Monitoring porcine reproductive and respiratory syndrome virus infection status in swine herds based on analysis of antibodies in meat juice samples

An indirect ELISA test was developed as a novel tool aimed at monitoring the herd infection status of swine herds. Meat juice samples from pig carcasses were analysed for the presence of antibodies against porcine reproductive and respiratory syndrome virus (PRRSV). A study of samples from herds with known PRRS status was undertaken. The PRRS status of the herds was evaluated based on the analysis of blood samples by another serological test (blocking ELISA) capable of differentiating between infection with PRRSV of the American type and European type. The specificity of the indirect ELISA test on meat juice samples was 0.98. The sensitivity of the test depended on the type of the PRRSV strain involved. The apparent prevalence in herds infected with the American type of PRRSV was 0.44. The apparent prevalence in herds infected with the European type of PRRSV was 0.64. Herd level sampling and herd level criteria for assessing the PRRS status of herds by the new test were developed. Herds were classified as PRRS negative or PRRS seropositive based on 10 meat juice samples collected randomly at slaughter throughout a 3-month-period. Herd PRRS status classification by the indirect ELISA was validated in 47 herds by collection of blood samples from the herds. Eighteen herds were classified as PRRS negative by both test systems. Twenty-nine herds were classified as PRRS seropositive by both test systems. Acceptable herd classification was achieved using this test.

General information
Publication status: Published
Organisations: Sektion for Eksotiske Virussygdomme, Division of Virology, National Veterinary Institute, Section for Veterinary Diagnostics, Division of Veterinary Diagnostics and Research
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Pages: 441-453
Publication date: 2001
Peer-reviewed: Yes

Publication information
Journal: Veterinary Research
Volume: 32
Issue number: 5
ISSN (Print): 0928-4249
Ratings:
Scopus rating (2001): SJR 0.629 SNIP 1.083
Web of Science (2001): Indexed yes
Original language: English
Keywords: meat juice, sensitivity, specificity, PRRSV, ELISA, herd-level
DOI's:
10.1051/vetres:2001136
Source: orbit
Source-ID: 230657
Research output: Contribution to journal › Journal article – Annual report year: 2001 › Research › peer-review