

### 2.13 Predictive microbiology

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Modelling in quantitative food microbiology makes use of mathematical equations to describe biological processes. These models can be used to perform various tasks like quantifying phenomena, testing significant differences, investigate correlations, investigate mechanisms, designing experiments, determine the performance of sampling plans, or describing kinetics within a food chain to design control of food safety. It is important to clearly identify what one wants to realize, and depending on the purpose of the model, select the most appropriate approach for modelling. Various applications of modelling are illustrated and for each application an example is given to highlight the broad use of models and model results in food microbiology. Specifically the use of models in quantitative risk assessment and sampling plans will be highlighted.

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