EVALUATION OF AN O-ANTIGEN ELISA FOR SCREENING CATTLE HERDS FOR SALMONELLA-TYPHIMURIUM

A total of 2585 serum samples from 62 dairy herds located in four different regions of Denmark were tested in an O-antigen (O:1,4,5,12)-based ELISA for the detection of antibodies against Salmonella typhimurium. Ten closed herds from an island with no reported occurrence of salmonellosis for several years, and 12 herds from a salmonella enzootic area which had had clinical outbreaks of S typhimurium were used to define a herd ELISA cut-off value. When herds with at least 5 per cent of the serum samples having an optical density of >0.5 were considered ELISA-positive, all 10 herds from the salmonellosis-free island were ELISA-negative, and all but one of the 12 S typhimurium-infected herds were ELISA-positive, which resulted in a herd test sensitivity of 0.92 and herd test specificity of 1.0. Eleven of the 12 S typhimurium-infected herds were negative in a blocking ELISA based on a monoclonal antibody to the 0:9 antigen of the serogroup D salmonellas, indicating the possibility of rapid serogroup-specific screening of herds by means of these two tests. Ten other randomly selected herds with clinical outbreaks of S dublin were all, to a large extent, positive in the 0:1,4,5,12-ELISA, whereas a S dublin (0:1,9,12)-ELISA described previously appeared to be more serogroup D-specific. Thus, the 0:1,4,5,12-ELISA appears to be useful for detecting herd infections with S typhimurium, and positive reactions may be further discriminated by the serogroup D-specific ELISA.

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