Comparison of on-farm diagnostic performance of Mastatest with conventional culture in analysing bovine mastitis samples

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Summary

The study reported in this research paper aimed to estimate the diagnostic performance of Mastatest, an on-farm test for clinical mastitis, and to compare it with standard laboratory culture in terms of sensitivity and specificity. A complementary aim was to compare the antibiotic susceptibility testing provided by Mastatest with a reference method. A total of 292 milk samples from clinical mastitis cases on dairy farms in New Zealand were tested with both Mastaplex and standard culture. On the assumption that there is no perfect gold standard test, latent class analysis was used to estimate the performance characteristics of both tests, using prior information derived from the literature.

256 samples (87.7%) demonstrated bacterial infection in standard culture, and 269 (92.1%) using Mastaplex. The most common bacterial species detected was *Streptococcus uberis*, which was found in 195 samples (66.8%) using standard culture and 190 (65.1%) using Mastaplex.

The latent class analysis found no significant differences in test characteristics between Mastatest and standard culture, except possibly better sensitivity of Mastaplex for some targets. Comparison of antibiotic susceptibility testing using Mastatest and the reference method showed similar trends and in some case identical MIC_{50} and MIC_{90} values, with at most one antibiotic dilution difference.