International Commission on Microbiological Specifications for Foods (ICMSF)

www.icmsf.org

Introduction of ICMSF concepts

Managing *Listeria monocytogenes* in RTE foods – risk-based management and control

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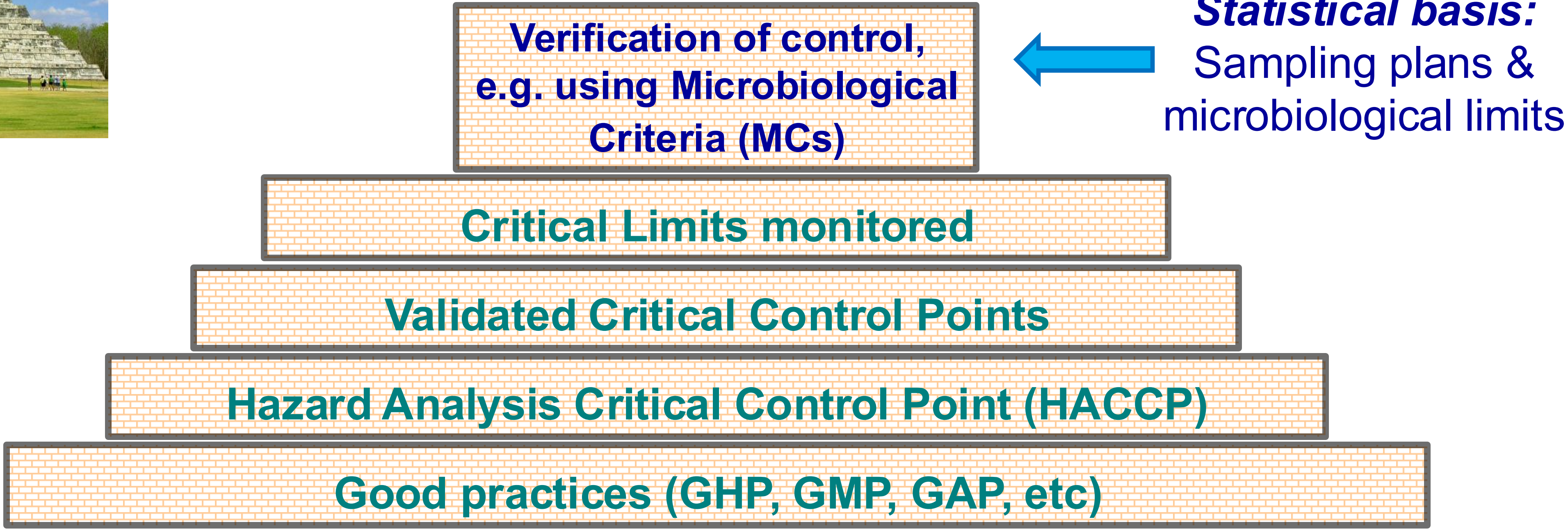
Foodsafetyfutures.org

The Netherlands

ICMSF Point of contact for Codex, FAO, WHO

Since 1962

Role of MC for verification of hazard control as part of a robust food business operation



Verification of control, e.g. using Microbiological Criteria (MCs)

Statistical basis:
Sampling plans & microbiological limits

Critical Limits monitored

Validated Critical Control Points

Hazard Analysis Critical Control Point (HACCP)

Good practices (GHP, GMP, GAP, etc)

Since 1962

Verification by MCs confirms acceptability of food lots and/or adequate process control

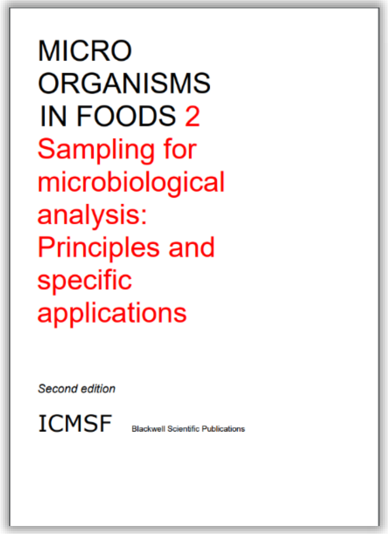
- **MCs** are set considering the likely **distribution** of hazardous microorganisms in foods

- **Food Safety MCs** are based on the **stringency of hazard control** required for **lot acceptance**; **MCs** relate to the level of control needed to reduce a hazard posing a risk to consumers to an acceptable level in the final product

- **Process Hygiene MCs** related to the status of operational **process control**

Photo: courtesy of Tim Jackson, Nestlé

Stringency of control is implemented by selecting proportional MCs (performance)

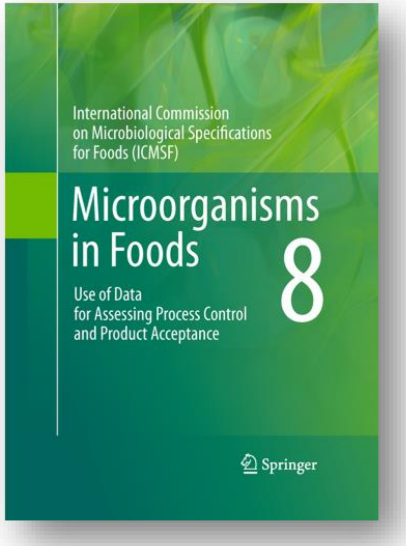


MICRO
ORGANISMS
IN FOODS 2
Sampling for
microbiological
analysis:
Principles and
specific
applications

Second edition

ICMSF Blackwell Scientific Publications

1st Edition, 1974
2nd Edition, 1986



International Commission
on Microbiological Specifications
for Foods (ICMSF)

Microorganisms
in Foods 8

Use of Data
for Assessing Process Control
and Product Acceptance

Springer

1st Edition, 2011

- The higher the consumer risk, the more stringent the performance of the **Microbiological Criterion** that verification of control is based on
- The **ICMSF 15 Cases** risk management framework represents a proportional approach to manage risks associated to food lots to acceptable levels

