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Performance of the Enferplex TB assay with cattle in Great Britain and assessment of its suitability as a test to distinguish infected and vaccinated animals.

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Abstract

Rapid, simple, and accurate antemortem tests for tuberculosis (TB) in cattle need to be developed in order to augment the existing screening methods. In particular, as cattle vaccines are developed, such tests would allow the continuation of test-and-slaughter policies alongside vaccination. Therefore, the development of an assay that distinguishes infected from vaccinated animals (a DIVA test) is an urgent research requirement. In this study, we assessed the performance of a novel multiplex serological test with sera collected from 96 skin-tested animals with bovine tuberculosis, 93 TB-free animals, and 39 cattle vaccinated with Mycobacterium bovis BCG. Our results indicate that the test has a relative sensitivity range of 77.0% to 86.5% at corresponding specificity levels of 100.0% to 77.6%. Comparison with the Bovigam gamma interferon antemortem test revealed that this serology test was significantly more sensitive at specificities above 97.9%, while the Bovigam test was, on average, about 10% more sensitive when the test specificity was set below 97%. Importantly, this serological multiplex assay does not react with sera from BCG-vaccinated calves and is therefore suitable as a DIVA test alongside BCG-based vaccine strategies.

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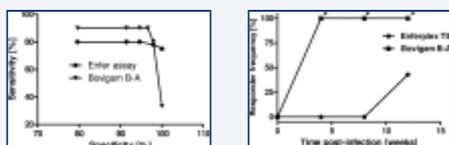
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