementation of the system.

The core research coordination objectives of the Action are to:

- Create a network to coordinate research on the risk-based meat inspection and the whole meat safety assurance system in Europe;
- Establish strong, dynamic and effective links between science, official authorities and meat industry (including primary meat production) in this field.

Specific research coordination objectives of the Action are to:

- Develop a crude roadmap that will identify current status, multiple objectives and desired goals of meat inspection and meat safety assurance, including all in between steps, resources and responsibilities needed to achieve these goals;
- Identify knowledge gaps and establish a consensus roadmap to foster excellence and innovative scientific research;
- Bring together researchers from most European countries and stimulate and coordinate further research efforts for development and optimisation of the risk based meat inspection and meat safety assurance system;
- Consolidate and extend the results from national research programmes and other international networking activities;
- Harmonise and integrate research outputs and develop new methods and tools for cost-effective meat safety assurance;
- Organize and prioritize research lines to avoid duplications and to promote synergisms;
- Assess impacts of the new meat safety assurance system on public health, animal health and welfare, socio-economics, and trade;
- Provide scientific advice/information/recommendations and engage with policy-makers at national and European levels and meat industry to receive their feedback on possible challenges and opportunities related to meat safety assurance system;
- Develop a platform for training of all participants in the new meat safety assurance system;
- Promote European risk-based meat inspection and meat safety assurance system to other world regions, especially to overseas countries with the most intensive meat trade with Europe.

Among the currently available European funding schemes, COST is the best match to achieve these research coordination objectives.

1.2.2. CAPACITY-BUILDING OBJECTIVES

The process of development and implementation of new MSAS across Europe requires a well-built scientific community dedicated to this goal. Therefore, an important part of the Action will be dedicated to the capacity-building. The ambition of RIBMINS is to establish a Pan-European network of excellence among research groups with broad support from meat industry and food safety and veterinary public health regulatory authorities.

Hence, the capacity-building objectives of the Action are to:

- Create a collaborative network of experts who will drive scientific progress in veterinary public health focused on meat safety;
- Foster connection and collaboration of different actors involved in the new meat safety systems;
- Promote collaborative interdisciplinary approaches to achieve breakthroughs in meat safety (i.e. between food microbiologists, parasitologists, veterinary and public health epidemiologists, food technologists and engineers, etc.);
- Identify the competency profile of food risk managers and suggest suitable training;
- Train young researchers (PhD students and other Early Career Investigators (ECIs)), representatives of national food safety and veterinary public health authorities and representatives of meat industry in the new meat safety assurance system.

The outlined capacity-building objectives will be achieved by means of Training Schools, Workshops, and participants' visits to different research centres via Short-Term Scientific Missions. Geographical, age and gender balance throughout all the activities will be promoted.

1.3. PROGRESS BEYOND THE STATE-OF-THE-ART AND INNOVATION POTENTIAL

1.3.1. DESCRIPTION OF THE STATE-OF-THE-ART

According to the risk-rankings performed by EFSA (2011a, 2012a, 2013a,b,c,d), prioritised biological public health hazards for future meat controls are *Salmonella enterica, Yersinia enterocolitica*, *Toxoplasma gondii* and *Trichinella* spp. in pigs, *Campylobacter* spp., *Salmonella enterica* and ESBL-AmpC gene-carrying bacteria in poultry, VTEC and *S. enterica* in cattle, VTEC and *T. gondii* in sheep and goats, *Trichinella* in solipeds, *T. gondii* in farmed deer, and *Salmonella* spp. and *T. gondii* in farmed wild boar. Because of their potential negative consequences, chemical hazards of high priority are contaminants such as dioxins and dioxin-like polychlorinated biphenyls as well as some veterinary

medicines that are prohibited to be used in food producing animals (Chloramphenicol, Nitrofurans and Nitroimidazoles); also, residues of any of other chemical substance in unacceptable levels are of high concern although they are not found very often. The proposed risk-based approach to MSAS focuses on the safety of chilled carcasses in abattoirs, primarily in respect of prioritised hazards, and aims to combine a range of preventative and control measures applied both at farms and abattoirs, longitudinally integrated into a coherent whole. The elements and control strategies of carcass meat safety assurance system include: i) risk categorisation of farms/animals and abattoirs based on their risk-reducing performances; ii) use of indicators such as production system (controlled/non-controlled) housing; iii) meat inspection procedures *per se* (i.e. previous risk categorisation of animals arriving at slaughter enables visual-only inspection of low-risk animals, or applying current, or even more stringent, inspection procedures for high-risk animals); iv) food safety management systems assuring abattoir process hygiene and compliance with cold chain requirements (Good Manufacturing/Good Hygienic Practices (GMP/GHP) and Hazard Analysis and Critical Control Points (HACCP) based system); v) the traceability of animals and meat; and vi) analysis of the Food Chain Information (FCI). To facilitate a categorisation of farms/animals and abattoirs according to the risk of priority hazards they pose for public health and to set appropriate specific hazard-based targets in animals and carcasses, harmonised epidemiological indicators (HEIs) have also been proposed by EFSA (2011b, 2012b, 2013e,f,g,h). The entire system is planned to be coordinated by a "risk manager" who will have to choose/balance which control options will be applied to ensure that the hazard-based targets for chilled carcasses are achieved and to generate the overall most cost-effective contribution to public health. Moreover, meat inspection objectives other than public health protection should not be neglected. Hence, the new system shall continue to or even improve targeting and controls of hazards that affect animal health and welfare. Due to the complexity and multitasking of current and future meat inspection, defining different roles, responsibilities and clear rationales is crucial for proper functioning and fulfilling MSAS's goals. EFSA opinions on the revision of meat inspection and proposal of MSAS provide further conclusions and recommendations that it is necessary to: i) perform regular revision of hazard identification and ranking of hazards, taking into account EU regional variability, ii) collect further data for better evidence-based rankings for certain hazards, iii) investigate approaches and collect further data for farm and abattoir risk categorisations, iv) assess the extent to which manual procedures (palpations and/or incisions) during *post-mortem* inspection contributes to microbial cross-contamination, and v) assess the effect of visual-only inspection on meat safety risk of some currently low-priority hazards (i.e. cysticercosis and tuberculosis) and animal health and welfare hazards, or to develop alternative control measures that will achieve equal or higher level of control. Therefore, further research needs to fill numerous knowledge gaps that will lead to the MSAS fine tuning and implementation in practice.