Since 1962

Verification confirms acceptability of food lots (batches)

A food lot or food batch represents:

“a unit that has been produced under uniform conditions”

The ICMSF 15 Cases framework

The 15 cases reflect relative risk levels*

Considering:

- Hazard severity
- Harmfulness of the microorganism/hazard
- Intended consumer population

- Hazard level
- Conditions of food handling and use

* Risk level = hazard severity & hazard level & probability

Since 1962

ICMSF 15 risk cases matrix

(5 categories of microorganisms/hazards)

Ingredients; Operation

HAZARD SEVERITY

Organism/Hazard	Impact	Examples
Utility organism	Spoilage, reduced shelf life, no health concern	*e.g.,* total counts (TVC, etc.), yeasts and molds
Indicator organism	Indicator of GHP/process control	*e.g.,* Coliforms, Enterobacteriaceae
Moderate hazard	Not life threatening, short duration, self limiting, no sequelae	*e.g., S. aureus, B. cereus, C. perfringens*, Norovirus
Serious hazard	Incapacitating, usually not life threatening	*e.g., Salmonella* spp., *Shigella* spp.; *Yersinia* spp.
Severe hazard	Life threatening, chronic sequelae, *or* long duration *or* designed for sensitive sub-population	*e.g., E. coli* O157:H7, *C. botulinum* toxin; *Cronobacter* (infants)

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ICMSF 15 risk cases matrix

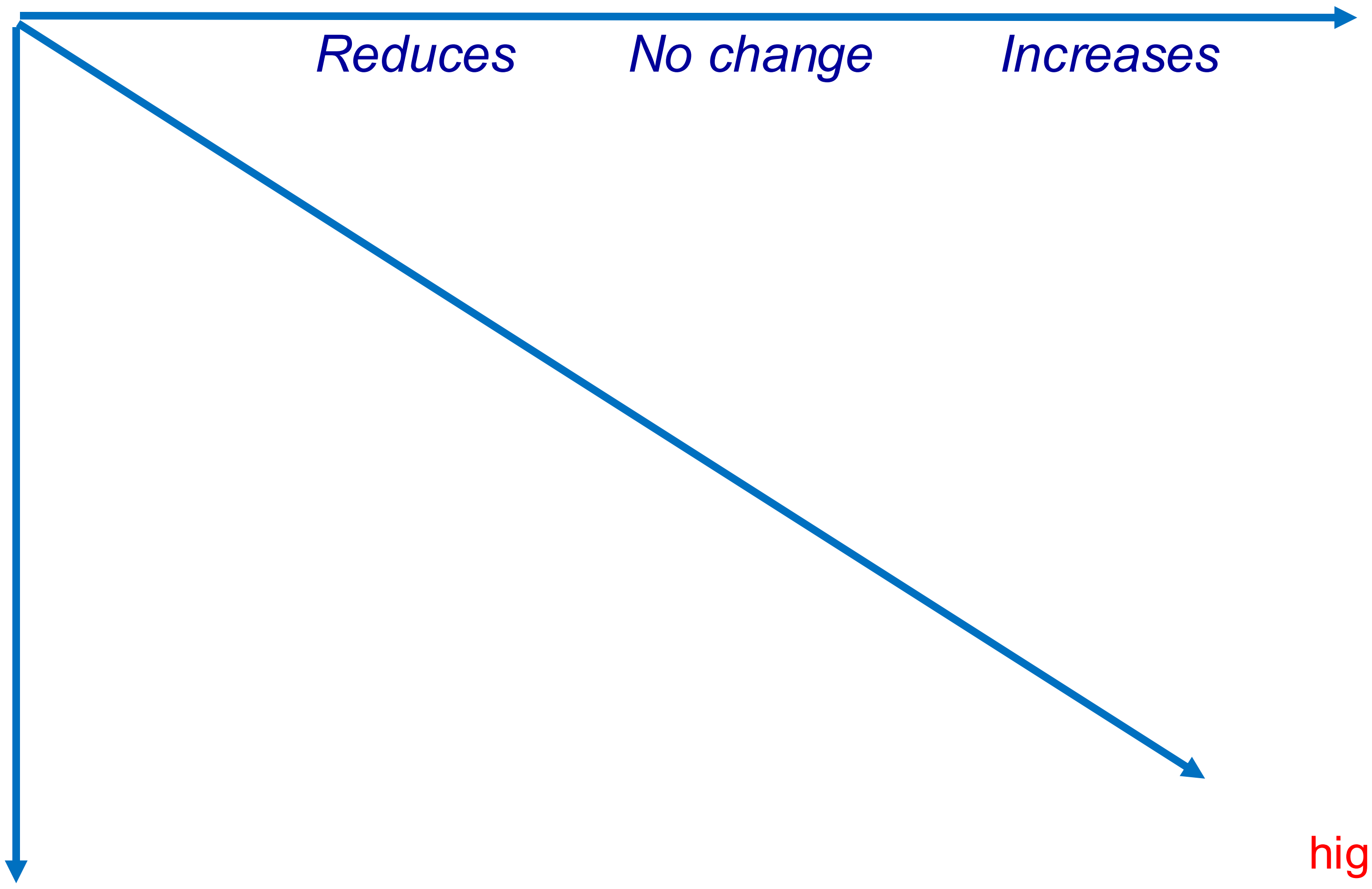
(3 categories of level changes before consumption)

HAZARD LEVEL CHANGES

Reduces *No change* *Increases*

ICMSF 15 risk cases matrix

(MCs performance stringency proportional to control required)



