SciCom

Opinion 10-2022 of the Scientific Committee established at the FASFC on the risk factors of microbial contamination of carcasses during the slaughtering process of farm animals

Background & Terms of reference

Due to the possible presence of pathogens in the gastrointestinal tract of live animals, contamination of the carcass may occur during the slaughter process. Certain steps both before and during the slaughter process can have an impact on this potential contamination.

Fasting involves the removal of feed from animals several hours before slaughter. There is no European or Belgian legislation requiring the fasting of animals presented for slaughter. However, some slaughterhouses have procedures in place to encourage the delivery of fasted animals, either through contracts with their suppliers or through benefits granted to farmers who ensure that animals are presented fasted.

The self-control guide for slaughterhouses refers to the fasting of animals to reduce the risk of contamination of carcasses. Fasting of animals would reduce leakage of the contents of the gastrointestinal tract at slaughter because it is less distended by recently ingested feed. However, the rules in this guide are not legal requirements and, moreover, this guide is aimed at slaughterhouses and not directly at farmers who send animals to the slaughterhouse and are primarily responsible for fasting animals.

Given the above context, the following questions are asked to the Scientific Committee:

A. Does the period of fasting of pigs and cattle prior to slaughter affect the risk of microbial contamination of the carcass?
B. What are the risks for microbial contamination of the carcass associated with an interruption of the slaughter process (due to breakdown or other calamity) during which the viscera have not yet been removed?

Method

This risk assessment was carried out on the basis of expert opinion, a survey on the frequency of occurrence of breakdowns in Belgian slaughterhouses of pigs and cattle. The available and relevant data from the scientific literature were taken into account in the assessment. Other European countries were also questioned via the EFSA focal point network. However, no useful information in the context of this opinion was retrieved.

Conclusions

Opening the abdominal cavity always poses a risk of microbial contamination of the carcass. The larger the volume of the gastrointestinal tract, the greater is this risk. There is, however, little evidence in the literature that fasting of animals results in better microbial quality of the carcass.

Regulation (EC) No 1/2005 stipulates that animals may be fastened for a maximum of 24 hours for animal welfare reasons. In addition, it is pointed out that ruminants cannot be fastened to a sufficient extent, nor is a complete fastening of ruminants desirable from an animal welfare point of view.

The Scientific Committee is of the opinion that the effect of fasting pigs and cattle on the risk of microbial contamination is limited. However, it is appropriate to avoid excesses in the filling of the gastrointestinal tract. Moreover, it can be stated that the skills of the operator and the equipment used during evisceration (removal of organs after killing) have a greater influence.

Breakdowns and defects in slaughterhouses can affect the delay between killing and evisceration. Results of a survey conducted in Belgian slaughterhouses indicate that breakdowns are relatively frequent. However, most of breakdowns do not last long (less than 2 hours). Pig slaughterhouses seem to have more frequent breakdowns that also last longer. This can possibly be explained by higher complexity and the rhythm of the slaughter line in a pig slaughterhouse.

Regarding delayed evisceration, the current state of knowledge suggests that there is no evidence that delayed evisceration increases the risk of bacterial contamination of the carcass. However, delayed evisceration may cause organoleptic changes that can lead to the rejection of the carcass. It is recommended that these organoleptic changes are assessed after one day of observation.

However, based on the literature no maximum period can be proposed between the killing of the animals and the evisceration. Delayed evisceration may lead to gas formation and swelling of the digestive tract, especially in ruminants, which makes it difficult to open the abdominal cavity and increases the risk of puncturing the digestive tract.

Since the cited literature is not recent and generally limited in number, it is recommended that additional studies be carried out on the risks of microbial contamination of carcasses in the absence of fasting of the slaughtered animals and in the case of delayed evisceration (more specifically for determining a maximum period of delayed evisceration).

The Scientific Committee wishes to emphasise that the prevention of breakdowns must be prevented as much as possible by proper maintenance and inspection of the equipment. A plan of action (e.g. in the form of a decision tree) must be drawn up in advance in order to minimise the possible contamination of carcasses. Appropriate lessons should be drawn from incidents to be able to work pro-actively and preventively later on. The occurrence of failures should be recorded as well as the corrective actions taken to control the risks.

The full text is available on this website in dutch and in french.