1.3.2. PROGRESS BEYOND THE STATE-OF-THE-ART

Currently, there are several research groups across Europe that are working on the development, improvement and assessment of the specific MSAS elements. The topics include:

- Optimisation and harmonization of the ways of using the Food Chain Information in risk categorisation of animals intended for slaughter;
- Assessment of the use of "multi-serological" herd profiles as part of the Food Chain Information regarding an adequate meat inspection intensity (e.g. visual-only or more stringent inspection including additional laboratory testing) and development of microarray for simultaneously detection antibodies against zoonotic and production diseases at herd level;
- Assessment of the use of acute phase proteins measurements in animals intended for slaughter as a part of the Food Chain Information;
- Development of methodologies for assessing abattoir process hygiene and risk categorisation of abattoirs;
- Development of animals' skins/hides and carcass meat decontamination technologies and assessment of their performances;
- Assessment of the effectiveness of HEIs in risk categorisation of both animals and abattoirs;
- Assessment of the impact of visual only inspection on public health and animal health and welfare;
- Assessment of the contribution of specific meat inspection tasks (i.e. inspection of liver, lungs, green offal, etc.) to public health and animal health and welfare;
- Assessment of the effectiveness of meat inspection performed out of the slaughter-line;
- Quantification and risk assessment of the cross-contamination due to palpation and incisions during meat inspection;
- Development of computer image technology (non invasive image technology), whereby cameras linked to specific software-generated pictures can be used as a support for inspection

(e.g. for detection of faecal contamination and pathological lesions like chronic pleurisy or tail lesions);
- Development of the decision criteria regarding when to subject a carcass to local condemnation or trimming instead of condemning it;
- Identification of cost-effective monitoring programs for residues of veterinary medicinal and other substances which are unwanted in meat;
- Optimisation and harmonization of the Collection and Communication of Inspection Results (CCIR) - the information sent backwards in the food chain to farms regarding meat inspection results;
- Use of "responsive regulation" approach in modernisation of food control.

1.3.3. INNOVATION IN TACKLING THE CHALLENGE

It is clear that filling numerous knowledge gaps by connecting the results of current research and initiating new research activities is among the main preconditions of the successful MSAS implementation. The most relevant innovative issues that will be tackled by RIBMINS network include the topics listed below.

Definition of the scope and targets of meat safety assurance system (WG1). Current meat inspection and safety assurance system has multiple purposes (outlined before) and the roles of the various participants are sometimes not clearly defined and divided. Hence, for the successful risk-based MSAS development and implementation, it is necessary to define precisely the objectives and to divide roles and responsibilities of the Food Business Operators (FBOs) and the Competent Authority (CA). Also, it is important to investigate how the risk managers in the future MSAS should operate and collaborate with the FBOs and CA to optimise the use of resources and to maximise the overall MSAS effectiveness, as well as to assess this on an ongoing basis. Modernisation of current meat inspection into a wider risk-based system implies that the system is prone to changes in regard to the importance of, primarily, meat-borne hazards. Therefore, prioritisation of hazards that includes risk-ranking, periodic re-ranking and regional rankings of hazards that are real targets of MSAS is an essential element of risk-based system. The risk-ranking of hazards performed by EFSA was based on data (including from zoonoses monitoring system), from a period almost a decade ago and was performed at the overall EU level. However, newer data are becoming available at a regular basis and regional differences might be of great significance; hence, regular revisiting of hazard rankings taking into account the newest data as well as regional/country variability is required for successful development and maintaining of the MSAS. Also, for some hazards (such as ESBL-AmpC gene-carrying *E. coli* and *T. gondii* in cattle) the priority was not determined by EFSA due to insufficient data for conclusive ranking at that time. The MSAS will primarily be focused on safety of chilled carcasses in respect of relevant hazards. Consequently, a precondition for its functioning and measuring its effects is setting related targets in/on chilled carcasses (i.e. maximum hazard prevalence and/or concentration). These carcass targets will be set by regulators and are expected to be met by Food Business Operators. They will be linked with the targets in earlier phases of the meat chain (farm-level) as well as with the targets in the later phases (further meat processing), including ultimately the level of protection that is deemed appropriate by the country establishing control measures to protect human health and animal health and welfare within its territory. Therefore, it is necessary to investigate and to test the approaches in setting targets in relation to the MSAS.