HAZARD LEVEL CHANGES

Reduces *No change* *Increases*

Risk
increases

HAZARD SEVERITY INCREASES

Risk
increases

highest
risk

Since 1962

ICMSF 15 risk cases matrix

(MCs performance stringency proportional to control required)

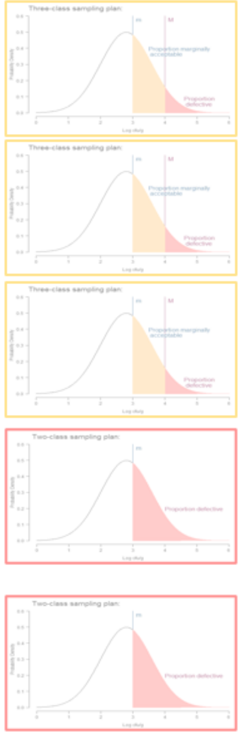
HAZARD LEVEL CHANGES

Risk increases

	Reduces	*No change*	*Increases*
Utility	**Case 1**, 3-class: n= 5, c= 3, m= 1000/g, M=10000/g Mean conc.: 27848/g	**Case 2**, 3-class: n= 5, c= 2, m= 1000/g, M= 10000/g Mean conc.: 17904/g	**Case 3**, 3-class: n= 5, c= 1, m= 1000/g, M= 10000/g Mean conc.: 9976/g
Indicator	**Case 4**, 3-class: n= 5, c= 3, m= 100/g, M= 1000/g Mean conc.: 2785/g	**Case 5**, 3-class: n = 5, c = 2, m = 100/g, M= 1000/g Mean conc.: 1790/g	**Case 6**, 3-class: n= 5, c= 1, m= 100/g, M= 1000/g Mean conc.: 998/g
Moderate hazard	**Case 7**, 3-class: n = 5, c = 2, m = 10/g, M= 100/g Mean conc.: 179/g	**Case 8**, 3-class: n = 5, c = 1, m = 10/g, M= 100/g Mean conc.: 100/g	**Case 9**, 3-class: n = 10, c = 1, m = 10/g, M= 100/g Mean conc.: 32/g
Serious hazard	**Case 10**, 2-class: n = 5, c = 0, m = 0/25g Mean conc.: 1/10g	**Case 11**, 2-class: n = 10, c = 0, m = 0/25g Mean conc.: 1/33g	**Case 12**, 2-class: n = 20, c = 0, m = 0/25g Mean conc.: 1/91g
Severe hazard	**Case 13**, 2-class: n = 15, c = 0, m = 0/25g Mean conc.: 1/60g	**Case 14**, 2-class: n = 30, c = 0, m = 0/25g Mean conc.: 1/157g	**Case 15**, 2-class: n = 60, c = 0, m = 0/25g Mean conc.: 1/373g

HAZARD SEVERITY INCREASES

Risk increases



highest risk

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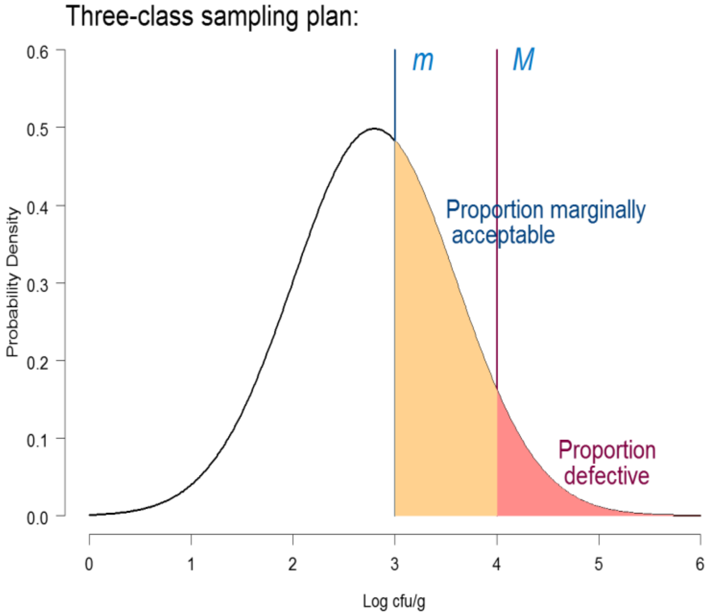
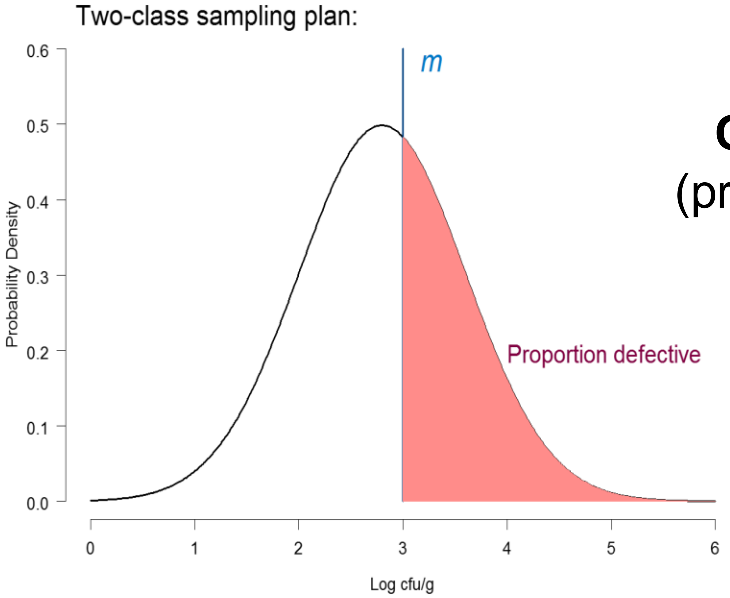
Sampling plan types and parameters

Quantitative plans
(enumeration)

Relatively low stringency


Three-class sampling plan:

