



Introduction

The Scientific Committee (SciCom) is a consultative body of the Federal Agency for the Safety of the Food Chain (FASFC) and provides independent scientific opinions on the matters related to the competencies of the FASFC. Regularly the SciCom is asked to give advice concerning the microbiological safety of foodstuffs during storage conditions that deviate from the legal or accepted normal storage conditions. These requests for advice originate from third parties (sector organizations or operators) and the scientific report is based on the provided technical documents that serve as scientific support. However, these studies often contain insufficient information as input for the risk assessment. Therefore, the SciCom has issued a self-tasking advice to formulate recommendations for performing studies to demonstrate the microbiological safety of foodstuffs during special storage conditions.

Method

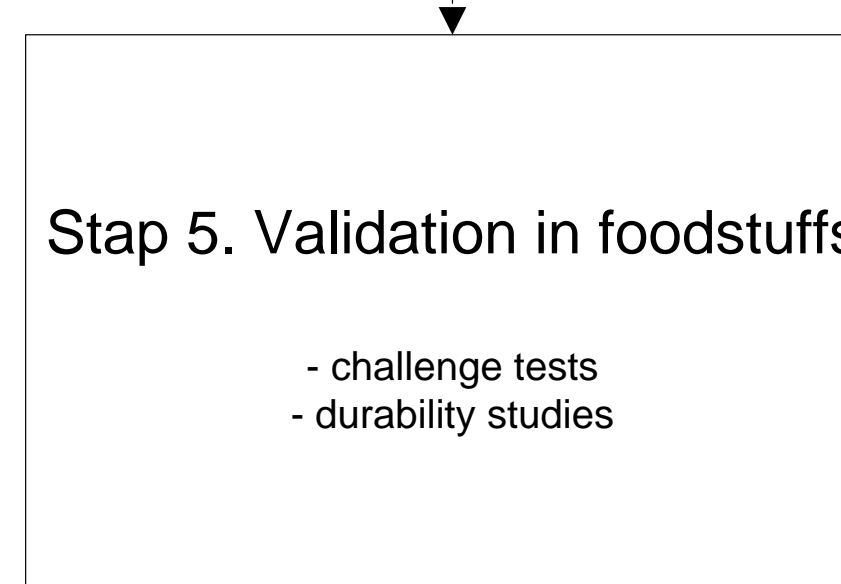
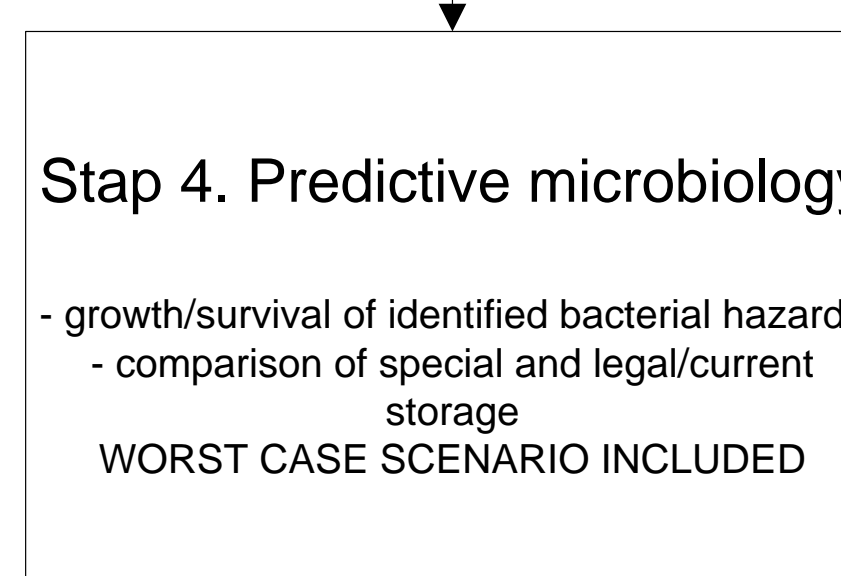