Assessment and improvement of the MSAS's farm-level segment (WG2). Numerous pre-harvest measures (e.g. good farming and hygienic practices, bio-security, vaccination, feed treatments, etc.) that are the cornerstones of zoonotic agents and chemical hazards controls are already in place in most countries. Efforts are usually directed at those measures which have the greatest cost-effect. Therefore, an assessment of the cost-effectiveness of these on-farm interventions in reducing the presence of the public health hazards is of highest importance. In the risk-based meat inspection context, Food Chain Information which include information from farm to abattoir phase (i.e. farm management, animal movement records, epidemiological intelligence data, previous meat inspection results, etc.) serve to classify animals destined for slaughter according to the related expected safety risk. Hence, FCI are the tool for animal/farm risk categorisation and making risk-based decisions. Although EU legislation on hygiene of foodstuffs (Regulation EC 853/2004) introduced FCI concept more than a decade ago, original intentions on its use have largely not been achieved to date, it has been underdeveloped and underutilised. Also, EFSA's pathogen specific harmonised epidemiological indicators that would be used in farm/animals risk categorisation (e.g. auditing of farm practices or determining the prevalence of prioritised hazards in herds/flocks, etc.) have recently been proposed but their feasibility has yet to be

tested widely. Furthermore, some other harmonised epidemiological indicator that may be better suited to regional or epidemiological situation, including pathogen-free animal holdings in this context, merit further investigation.

Assessment and improvement of the MSAS's abattoir-level segment (WG3). The main meat-borne hazards are bacteria that are harboured in gastrointestinal tract and consequently on skin/hide/fleece of slaughtering animals and transferred to meat during carcass dressing operations. Their control is mostly based on GMP/GHP and HACCP system ensuring abattoir process hygiene which needs constant monitoring, verification and improvements. Animal coats' intervention strategies (hide/skin decontamination and/or microbial immobilisation treatments) and strict adherence to delivery of clean animal policies, provide further assurance of minimised carcass meat microbial contamination originating from these sources. New technologies for detection of carcass contamination (such as computer image technology) may be used to ensure improved hygiene. Also, other means of carcass dressing and cutting have been recently proposed (e.g. disassembling the carcass from outside-in without removal of internal organs before removal of most primary meat cuts) but their practical application has yet to be further tested. Furthermore, carcass meat decontamination treatments are foreseen in the MSAS to be used in the scenario of high risk animals/abattoirs. Therefore, an assessment of the effectiveness of these abattoir interventions in reducing the presence of the public health hazards of highest importance on final carcasses and consequently meat-borne human infections, is needed. Risk categorisation of abattoirs in respect of their process hygiene is one of essential MSAS elements and research on optimal categorisation tools and testing of recently proposed ones such as EFSA's HEI's (e.g. determining the prevalence of prioritised hazards on carcasses before and after dressing, etc.) is needed.

Assessment of the MSAS's impact with changes in meat inspection and development of alternatives to traditional meat inspection (WG4). The future MSAS is tailored to reduce the burden of public health hazards in a cost-effective way. It is necessary to validate whether it accomplishes its main goal. As the current meat inspection contributes to animal health and welfare protection by detecting related lesions (including those that are invisible or less visible for visual-only meat inspection), and informing the farm of origin on necessary controls, it is important to assess the impact of this public health risk-based action on animal health and welfare. Another issue is that, for exporting countries, the trade requirements may limit the implementation of risk-based approaches (such as visual-only inspection procedures); hence, investigation of this limitation and need for documentation are of interest. Furthermore, continuous assessment of socioeconomic impact and cost-benefit and cost-effectiveness analyses are important for the MSAS functioning. Also, the development and application of alternative procedures that are able to replace some of the current *post-mortem* procedures and provide equal or even higher level of protection is required. These may include i) use of computerised image analysis to detect abnormalities affecting meat safety or quality; ii) use of meat juice multi-serology for obtaining data on the occurrence of subclinical infections in slaughter animals due to public or animal health hazards; iii) use of indicators to divide livestock populations into high- and low-risk compartments (e.g. for *Trichinella* and *Toxoplasma*); iv) development of cost-effective and flexible monitoring programs for residues in meat. Furthermore, investigations should be made regarding the food safety impact of different lesions, whereby if will be possible to identify evidence-based criteria for condemnation focusing on upgrading by-products and avoiding food waste.