- *n* – number of sample units
- *m* – microbiological limit for good quality
- *M* – microbiological limit for unacceptable
- *c* – maximum number allowed between *m* and *M*


Two-class sampling plan:

- *n* – number of sample units
- *m* – microbiological limit for unacceptable
- *c* – maximum number positive or over *m*

Qualitative plans
(presence/absence)

Relatively high stringency

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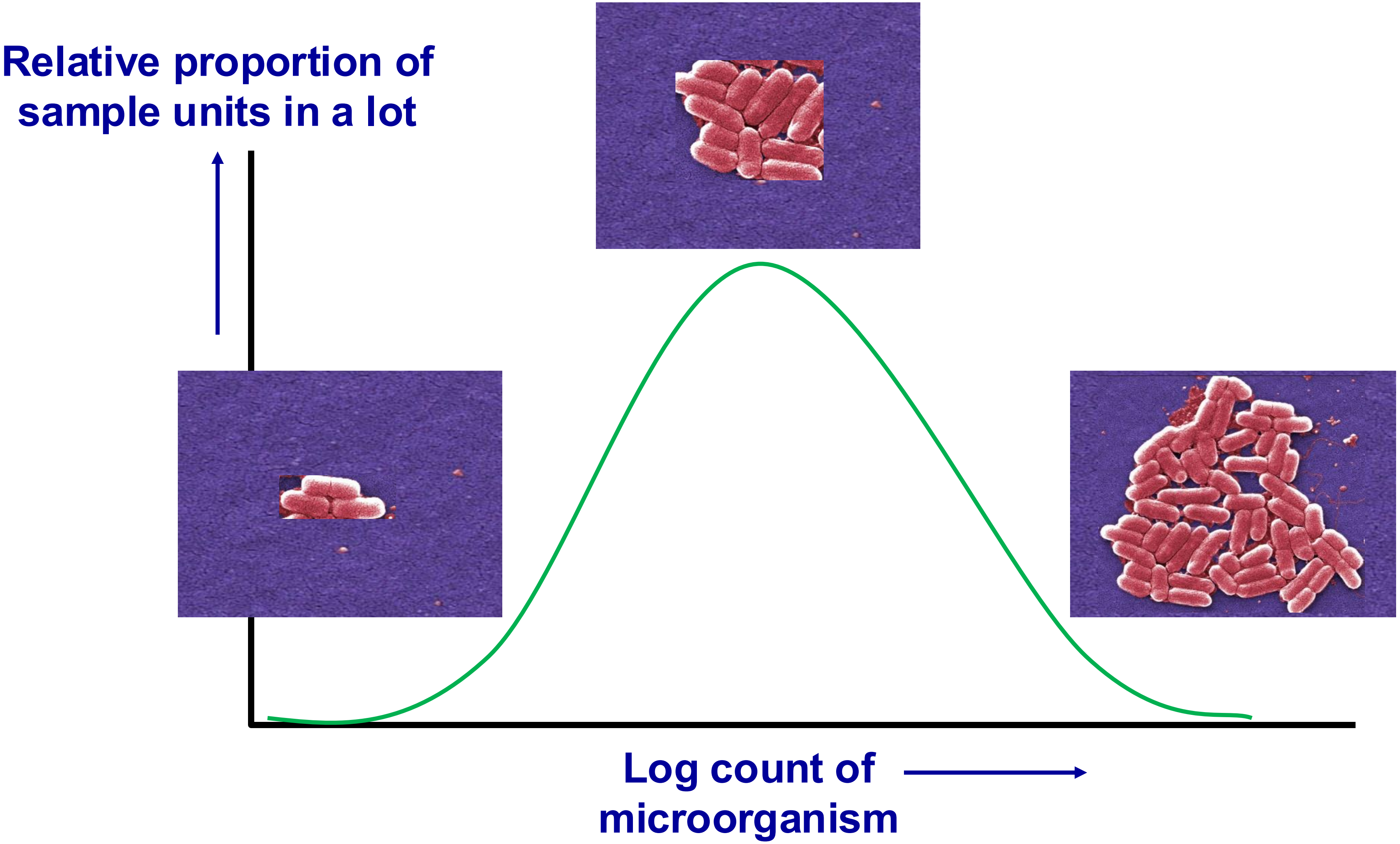
MCs/sampling plans consider the distribution of microorganisms in a food lot (batch)



