Measuring Digital PCR Quality: Performance Parameters and Their Optimization

Abstract:
Digital PCR is rapidly being adopted in the field of DNA-based food analysis. The direct, absolute quantification it offers makes it an attractive technology for routine analysis of food and feed samples for their composition, possible GMO content, and compliance with labelling requirements. However, assessing the performance of dPCR assays is not yet well established. This article introduces three straightforward parameters based on statistical principles that allow users to evaluate if their assays are robust. In addition, we present post-run evaluation criteria to check if quantification was accurate. Finally, we evaluate the usefulness of Poisson confidence intervals and present an alternative strategy to better capture the variability in the analytical chain.

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