Development of platform for training in meat safety assurance system, communication with stakeholders and monitoring of MSAS implementation (WG5). The "risk managers" in MSAS will have to select a scenario of control measures to provide the overall most cost-effective contribution to public health. Therefore, they are expected to play a pivotal role in the future meat safety assurance systems and will have to be properly trained. Also, it is necessary that all other parties involved in the proposed MSAS, including meat inspectors and auxiliaries, as well as abattoir staff and farmers, are trained in the skills required for this system to operate properly. Therefore, it is necessary to develop proper guidelines for their training. As the process of MSAS implementation will inevitably vary by extent and pace in different countries and meat industry sectors and will require certain expertise in interpretation of risk-based legislation and guidance, monitoring of MSAS implementation and communication with the relevant stakeholders is also of interest (e.g. for delegation of rational and reasonable tasks to the industry).

1.4. ADDED VALUE OF NETWORKING

1.4.1. IN RELATION TO THE CHALLENGE

The process of development and implementation of new systems pose a huge challenge to scientific, regulatory and industry communities. At national levels, research groups proposing such approaches are conducting studies to fill numerous knowledge gaps on assuring the carcass meat safety. However, not all segments and variables of a system can be overseen by an individual research group. In many aspects problems are very complex and expertise for their solution can be found in another institution or another country. Therefore, a joining of research capabilities and efforts and combining the expertise of research groups at European wide level is a proper platform for further developments of the meat safety system. The Action aims to coordinate research and regulatory efforts at a European level. Networking will also increase the impact of the research conducted by single groups. In situations where the coordination among different research groups is lacking, some studies carried out by individual groups would be limited to a more local or regional representation of the topic; also the comparison of results at different locations would always be challenging. Integration between European partners on this topic is important to obtain coherent strategies for meat safety assurance, in line with the requirements of the common market and EU food legislation. Also, the knowledge exchange is crucial for research groups with less experience in the field and the experiences from successfully implemented interventions – such as those on *Salmonella* or *Campylobacter* in food producing animals in countries like Finland, Norway or Sweden - could be very useful for other European countries and regions. Some of the previously outlined MSAS's segments are currently under active discussion and require a flexible approach for further development. Furthermore, there are different views on some aspects in modernisation of meat controls, including the value of visual-only compared to traditional inspection. Therefore, networking and intensive discussion between different groups representing all parties involved in the future MSAS aiming at bridging existing gaps between them is one of preconditions for its successful implementation. Without such a structured network, it is hard to consolidate multidisciplinary research endeavours on this topic in Europe. Coordination at a European-wide level will reduce the risk of duplication of efforts and save financial and other resources. Also, RIBMINS will bring scientific groups into contact with industry and food safety and public health authorities. The COST's ability to involve both ECIs and eminent experts will lead to proper development of the former group, and the Action will strongly support the mobility of ECIs across Europe. In this way the Action will support the building of a world leading community in the field of risk based meat safety assurance. This Action will focus on the consolidation and extension of results from national research programmes and international networking activities. Inclusion of International Partner Countries in this network, especially those that have intensive meat trade with Europe, would help overcoming some trade obstacles. Among the currently available European funding schemes, COST is the best match to build a network to bring together the existing European and national efforts.

1.4.2. IN RELATION TO EXISTING EFFORTS AT EUROPEAN AND/OR INTERNATIONAL LEVEL

Several efforts at national, regional and/or European level have been made in the past to present the results and discuss ongoing revision of meat inspection and meat safety system. These include conferences, symposia, workshops, round tables and other forms of meetings. Some of the examples are listed below:

- Series of meetings and projects under The Nordic Council of Ministers, “Modern meat inspection in a Nordic context” (2002 – 2006);
- Series of round-table conferences on revision of meat inspection (Brussels, 2010-2011);
- EU meeting about Future Meat Inspection (Copenhagen, 2012);
- How to review meat controls to strengthen consumer confidence in the meat chain? (Brussels, 2013);
- Workshops on risk-based meat inspection held in relation to the Scientific “Safepork” Conference in 2015 (Porto) and 2017 (Iguaçu, Brazil);
- Nordic meeting on the modernisation of meat control and animal welfare inspection at slaughterhouses (Uppsala, 2018).

2. IMPACT

2.1. EXPECTED IMPACT

2.1.1. SHORT-TERM AND LONG-TERM SCIENTIFIC, TECHNOLOGICAL, AND/OR SOCIOECONOMIC IMPACTS

Scientific impacts:

- Fostering the research (in directions of specific Working Groups) will fill the numerous knowledge gaps on specific segments of the existing and the future meat safety system (short- and long-term);
- Stimulation of early career researchers to actively participate in related research, trainings, meetings, dissemination, etc., will help in producing the next generation of experts on this field (long-term);
- Favouring mobility and meetings will facilitate setting-up new research networks in the area (short- and long-term);
- Introduction and recognition of new research groups will enable integration into consortia for further joint research funding (short- and long-term).

Technological impacts:

- Development of new technologies to support meat inspection - i.e. imaging for detection of pathological lesions or meat contamination and recording system for *ante-mortem* inspection on farms (short-term);
- Development of technologies for more efficient gathering, exchange and use of information in the meat chain (short-term);
- Development of innovative technologies such as block chains to reduce the possibilities of food fraud under the MSAS (short-term);
- Redefinition of criteria for when to condemn a carcass based upon food safety risk (short-term) will reduce food waste;
- Development of skin/hide and carcass meat decontamination technologies (short-term).