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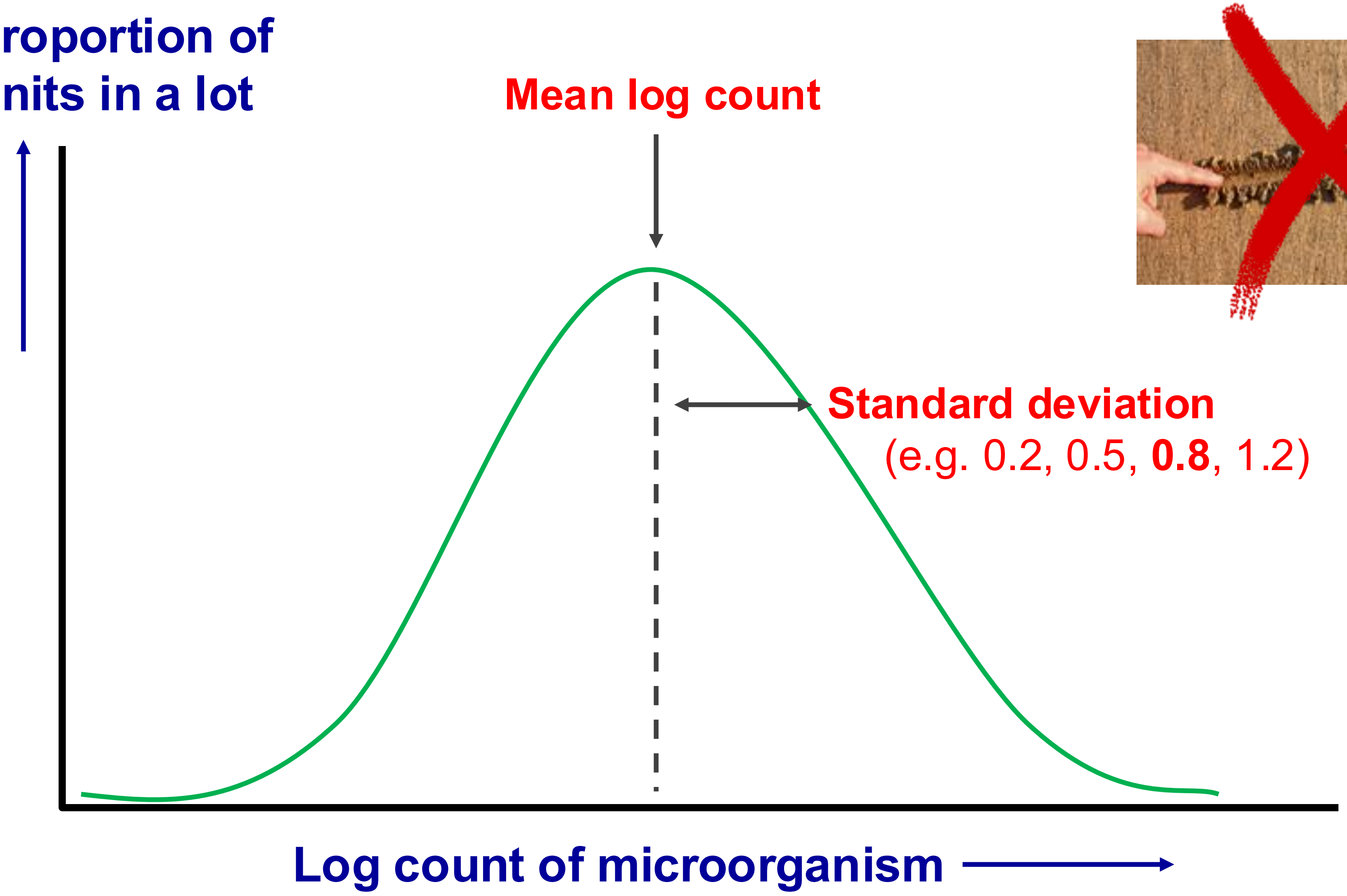
Key parameters for the distribution of microorganisms in a lot (batch)



Relative proportion of sample units in a lot

Mean log count

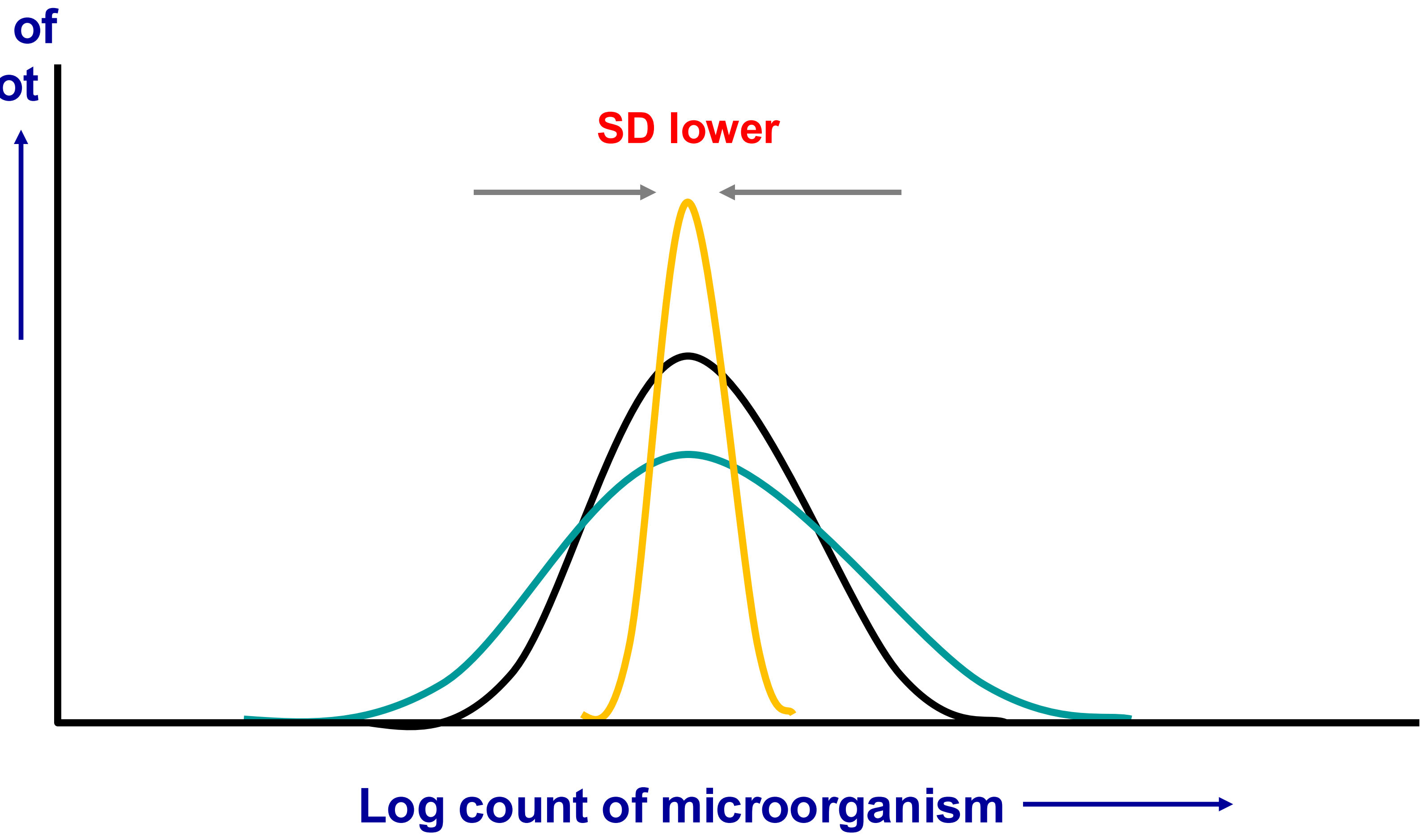
Standard deviation

(e.g. 0.2, 0.5, **0.8**, 1.2)