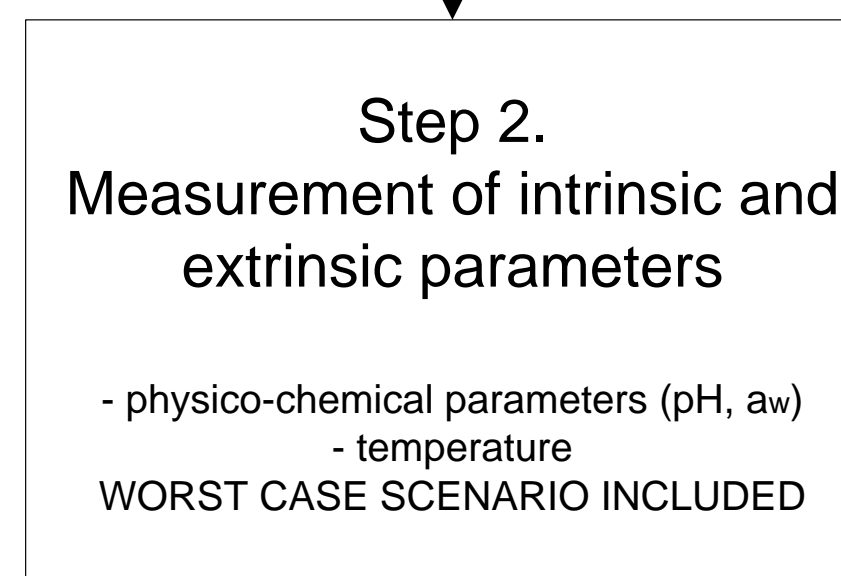
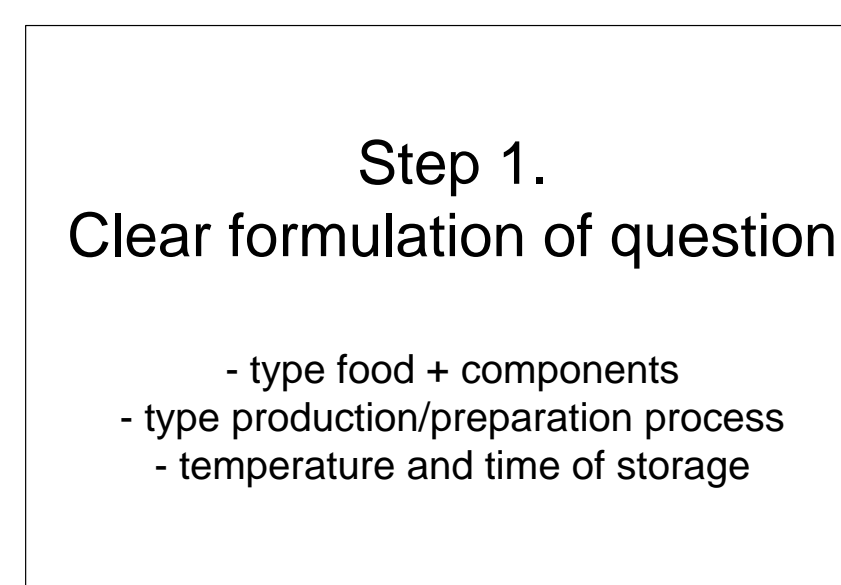
- Based on past experience and expert opinion, the SciCom has developed a flow chart that can be followed by third parties for carrying out studies to show the microbiological safety of foodstuffs during special storage conditions. The flow chart contains five steps and recommendations. They apply to studies investigating the microbiological safety of foodstuffs that are ready to be put on the market during cold or hot storage. As storage conditions of foodstuffs only affects survival or growth of bacteria, but not growth of viruses or parasites, which cannot multiply outside their hosts, solely pathogenic bacteria were taken into consideration.
- In the study, the risk at the special storage conditions should be compared with the risk of a storage at the legal or accepted storage conditions. The starting point should be that the food safety risk of the special storage cannot be substantially higher than the food safety risk of legal or accepted storage.