Socioeconomic impacts:

- Production of scientific results and dissemination of a specific research outputs will enable the policy makers to identify the targets and measures for reduction of the public and animal hazards (long-term);
- Strengthening the bond between researchers, policy makers and meat industry (short- and long-term);
- As a result of assisting with the implementation of the risk-based MSAS, the Action will indirectly contribute to the following impacts (short- and long-term): i) optimal use of resources, minimisation of food waste, creation of new cost effective monitoring strategies and improvement of the quality of animal proteins (which will create a net benefit); ii) the health of European citizens in respect of main food-borne hazards will be improved and negative economic impact on both health and meat sectors will be reduced; iii) cost-effective meat inspection will lead to lower inspection costs and higher value of inspection; and iv) meat trade and European position in the world market will be improved, including access to the new markets.

2.2. MEASURES TO MAXIMISE IMPACT

2.2.1. PLAN FOR INVOLVING THE MOST RELEVANT STAKEHOLDERS

For the implementation of the Action into practice, close interaction between the scientific community, meat industry and food safety and public health authorities will be needed. Their knowledge concerning the characteristics, design and operation of the meat safety system is crucial. The outputs of the research groups will be useful for national authorities. Their representatives will therefore participate in the meetings, Workshops and Training Schools. The European Commission, European Food Safety Authority, Federation of Veterinarians of Europe, World Health Organisation and Food and Agriculture Organisation (both through *Codex Alimentarius*), World Organisation for Animal Health (OIE), and meat producing and trade associations (such as European Livestock and Meat Trading Union - UECBV) will

also be approached and their representatives will be invited to the Action meetings and conferences to exchange opinions on modernisation of meat safety system.

2.2.2. DISSEMINATION AND/OR EXPLOITATION PLAN

The target audience for output of the COST Action RIBMINS will include researchers from veterinary, food safety, microbiological and parasitological disciplines, postgraduate students (MSc, PhD and residents of the European College of Veterinary Public Health), representatives of meat industry sector including primary producers (farmers), veterinarians and auxiliaries working in abattoirs as well as representatives of national food safety and public health authorities. Networking activities within RIBMINS will create opportunities for collaboration between science, industry and authorities that is important for a dissemination of knowledge into practical applications.

More specifically, the Action's outcomes will be disseminated and exploited through:

- Two international conferences in line with the Management Committee meetings (in the second year and at the end of the Action) open to participants from the scientific community, industry, and food safety and public health authorities, that will be organized within the context of RIBMINS network;
- Presentations at other international conferences on food safety and quality;
- Scientific publications (original, review and position papers) in high-calibre peer-reviewed journals that are mainly based on specific deliverables of the Action (at least fifteen collaborative papers will be published);
- Workshops, Training Schools and Short-Term Scientific Missions that will be organized within the contexts of individual Working Groups;
- Setting-up and regular updates of the Action's website;
- Press releases and communications via social media (like LinkedIn group) that will be posted on a regular basis;
- Presentation of the results from the Action to competent European institutions and the meat industry by inviting them to one of the Action's meetings or through specific meetings for this purpose.

2.3. POTENTIAL FOR INNOVATION VERSUS RISK LEVEL

2.3.1. POTENTIAL FOR SCIENTIFIC, TECHNOLOGICAL AND/OR SOCIOECONOMIC INNOVATION BREAKTHROUGHS

The potential innovation breakthroughs resulting from the Action:

- Research and training will help policy makers on meat safety controls to acquire an evidence-based decision-making approach;
- Development of network of trainers and training material for future risk managers of the MSAS;
- The anticipated close interaction with the relevant non-scientific stakeholders participating in the RIBMINS consortium will create direct communication lines between the science and practice;
- Timely sharing of the research results and discussions within the network will allow further breakthroughs in the field.

The possible risks hindering the Action to reach breakthroughs:

- Implementation of the new meat safety assurance systems is highly dependent on policy-makers and might be delayed;
- Insufficient financial resources in participating countries to carry out local research activities;
- Meat industry sector and European countries may have different needs and objectives of meat safety systems which may influence ways and pace of development.

3. IMPLEMENTATION

3.1. DESCRIPTION OF THE WORK PLAN

3.1.1. DESCRIPTION OF WORKING GROUPS

The Action will be structured in five Working Groups (WGs), each containing multiple objectives and tasks. Close collaboration and exchange of information between the WGs will take place. The WGs 1-4 will focus on scientific activities to fill specific knowledge gaps in the MSAS development and implementation and on training of ECIs while the WG5 will mainly focus on communication with stakeholders and preparation of training of participants in the MSAS. Each WG will produce specific deliverables in the form of reports or manuals – furthermore, the deliverables as well as the outcomes/minutes from the Workshops will be transformed into scientific papers and published in peer-reviewed journals (at least three papers per WG will be published). More detailed descriptions of objectives, tasks and deliverables related to each WG are outlined below.

