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**On-site detection of bovine leukemia virus by a field-deployable automatic nucleic extraction plus insulated isothermal polymerase chain reaction system**

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Highlights

- On-farm performance of the field-deployable iiPCR was equivalent to lab rt-PCR
- Agreement between tests was 100% ( $\kappa = 1.0$ ) on-site and at the laboratory
- The estimated limit of detection of the BLV iiPCR was 4 copies per reaction
- The iiPCR system could provide point-of-need detection of bovine leukemia virus

**ABSTRACT**

Bovine leukemia virus (BLV) is a contagious, oncogenic deltaretrovirus of cattle with a worldwide distribution. In the US, over 40% of dairy cows are infected with the virus, and evidence of its economic impact is growing. This study evaluated the performance of a field-deployable automatic nucleic acid-extraction/insulated isothermal PCR (iiPCR) system for on-site BLV-proviral DNA detection in dairy cows compared with a conventional laboratory real-time PCR (rt-PCR). Assay performance was verified in parallel tests of 36 archived blood

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