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.
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