1. WG 1 - Scope and targets of meat safety assurance

Objectives:

Objective 1.1 Mapping existing meat safety and quality assurance schemes;
Objective 1.2 Identification of the scopes/aims of the current and the future meat inspection and meat safety assurance system and the interface of public health with animal health and welfare assurance;
Objective 1.3 Identification of the roles and responsibilities within the current and the future risk based meat safety assurance system (all informed by outputs from WG2, WG3 and WG4);
Objective 1.4 Mapping the roles of the risk manager in the future meat safety assurance system;
Objective 1.5 Prioritisation of the hazards (risk-ranking, periodic re-ranking and regional rankings of hazards for public health and animal health and welfare) and investigation of approaches for setting risk-related targets in the meat chain.

Tasks:

Task 1.1 Workshop on meat inspection and meat safety assurance scopes;
Task 1.2 Workshop on the roles and responsibilities in the future risk based meat safety assurance system;
Task 1.3 Training School on risk-ranking tools and methods and setting of risk-related targets in the meat chain.

Deliverables:

Deliverable 1.1 Preliminary report on scope of meat safety assurance system and competences and roles of risk manager;
Deliverable 1.2 Final report on scope of meat safety assurance system and competences and roles of risk manager.

2. WG 2 – Farm-level controls and risk categorisation of farms

Objectives:

Objective 2.1 Assessment of the effectiveness of pre-harvest meat safety interventions (on-farm and in farm-to-abattoir stages);
Objective 2.2 Assessment and improvements of the performance of Food Chain Information;
Objective 2.3 Assessment of harmonized epidemiological indicators in risk categorisations of farms.

Tasks:

Task 2.1 Training School on pre-harvest meat safety interventions and Food Chain Information;
Task 2.2 Workshop on Food Chain Information improvements;
Task 2.3 Workshop on use of harmonized epidemiological indicators in farm risk categorisation.

Deliverables:

Deliverable 2.1 Report on pre-harvest meat safety interventions and Food Chain Information assessment and improvements;

Deliverable 2.2 Report on the use of harmonized epidemiological indicators for specific hazards in farm risk categorisation.

3. WG 3 - Abattoir level controls and risk categorisation of abattoirs

Objectives:

Objective 3.1 Assessment of the effectiveness of new tools and methods for the detection of carcass faecal contamination;
Objective 3.2 Assessment of the significance of intervention strategies (skin/hide and carcass meat decontamination methods) and alternative methods for animal slaughter and carcass dressing and cutting to reduce the microbiological load on carcasses in abattoirs;
Objective 3.3 Assessment of the performance of the food safety management systems in abattoirs;
Objective 3.4 Assessment of harmonised epidemiological indicators in risk categorisations of abattoirs.

Tasks:

Task 3.1 Workshop on decontamination methods in abattoirs;
Task 3.2 Training School on tools and assessment of abattoir process hygiene;
Task 3.3 Workshop on use of harmonized epidemiological indicators in abattoir risk categorisation.

Deliverables:

Deliverable 3.1 Report on methods and tools for the detection of carcass contamination and decontamination of animal skins and carcasses in abattoirs;
Deliverable 3.2 Report on harmonized epidemiological indicators in abattoir risk categorisation and integrated food safety management systems.

4. WG 4 - Impact of changes and alternatives to traditional meat inspection

Objectives:

Objective 4.1 Comparison between the suggested future MSAS and selected current meat safety systems including SWOT (strengths, weaknesses, opportunities, threats) analysis taking into account food safety, animal health and welfare, and trade (informed by the output of WG1);
Objective 4.2 Assessment of cost-effect of individual tools to be used as part of the future MSAS (e.g. meat juice serology, various indicators);
Objective 4.3 Updating of meat inspection lesion codes to improve decision-making at inspection and relevance of feed-back of information to producers;
Objective 4.4 Redefining of criteria for condemnation to minimize food waste through upgrading of by-products while ensuring food safety, animal welfare and detecting/avoiding introduction of notifiable diseases;
Objective 4.5 Efficacy studies with the aim of implementing camera-based technology in the meat inspection;
Objective 4.6 Harmonization of necessary procedures to assess meat fitness for human consumption.

Tasks:

Task 4.1 Workshop on alternatives to traditional meat inspection;
Task 4.2 Training School on development of risk based meat inspection;
Task 4.3 Workshop on implementation of risk based meat inspection.

Deliverables:

Deliverable 4.1 Report on alternatives to traditional meat inspection and their potential in the future meat safety assurance system;
Deliverable 4.2 Report on implementation of risk based meat inspection and meat safety assurance system.

5. WG 5 - Meat safety assurance system training, communication and monitoring

Objectives:

Objective 5.1 Development of the training manuals for MSAS;
Objective 5.2 Communication with relevant stakeholders;
Objective 5.3 Monitoring of MSAS implementation in each country.

Tasks:

Task 5.1 Workshop on the needs for training of risk managers in MSAS;
Task 5.3 RIBMINS scientific conference I;
Task 5.2 Workshop on monitoring of MSAS implementation in European countries;
Task 5.4 RIBMINS scientific conference II.