Flow chart



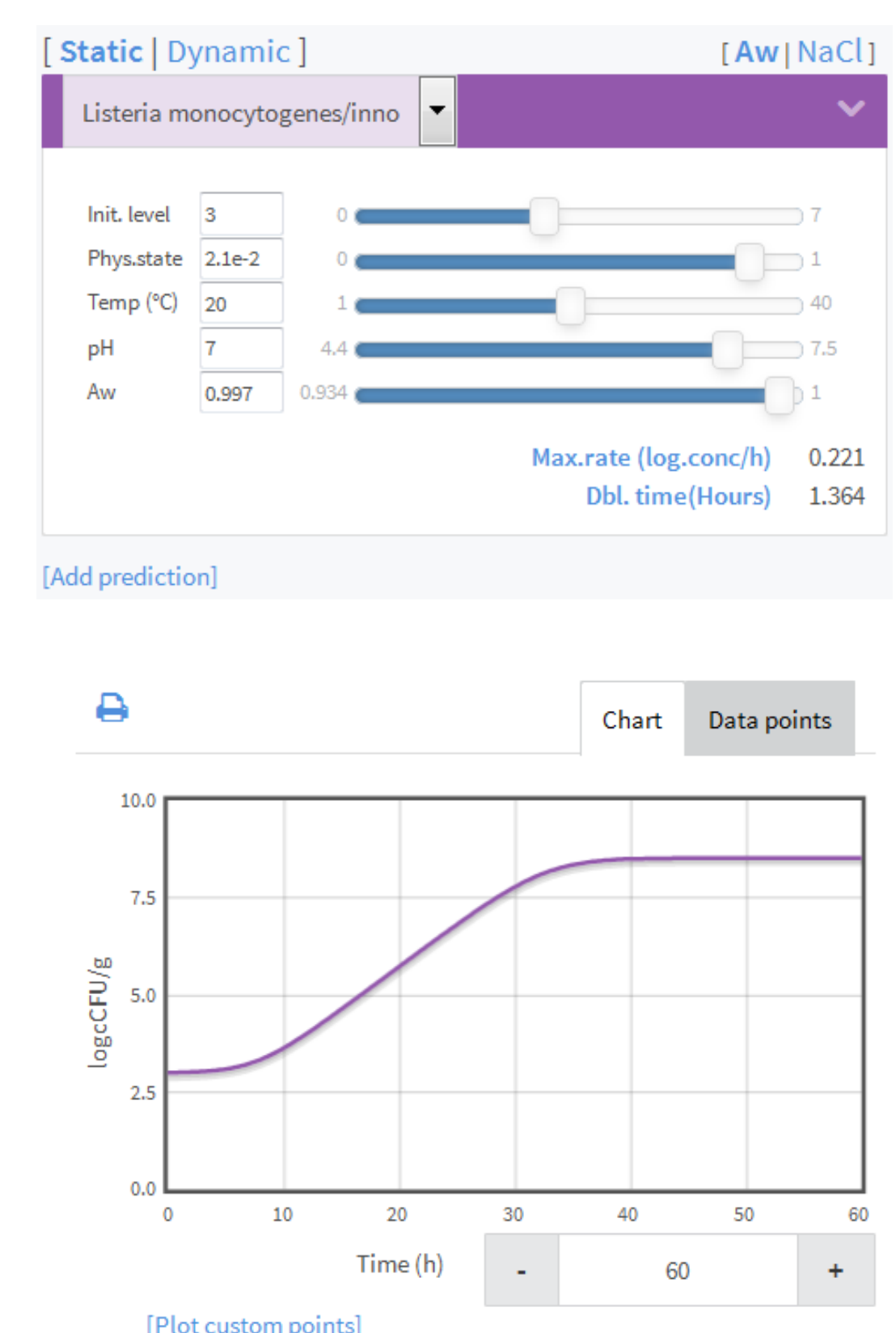
Step 1. Clear formulation of question

The question should be clearly formulated. The context of the question, the food and its components, the (variability in the) production processes and the storage conditions should be specified.



Step 4. Predictive microbiology

Appropriate predictive growth or survival models should be selected (Tenenhaus-Aziza & Ellouze, 2015) and used to simulate growth or survival of the identified bacterial hazards in the concerned foodstuffs. Preferably, a probabilistic approach is applied. If a deterministic approach is applied, attention should go to worst case scenarios. Results should be compared with the legal or accepted practices.

