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BSE and Cutting

The Sympathetic Trunk Ganglia and their Fate in Northern German Cutting Plants

All cattle slaughtered at an age older than 24 months have to be tested mandatorily for BSE in Germany. Samples are taken from the brainstem. Given, that prions can occur in the body before being transferred to the brain, unrecognised infected cattle might represent a risk. To minimise that risk, Specified Risk Materials – which are defined by the regulation (EC) 999/2001 – have to be removed after slaughtering. However, there is residual nervous tissue that is not governed by this regulation. One of those is the sympathetic trunk with its ganglia as a part of the autonomous nervous system.

To estimate the risk from these ganglia, their way during slaughter and cutting procedures was observed. Thirty seven cutting plants in Northern Germany were visited and data from 160 workers were taken. Cutting plants were characterised with regard to their capacity: small (cutting capacity under 10 tons per week), middle size (cutting capacity between 10 and 99 tons per week) and large plants (cutting capacity 100 and more tons per week). For reasons of reproducibility, the trunk was separated into five parts during observation (T_1 , T_2 - T_6 , T_7 - T_{13} , L_1 - L_6 , S_1 - S_5). During cutting, ganglia containing tissues could be sorted into eight different boxes (meat for processing, other meat for consumption, fat for consumption, fat for other use, bones-industry, bones-consumption, bones-SRM, bones-disposal). Every worker was observed three times, the results were recorded in an observation sheet.

The tissues were not sorted in the same way. Whereas the rear thoracic ganglia (T_7 - T_{13}) and sacral ganglia (S_1 - S_5) mostly remained in natural connection with the column bones and were littered as SRM, the ganglion stellatum (T_1), the front thoracic ganglia (T_2 - T_6) and also the lumbal ganglia (L_1 - L_6) went into the food chain in different percentages. There was an obvious difference between cutting plants of different capacities. In addition, there was a difference between workers from the same plant in more than half of all visited plants. Either the workers of one plant sorted differently, or one worker acted differently during the observation period. Such differences were observed more frequently in large cutting plants than in smaller ones.

To minimize the differences as much as possible, standardisation is needed. Due to the fact that the majority of beef would be produced in large plants, standard operation prescriptions should be introduced in particular in these large premises. Because of its

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size and after observation of the cutting procedure, in particular the stellate ganglia (T_1) should be put on the list of SRM. For the other thoracic ganglia (T_2 - T_{13}) and the sacral ganglia (S_1 - S_5) standard operation prescriptions for the removal of the musculature that is associated with the spine and the removal of the transverse processes of the vertebrae are needed. The lumbar ganglia (L_1 - L_6) are hidden between the connective and fat tissues of the filet chain. They could not be taken away in practise. The risk coming from these ganglia should be tolerated.