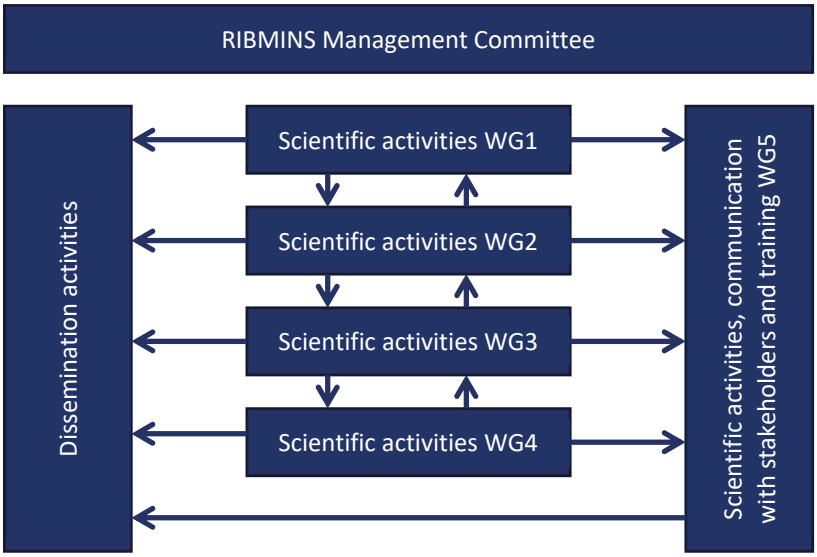
Deliverables:

Deliverable 5.1 Draft manual for training of participants in future meat safety assurance system;
Deliverable 5.2 Final manual for training of participants in future meat safety assurance system.

3.1.2. GANTT DIAGRAM

Milestone	1st year				2nd year				3rd year				4th year			
	q1	q2	q3	q4	q1	q2	q3	q4	q1	q2	q3	q4	q1	q2	q3	q4
MC kick off meeting																
Initial contact with other Action participants																
Website maintaining																
Annual MC meetings																
Core Group meetings																
WG1 meetings																
WG2 meetings																
WG3 meetings																
WG4 meetings																
WG5 meetings																
STSM activity																
Task 1.1 (workshop)																
Task 1.2 (workshop)																
Task 1.3 (training school)																
Deliverable 1.1 (report)																
Deliverable 1.2 (report)																
Task 2.1 (training school)																
Task 2.2 (workshop)																
Task 2.3 (workshop)																
Deliverable 2.1 (report)																
Deliverable 2.2 (report)																
Task 3.1 (workshop)																
Task 3.2 (training school)																
Task 3.3 (workshop)																
Deliverable 3.1 (report)																
Deliverable 3.2 (report)																
Task 4.1 (workshop)																
Task 4.2 (training school)																
Task 4.3 (workshop)																
Deliverable 4.1 (report)																
Deliverable 4.2 (report)																
Task 5.1 (workshop)																
Task 5.2 (conference)																
Task 5.3 (workshop)																
Task 4.4 (conference)																
Deliverable 5.1 (manual)																
Deliverable 5.2 (manual)																
Final report																

3.1.3. PERT CHART (OPTIONAL)



3.1.4. RISK AND CONTINGENCY PLANS

The Action will face some risks in achieving its objectives (outlined in the table below).

Risk	Likelihood	Severity	Contingency measure
Different order of accomplishing tasks and deliverables	Medium	Low	Flexibility in organisation of Workshops and Training Schools will be tolerated and will be negotiable between the WGs.
Lack of proper individual funds for planned research and production of original scientific papers	Low	High	Additional funding, especially at the multinational level, will be rigorously targeted. Focus will be more on reviews and original studies that require less direct material costs and more researchers' time.
Too few or too many STSM applications	Medium	Medium	In case of too few applications, the STSM Coordinator will emphasize and further explain the benefits of such STSM to the participants (by email and during the meetings). In case of too many and if useful, the total number of STSM budget will be increased if and when possible.
Lack of information flow within each WG and between WGs	Low	High	The meetings will be made in an encouraging manner for information exchange among groups. Participants will be motivated for intense collaboration through preparation of joint scientific publications.
Late delivery by participants	Medium	Medium	Participants have been selected on the basis of their expertise, previous involvement in collaborative projects and previous collaboration in past projects. Progress against internal targets will be monitored and alternative participants will undertake specific key tasks if a delay is identified.

3.2. MANAGEMENT STRUCTURES AND PROCEDURES

RIBMINS will be coordinated by the Management Committee (MC) that will consist of up to two representatives from each participating COST Country and will be responsible for:

- Election of the Action Chair, Vice-Chair, Grant Holder Institution, Working Group Leaders and Co-Leaders (on a kick off meeting at the beginning of the Action);
- Election of the Short-Term Scientific Mission (STSM) Coordinator and Committee (responsible for evaluation of the STSM applications);
- Election of the Dissemination Coordinator who will be responsible for the website and LinkedIn group update on all Action activities (MC meetings, Workshops, Training Schools, etc.);
- Election of other responsibility positions that will encourage specific activities such as gender balance, inclusiveness and communication with ECIs;
- Definition and management of the activities necessary to achieve the Action's objectives;
- Reporting duties allowing for the monitoring and assessment of the Action;
- Decision, among potentially eligible participants, on the ones entitled to reimbursement.