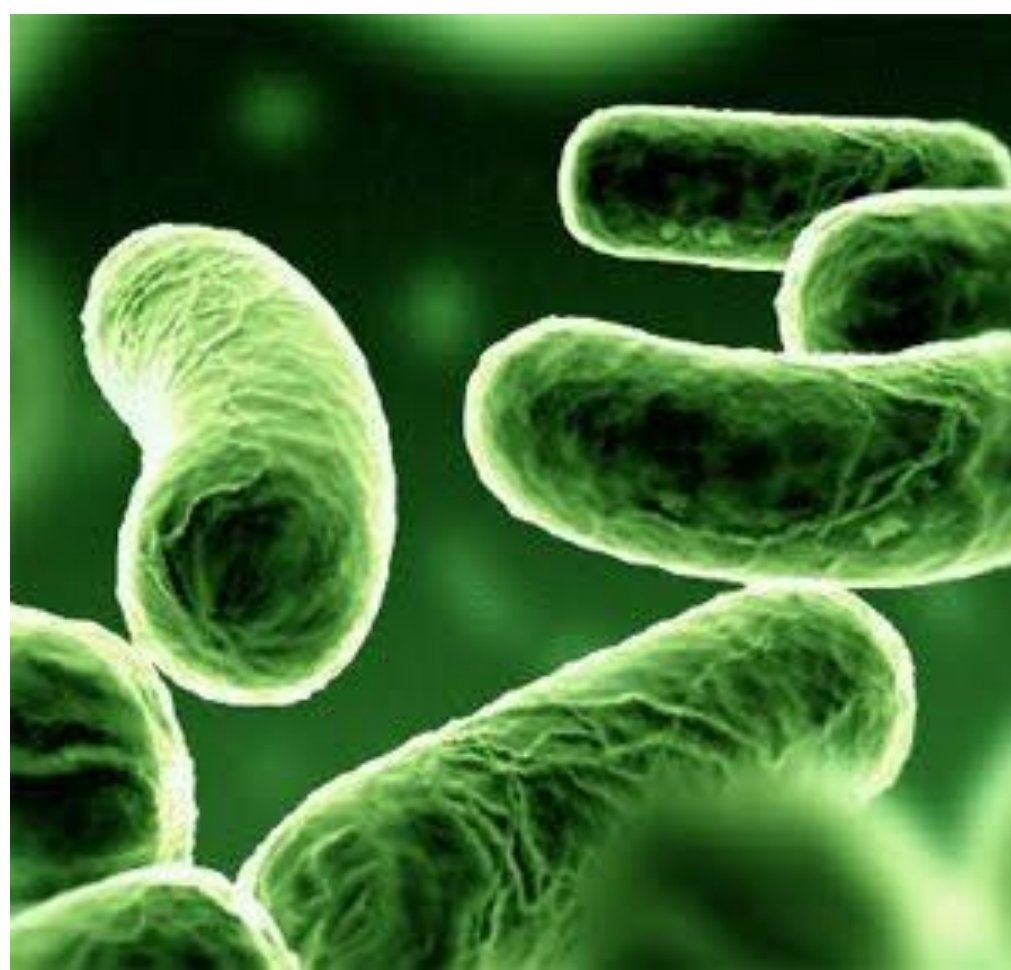


Step 2. Measurement of intrinsic and extrinsic parameters

Measurements of intrinsic parameters such as pH and a_w and extrinsic parameters such as temperature should be conducted and attention should be paid to representativeness and worst case scenarios.

Step 3. Identification of bacterial hazards

Based on a literature study, the relevant bacterial hazards should be identified based on their prevalence and growth characteristics in the foodstuffs as well as their implication in outbreaks.



Step 5. Validation in foodstuffs

Finally, validation should be carried out, but only if the simulations show that the risk is substantially increased during special storage conditions compared with the legal or accepted storage conditions. Validation should be realized by using challenge tests and / or durability studies.



Conclusion

- In order to use time and financial resources as efficient as possible and to guarantee a science-based evaluation of the dossier, the SciCom has issued this self-tasking advice to provide the sector guidelines for setting up microbiological studies related to food safety of food products stored under special storage conditions.

For further information please visit <http://www.favv-afsc.fgov.be/scientificcommittee/opinions/2016/> > Advice 08/2016