

The EFSA Scientific Panel on Biological Hazards first mandate: May 2003—may 2006. Insight into scientific advice on food hygiene and microbiology

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The principal objective of the European general and specific hygiene rules is to ensure a high level of consumer protection by taking science-based management measures to control hazards. According to the General food law (178/2002) scientific advice should underpin Community legislation on food hygiene and to this the European Food Safety Authority should be consulted. The purpose of this review is to present the main conclusions of the opinions of the Scientific Panel on Biological Hazards of EFSA with regard to the orientation of official control methods to new scientific evidence and requirements, the setting of objectives or the new metrics in food safety such as pathogen reduction targets, performance objectives at any point in the food chain other than at the

moment of consumption in order to achieve a food safety objective, or microbiological criteria and the identification of the efficient methods to control biological hazards.

Introduction

The European Food Safety Authority (EFSA) is an independent scientific body which provides scientific and technical support to the European Community institutions and Member States in order to enable them to take informed and science-based management decisions necessary to ensure food and feed safety policy. In particular, questions are addressed to EFSA by the European Commission, the European Parliament and the Member States and the Scientific Panel with a mandate in relation to the content of the question (e.g. biological hazard, chemical hazard, feed additives etc) is assigned to give its scientific opinion (Hugas, Tsigarida, Robinson, & Calistri, 2007). With regard to biological hazards, the Scientific Panel of Biological Hazards (BIOHAZ) provides scientific opinions relating to food safety and foodborne diseases including foodborne zoonoses, transmissible spongiform encephalopathies (TSE), microbiology, food hygiene and associated waste management. The Panel consists of independent scientists with a wide expertise such as food microbiology, food hygiene, food technology, public health, animal health, epidemiology and TSE. The Panel's membership is renewed every three years following an official open call for expression of interest.

The scope of this paper is to present an overview of the scientific opinions of the BIOHAZ Panel on food hygiene and microbiology during its first mandate (2003–2006). All these opinions were on request from the European Commission in order to have the scientific basis in light of the development of implementation measures of the “food hygiene package” or revision of the existing legislation related to microbiological safety. The scientific opinions related to the EU legislation on the control measures of zoonoses are presented in another paper.

Evaluation of methods of meat inspection

Post-mortem meat inspection

Post-mortem meat inspection is a sanitary measure that involves the detection of obvious pathological findings or other abnormalities (by visual control supported in some instances by palpation and incision) followed by removal of the lesions detected (SCVPH, 2000). EFSA was asked

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to assess the *post-mortem* meat inspection procedures of cattle, goats and lambs in integrated production systems as part of the development of Regulation 854/2004 (OJEU, 2004a) on the specific rules for the organization of official controls on products of animal origin intended for human consumption as well as the legislation governing fresh meat and its mandatory inspection. An integrated production system is a system that operates in an integrated manner from birth through the rearing phase to slaughter. An integrated system therefore requires information and data from primary production, the transport, lairage, abattoir and subsequent chilled storage of carcasses, taking into account biological and chemical public health risks as well as animal welfare issues. (SCVPH, 2000). Guidelines for establishing an integrated production system can be found in the Opinion of the Scientific Committee of Veterinary Measures relating to Public Health on identification of species/categories of meat-producing animals in integrated production systems where meat inspection may be revised (SCVPH, 2001).