Log count of microorganism

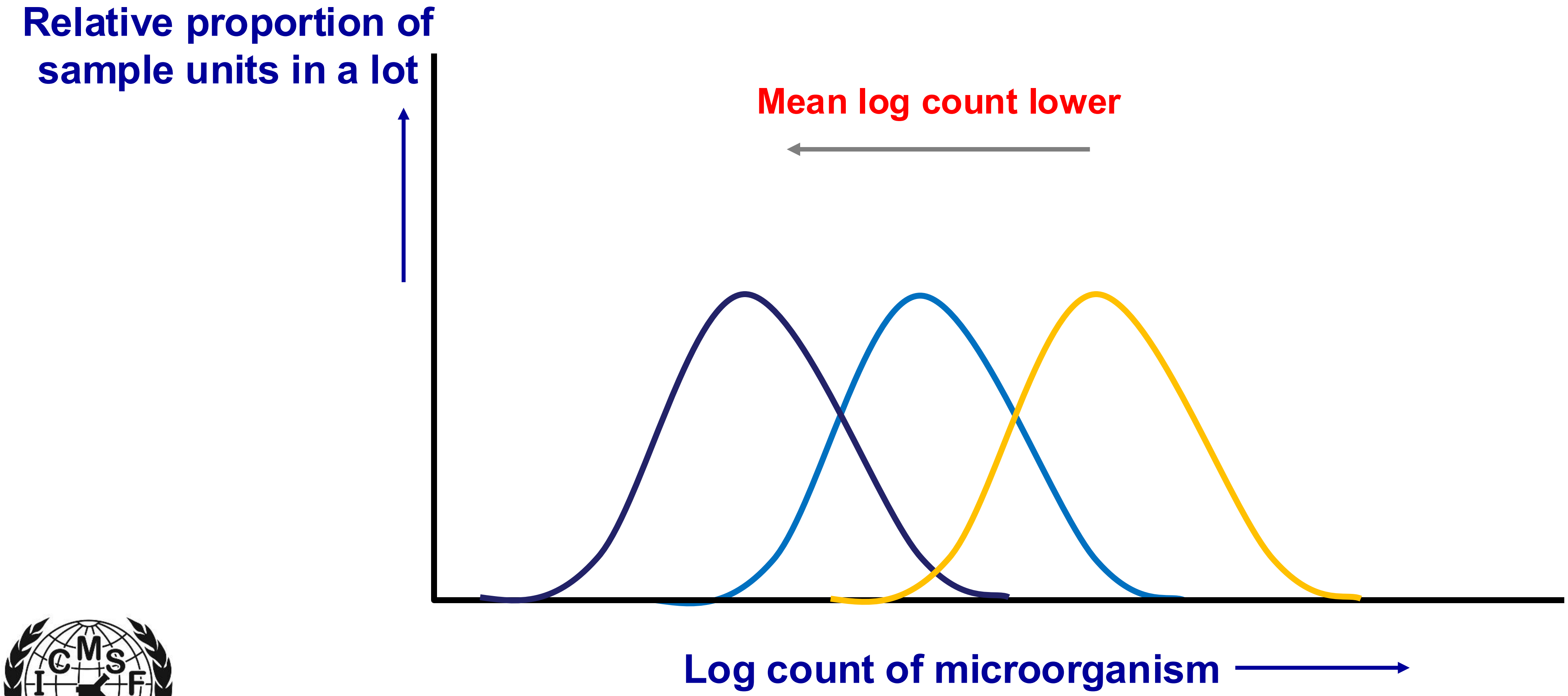
Since 1962

Representing batches with a different SD but the same mean log count



Since 1962

Representing batches with different mean log counts but same standard deviation (SD)