The Core Group that will be responsible for scientifically guiding the Action will be formed by the Action Chair, Vice-Chair, the Working Group Leaders and Co-Leaders, STSM coordinator and the Dissemination coordinator, as well as some other participants if necessary.

The RIBMINS network will consist of five Working Groups, with their corresponding Working Group Leaders and Co-Leaders, who will be responsible for organizing and chairing Working Group meetings. Each WG Leader and Co-Leader will also be in the Management Committee. WGs 1-4 will be focused primarily on scientific activities (see section 3.1.1) and WG5 will primarily be dedicated to organize activities overarching the other four WGs, be in charge of bridging between WGs and stakeholders, preparing relevant training guides but will also perform some scientific activities. Each WG will participate in dissemination activities (Training Schools, Workshops, publications, etc.). The network Members will be able to participate in more than one WG.

Management Committee meetings will be held once per year. Core Group meetings will be held two times per year (one by teleconference/Skype and the other combined with the annual MC meeting). WG meetings will be held in line with MC meetings to check task progress.

Gender and age balance as well as nationality balance including inclusiveness will be respected through election of active roles within the RIBMINS network.

3.3. NETWORK AS A WHOLE

Members of the COST Action have an extensive experience related to the specific challenges of the Action, and some of them participated and/or participate in previous and/ or current research projects related to this topic. Moreover, most of the research groups working on a topic of modernisation of meat safety controls in Europe are part of the Action. This guarantees the capability of the RIBMINS network to achieve its objectives. Participation of the IPC in the Action is of clear benefit since one of the objectives is related to sharing of experiences with developed overseas countries in risk based meat safety assurance development and implementation. Invitation and recruitment of other relevant Members from other COST countries, Near Neighbour Countries and International Partner Countries, will endeavour to guarantee broadest support for the Action and to strengthen the consortium. The consortium intends to include relevant stakeholders outside the scientific community (i.e. authorities and meat industry) and to make a strong interaction between science, industry and policy makers.

References:

1 EFSA (2011a). Scientific Opinion on the public health hazards to be covered by inspection of meat from swine. EFSA Journal 9(10): 2351.
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3 EFSA (2012a). Scientific opinion on the public health hazards to be covered by inspection of meat from poultry. EFSA Journal 10(6): 2741.

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5 EFSA (2013a) Scientific Opinion on the public health hazards to be covered by inspection of meat (bovine animals). EFSA Journal 11(6):3266.
6 EFSA (2013b) Scientific Opinion on the public health hazards to be covered by inspection of meat from sheep and goats. EFSA Journal 11(6):3265.
7 EFSA (2013c) Scientific Opinion on the public health hazards to be covered by inspection of meat (solipeds). EFSA Journal 11(6):3263.
8 EFSA (2013d) Scientific Opinion on the public health hazards to be covered by inspection of meat from farmed game. EFSA Journal 11(6):3264.
9 EFSA (2013e) Technical specifications on harmonised epidemiological indicators for biological hazards to be covered by meat inspection of bovine animals. EFSA Journal 11(6):3276.
10 EFSA (2013f) Technical specifications on harmonised epidemiological indicators for biological hazards to be covered by meat inspection of domestic sheep and goats. EFSA Journal 11(6):3277.
11 EFSA (2013g) Technical specifications on harmonised epidemiological indicators for biological hazards to be covered by meat inspection of domestic solipeds. EFSA Journal 11(6):3268.
12 EFSA (2013h) Technical specifications on harmonised epidemiological indicators for biological hazards to be covered by meat inspection of farmed game. EFSA Journal 11(6):3267.
13 EFSA/ECDC (2017) The European Union summary report on trends and sources of zoonoses, zoonotic agents and food-borne outbreaks in 2016. EFSA Journal 15(12):5077, 228 pp.
14 Regulation (EC) No 853/2004 laying down specific hygiene rules for on the hygiene of foodstuffs.
15 Regulation (EC) No 854/2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption.
16 Regulation (EU) No 216/2014 amending Regulation (EC) 2075/2005 laying down specific rules on official controls for *Trichinella* in meat.
17 Regulation (EU) No 217/2014 amending Regulation (EC) 2073/2005 as regards *Salmonella* in pig carcases.
18 Regulation (EU) No 218/2014 amending Annexes to Regulations (EC) 853/2004 and (EC) 854/2004 of the European Parliament and of the Council and Commission Regulation (EC) 2074/2005.
19 Regulation (EU) No 219/2014 amending Annex I to Regulation (EC) 854/2004 of the European Parliament and of the Council as regards the specific requirements for post-mortem inspection of domestic swine.
20 Regulation (EU) 2017/1495 amending Regulation (EC) 2073/2005 as regards Campylobacter in broiler carcases.
21 Regulation (EU) 2017/625 of the European Parliament and of the Council on official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant protection products.