Traditional *post-mortem* inspection (visual observation, palpation and incision) of lambs, goats and cattle can detect pathologies such as pneumonia-pleurisy, hepatic distomiasis, arthritis, nephritis, cystic echinococcosis, enteritis etc (EFSA, 2004a; EFSA, 2004b). Healthy animals may carry and/or excrete zoonotic pathogens that are not detectable by visual or physical meat inspection (Berends, Snijders, & Van Logtestijn, 1993). The absence of evidence of disease, including lack of macroscopic lesions at traditional *post-mortem* inspection, does not allow a conclusion as to the absence of zoonotic pathogens (EFSA, 2004a; EFSA, 2004b). Moreover, during slaughter and dressing procedures, these pathogens, including *Escherichia coli* O157, *Salmonella* spp., *Campylobacter jejuni* and *Listeria monocytogenes*, can be directly or indirectly transferred onto the meat surface, but will not be visible to the meat inspection staff during traditional meat inspection. In addition, the cutting and palpation procedures used in the *post-mortem* inspection of animals carry a significant possibility of meat cross-contamination with pathogens that may be present internally (e.g. in lymph nodes) and/or externally (e.g. on tissue surfaces) *via* utensils and hands (Bell, 1997; EFSA, 2004a; EFSA, 2004b). The BIOHAZ panel concluded that, for animals coming from an integrated production system, which are also considered as non-suspect after *ante-mortem* and visual *post-mortem* inspection, *post-mortem* palpation and incision may not be necessary (EFSA, 2004a; EFSA, 2004b). This alternative simplified inspection system is applicable only under the following conditions: a) it includes other hygiene and inspection activities including microbiological monitoring; b) thorough *ante-mortem* examination is ensured with full recording systems implemented that provide for the flow of data both to and from the abattoir for both animal health and public health reasons; c) adequate conditions and facilities for an efficient visual *post-mortem* inspection are provided

and d) any indication of any abnormality is followed by further detailed examination of the carcass and offal, including, where appropriate, taking of samples for further investigation.

It has to be noted that the simplified *post-mortem* inspection would not apply necessarily to animals for which data from the farm of origin and/or the results of meat inspection of previously slaughtered batches from that farm indicate increased risk of animal or public health relevance e.g. *Mycobacterium bovis* and *Taenia saginata* cysticerci. In such cases, palpations/incisions may be necessary and the Official Veterinarian has an important role in the decision making process whether palpations, incision and/or taking samples for laboratory examination are necessary (EFSA, 2004a; EFSA, 2004b). Moreover, it appears that there are no available validated alternative methods providing information equivalent to that obtainable by palpation/incision techniques during the conventional meat inspection. Particularly, the routine physical meat inspection of cattle submitted for slaughter will identify tuberculous, or tuberculous-like lesions and the retropharyngeal, bronchial and mediastinal lymph nodes are particularly helpful in this respect. Removing the detailed inspection, *i.e.* multiple incisions, of these three sets of lymph nodes would reduce the detection rate of tuberculosis in bovines (EFSA, 2004b). This is in accordance with the conclusion from the BIOHAZ Opinion on Tuberculosis in bovine animals (EFSA, 2003a). In particular, adoption of palpation only, instead of palpation and incision for inspecting lymph nodes and of organs (e.g. lungs) for evidence of tuberculosis, would lead to a lower detection rate of such lesions.

On the other hand, for Member States (or parts of) that are considered officially tuberculosis free, (in compliance with Directive 64/432/EEC), the question arises whether specific conditions could apply, taking into account the conclusions in the above opinions (EFSA, 2003a; EFSA, 2004b), to adopt under specific circumstances a visual *post-mortem* inspection of veal calves, without posing risks to public and animal health. To this question BIOHAZ Panel concluded that currently retention by the herd of its officially bovine tuberculosis free status is conditional, *inter alia*, on the absence of classical lesions of tuberculosis as seen at *post-mortem* examination (EFSA, 2006a). In addition to the movement from the place of birth to the veal calf rearing unit, such calves are often subjected to several movements during the production phase. In the case of veal calves reared in integrated production units and in officially bovine tuberculosis free herds, the omission of the incision of lymph nodes does not affect the public and animal health risk.

The tuberculosis status of veal herds may not be determined in some officially tuberculosis free Member States or parts thereof for periods up to 4 years. The BIOHAZ Panel recommended the continuation of incision of lymph nodes (retropharyngeal, bronchial and mediastinal lymph nodes) in veal calves not reared in integrated production

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