Improved Lung Lesion Scoring System for Pigs

GERMANY - Researchers in Hanover have developed an improved method for scoring lung lesions in pigs under commercial slaughterhouse conditions.
Researchers at the University of Veterinary Medicine Hannover have investigated a simplified system to evaluate surface-related lung lesions in pigs for official meat inspection under commercial slaughter conditions in Germany.

Ia a paper in BMC Veterinary Research, Thorsten Steinmann and colleagues report that their scheme was able to standardise the evaluation of these lesions.

They added that the reliability of official meat inspections can be significantly raised with the help of the scheme and that continuous standardisation and optimisation can be achieved by personalised training programmes in the framework of quality assurance systems for meat inspectors.

The researchers explain that European and national administrative legislation require objective evaluation systems for organ lesions at pig slaughter. These results can be used as basis for herd health improvement programmes by farmers and their consulting veterinarians.

Various studies have shown that the current evaluation and recording of lesions by authorised meat inspectors are not reliable and produce significant inter-rater disagreement especially for lung lesions in pigs.

The objectives of their study were to increase the usability of official meat inspection data by a developed and validated scheme and to analyse potential improvements in the reliability of the proposed system under commercial slaughter conditions.

They developed a simplified evaluation scheme for surface-related lung lesions was developed based on morphometric evaluations of unaffected lungs with quantitative relationships of each lobe to the whole lung ("Rule of Tens"). Furthermore, a theoretical as well as a hands-on training program for meat inspectors was developed and applied.

Based on 5,183 lungs, the authors established a baseline of the inter-rater reliability of current routine assessments of lung lesions as documented by meat inspectors compared with the assessments of an independent veterinarian using the developed simplified evaluation scheme.

Most frequent inter-rater disagreements greater than 75 per cent were found for moderate pneumonia. Sources of the deviations most frequently included misinterpretations of technical artifacts, which were erroneously assessed by the meat inspectors as pneumonic lung lesions.

Results of the post-training investigation based on 4,646 lungs showed a significantly improved reliability of lung lesion evaluation and the inter-rater agreement increased in all respects. The disagreement of recording moderate cases of pneumonia decreased in total to 15 per cent deviations from reference.

Reference

Steinmann T., T. Blaha and D. Meemken. 2014. A simplified evaluation system of surface-related lung lesions of pigs for official meat inspection under industrial slaughter conditions in Germany. BMC Veterinary Research. 10:98 doi:10.1186/1746-6148-10-98

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