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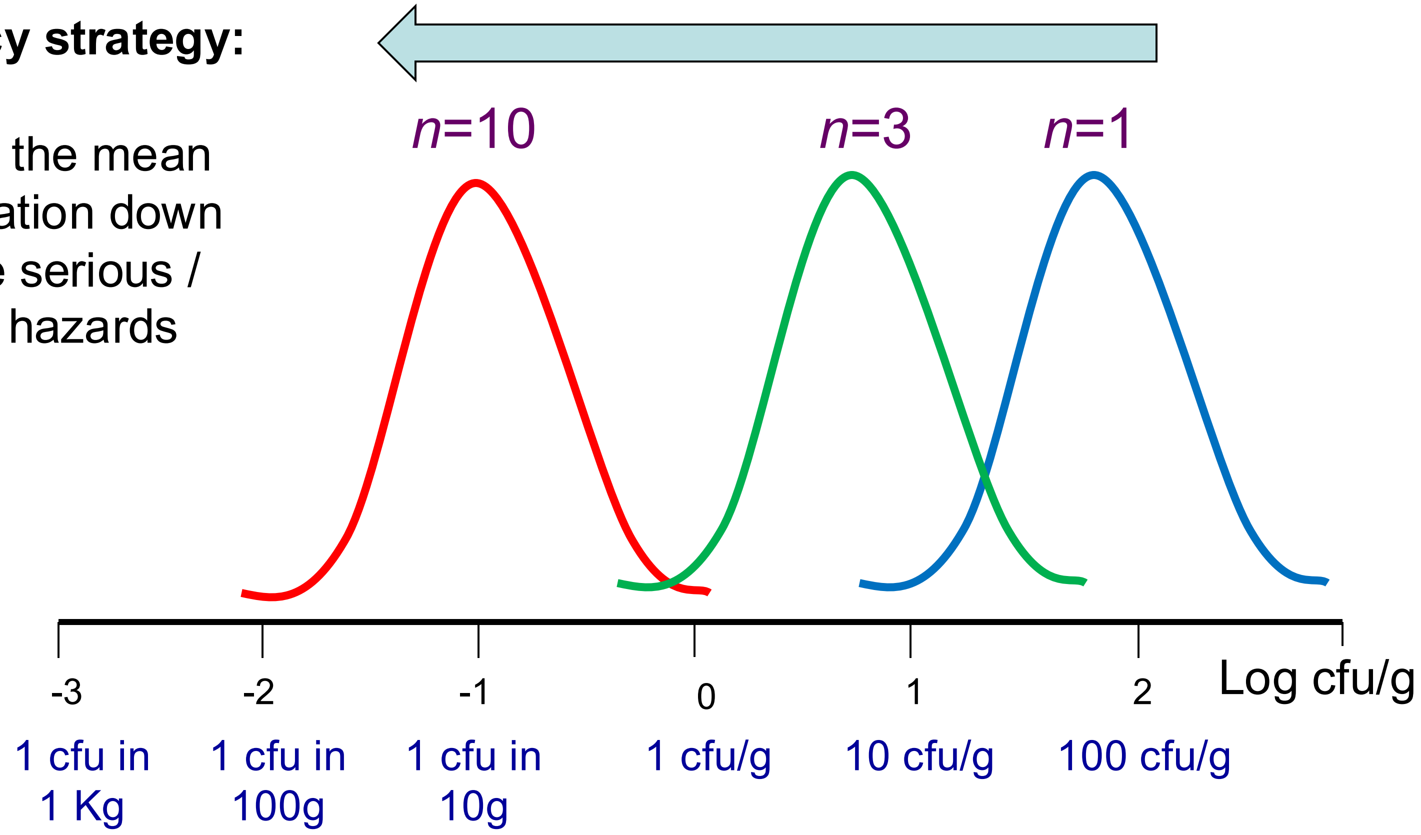
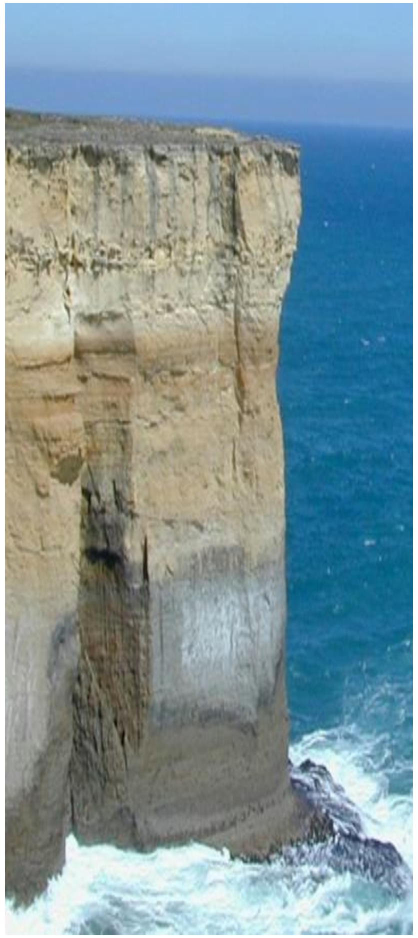
Stringency example: effect of number of samples

Stringency strategy:

To move the mean concentration down for more serious / severe hazards



Mean arithmetic concentration of compliant batches, assuming (*m*=1/g; SD=0.8; confidence=95%)



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Food Safety Risk Management: a case example

CODEX ALIMENTARIUS
International Food Standards

http://www.fao.org/fao-who-codexalimentarius/en/

Codex Alimentarius has adopted the Risk Analysis framework for all its decision-making

Codex Alimentarius food safety standards, codes of practice and guidelines are equivalent to **Risk Management** decisions

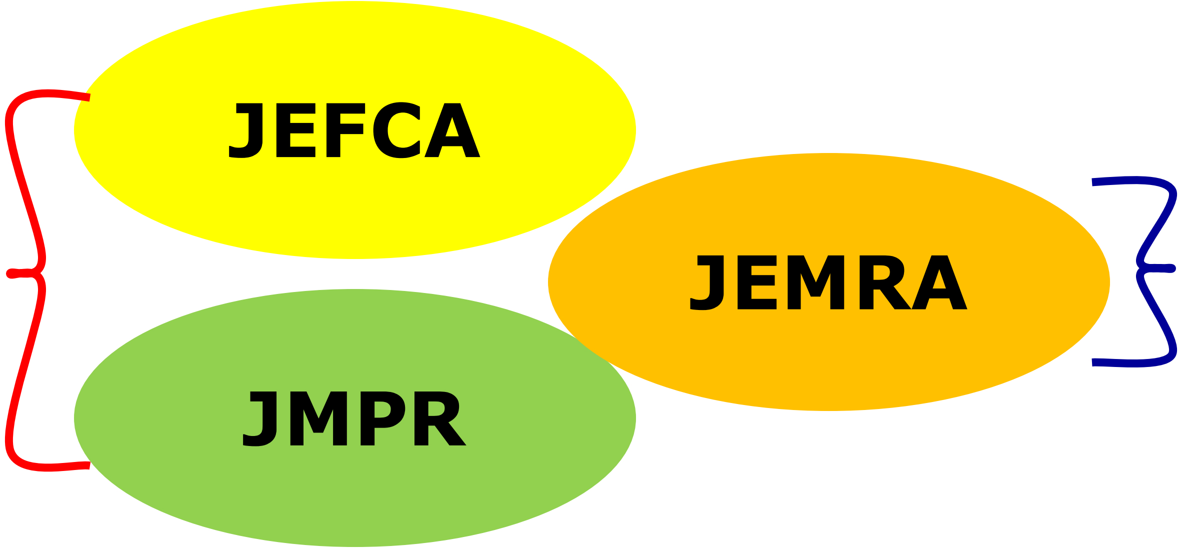
- Codex Committees are the actual Risk Managers;
- FAO and WHO (and others) act as Risk Assessors, providing science input based on expert meetings;
- **But Codex Risk Management decisions are not mandatory**

