A milk and a serum ELISA for detection of antibodies against Mycobacterium avium ssp. paratuberculosis (MAP) were evaluated against the complement-fixation test (CFT) and culture of faecal samples from 580 cows collected between August 1996 and December 1996. Milk and serum were obtained concurrently from six dairy herds infected with MAP and from two dairy herds without history of infection with MAP. A cut-off value of 7 OD% was used in the ELISAs. At this cut-off value, all six culture-positive herds were positive in the serum ELISA but one was negative in the milk ELISA. All six culture-positive herds were positive in the CFT. In the two culture-negative herds, the serum and the milk ELISA deemed all serum samples negative at this cut-off value, whereas four serum samples from one of these herds were positive in the CFT. The highest cut-off value enabling the milk ELISA to record all six culture-positive herds as positive was 4 OD%. The highest cut-off value enabling the serum ELISA to record all six culture-positive herds as positive was 17 OD%. Individual-sample relative sensitivities of the ELISAs ranged from 49 to 64% and relative specificities were 80-96% at the cut-off values of 4, 7 and 17 OD%.