Interpretation of BAX® System Quant Results from SureTrend® Quant Online

Introduction

BAX® System Quant is a quantitative application to quantify the presence of pathogens using the BAX System Real-Time PCR assays for *Salmonella, Listeria* Genus*, Listeria monocytogenes, Campylobacter, E. coli* O157:H7 Exact and *Vibrio.* The quantification results are generated in the Quant Online module of the SureTrend® platform upon upload and setup of a .bax file. The Quant Online module generates a report. This document is intended as a guide for result interpretation and demonstrates how the different results provided in the report are calculated.

Overview of BAX System Quant Report from SureTrend

Example Report Content From SureTrend for Samples Quantified With SalQuant

CFU per Sample	Estimated Log CFU Per Sample	Report Unit Per Sample	CFU Per Unit	Estimated Log CFU Per Unit	Report Unit	Limit of Quantification
4167992	6.62	LogCFU/Carcass	10420	4.02	LogCFU/mL	1 CFU/mL
122628585	8.09	LogCFU/Carcass	306571	5.49	LogCFU/mL	1 CFU/mL
224262150	8.35	LogCFU/Carcass	560655	5.75	LogCFU/mL	1 CFU/mL
0	Quant Negative	LogCFU/g	0	Quant Negative	LogCFU/g	1 CFU/g

Figure 1. Screenshot of example report generated from SureTrend Quant Online

Quant Negative

If there is no quantifiable concentration of bacteria, a 'Quant Negative' result will be reported in multiple columns.

Note: A 'Quant Negative' result does not necessarily indicate that the pathogen is absent from the sample; rather, it is an indicator that the concentration of the pathogen of interest is below the limit of quantification (LOQ) at the incubation timepoint for the quantification method. The prevalence test result is required to determine a truly negative result for the pathogen in the sample.

Estimated Log CFU per Sample

This field reports the log CFU per sample by calculating the $\log_{10}$ of the reported value in the 'CFU per sample' column:

$$\text{Log CFU per Sample} = \log_{10}(\text{CFU per sample})$$

Report Unit Per Sample

This field indicates the reporting unit associated with the value in the 'Estimated Log_{10} CFU per Sample' column. The 'Estimated Log CFU per Sample' column includes calculations incorporating the sample size, i.e., 325 g, one swab, one carcass, etc.

Estimated Log CFU per Unit

If there is a quantifiable concentration of bacteria in the sample, this field reports the estimated Log CFU per unit – either per gram, per mL, etc. The quantity reported in this field is calculated based on a quantification curve developed for the specific matrix and protocol.

Report Unit

This field indicates the reporting unit associated with the value in the 'Estimated Log CFU per Unit' column. For example, the 'Estimated Log CFU per Unit' value represents the log CFU of bacteria per gram or per mL of the sample.

Limit of Quantification

This column indicates the limit of quantification for the selected matrix and the associated protocol.

CFU per Sample

This field reports the concentration in CFU per sample by multiplying the CFU per unit by the sample size of the matrix or the volume of the primary enrichment used in the protocol:

$$\text{CFU per sample} = (\text{CFU per unit}) \times (\text{sample size or volume of primary enrichment})$$

CFU per Unit

This field reports the concentration in CFU per unit by calculating the inverse or reverse log of the value reported in the column 'Estimated Log CFU per Unit':

$$\text{CFU per unit} = 10^{(\text{Estimated Log CFU per Unit})}$$