Epidémiol. santé anim., 1997, 31-32

CONTROL OF CLASSICAL SWINE FEVER : COMBINED TESTING OF SERUM SAMPLES FOR ANTIGEN AND ANTIBODY YIELDS OPTIMAL DETECTION

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Classical swine fever causes great financial losses worldwide. The success of eradication and surveillance programs is dependent on the effectiveness of diagnostic tools. The highest sensitivity in the detection of both virus and antibodies is achieved with cell culture methods. However, these technologies are laborious and restricted to the testing of limited numbers of samples. The serologic assays presented are optimized for high sensitivity and specificity screening of large numbers of test samples. Lacking the need for complicated sample preparations, the same serum or plasma samples can be tested for antigen an antibodies with two matching Enzyme Linked Immuno Sorbent Assays. Here we present the analysis of naturally and artificially infected populations. We show that these two tests detect all stages within an infected population from the early viremic phase to the onset of antibody production. We present strategies for an optimal detection of outbreaks in endangered areas.

RESULTS AND DISCUSSION

The eradication of CSF depends on an early detection of infections and on efficient surveillance programs. For these two tasks it is necessary to screen large numbers of samples. The sensitivity of CHEKIT-CSF-SERO ensures the detection of samples with SNT as low as 10. As a consequence, appropriate random sample testing virtually ensures the detection of an ongoing infection. The high specificity (98.9%) of CHEKIT-CSF-SERO leaves only a smal number of ambiguous samples which allows a verification in cell culture.

However, a new outbreak with only viremic animals or in the case of persistently viremic pigs - before the onset of antibody production - will be missed with this screening strategy. In this early stage CHEKIT-CSF-VIRUS will detect infected animals before the appearance of antibodies. Screening samples from endangered areas or in the case of indications for CSF, testing for both antigen and antibody enlarges the diagnostic window. CHEKIT-CEF-VIRUS and CHEKIT-CSF-SERO allow the simultaneous screening of the same serum or plasma sample. Without complicated preparations or the need for whole blood samples large numbers can to use than cell culture methods but is also more sensitive in detecting CSF in organ suspensions.

Taken together we show that two described ELISAs provide a powerful tool for the control of CSF.

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