National and local governments

- National governments (members of Codex) may choose to adopt Codex decisions into their national Food Law/Regulatory systems
  - Without change
  - Adapted as they consider necessary

Since 1962

Food Safety Risk Assessment expert meetings



Assess consumer risks of chemical hazards

JEFCA

JMPR

JEMRA

Assess consumer risks of microbiological hazards

Since 1962

Codex follows the Risk Analysis approach

JEMRA

SCIENCE

- *Salmonella* spp. in broiler chickens and eggs
- ***Listeria monocytogenes* in ready-to-eat food**
- *Campylobacter* spp. in broiler chickens
- *Cronobacter* spp., *Salmonella* spp. in powdered infant formulae (PIF)
- *Vibrio* spp. in seafood

↔

CODEX ALIMENTARIUS
International Food Standards

STANDARDS

- Risk management strategies for *Salmonella* spp. in poultry
- **General principles of food hygiene for management of *L. monocytogenes***
- Risk management strategies for *Campylobacter* spp. in poultry
- Code of hygienic practices for powdered formulae for infants and young children
- Risk management strategies for *Vibrio* spp. in seafood

ICMSF

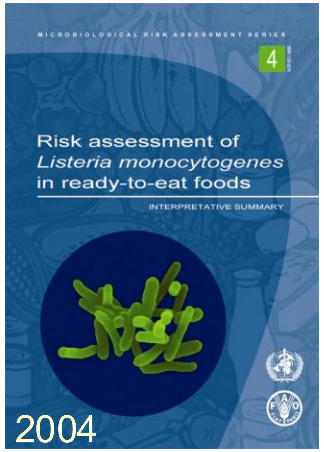
Since 1962

All JEMRA MRAs on one page!

Link to JEMRA Series @ FAO

1 Risk assessments of *Salmonella* in eggs and broiler chickens: interpretative summary, 2002
2 Risk assessments of *Salmonella* in eggs and broiler chickens, 2002
3 Hazard characterization for pathogens in food and water: guidelines, 2003
4 Risk assessment of *Listeria monocytogenes* in ready-to-eat foods: interpretative summary, 2004
5 Risk assessment of *Listeria monocytogenes* in ready-to-eat foods: technical report, 2004
6 *Enterobacter sakazakii* and other microorganisms in powdered infant formula: meeting report, 2004
7 Exposure assessment of microbiological hazards in food: guidelines, 2008
8 Risk assessment of *Vibrio vulnificus* in raw oysters: interpretative summary and technical report, 2005
9 Risk assessment of choleragenic *Vibrio cholerae* O1 and O139 in warm-water shrimp in international trade: interpretative summary and technical report, 2005
10 *Enterobacter sakazakii* and *Salmonella* in powdered infant formula: meeting report, 2006
11 Risk assessment of *Campylobacter* spp. in broiler chickens: interpretative summary, 2008
12 Risk assessment of *Campylobacter* spp. in broiler chickens: technical report, 2008
13 Viruses in food: scientific advice to support risk management activities: meeting report, 2008
14 Microbiological hazards in fresh leafy vegetables and herbs: meeting report, 2008
15 *Enterobacter sakazakii* (*Cronobacter* spp.) in powdered follow-up formula: meeting report, 2008
16 Risk assessment of *Vibrio parahaemolyticus* in seafood: interpretative summary and technical report, 2011
17 Risk characterization of microbiological hazards in food: guidelines, 2009.
18 Enterohaemorragic *Escherichia coli* in raw beef and beef products: approaches for the provision of scientific advice, 2010
19 *Salmonella* and *Campylobacter* in chicken meat: meeting report, 2009
20 Risk assessment tools for *Vibrio parahaemolyticus* and *Vibrio vulnificus* associated with seafood: meeting report, 2020
21 *Salmonella* spp. In bivalve molluscs: Risk Assessment and Meeting Report, In press
22 Selection and application of methods for the detection and enumeration of human pathogenic *Vibrio* spp. in seafood: guidance, 2016
23 Multicriteria-based ranking for risk management of food-borne parasites, 2014
24 Statistical aspects of microbiological criteria related to foods: a risk managers guide, 2016
25 Risk-based approach for the control of *Trichinella* in pigs and *Taenia saginata* in beef: meeting report, 2020
26 Ranking of low moisture foods in support of microbiological risk management: meeting Report and Systematic Review, 2022
27 Microbiological hazards associated with spices and dried aromatic herbs: meeting Report, 2022
28 Microbial safety of lipid based ready-to-use foods for the management of moderate acute and severe acute malnutrition: first report, 2016
29 Microbial safety of lipid based ready-to-use foods for the management of moderate acute and severe acute malnutrition: second report, 2021
30 Interventions for the control of non-typhoidal *Salmonella* spp. in beef and pork: meeting report and systematic review, 2016
31 Shiga toxin-producing *Escherichia coli* (STEC) and food: attribution, characterization, and monitoring, 2018
32 Attributing illness caused by Shiga toxin-producing *Escherichia coli* (STEC) to specific foods, 2019
33 Safety and quality of water used in food production and processing: meeting report, 2019
34 Foodborne antimicrobial resistance: role of the environment, crops and biocides: meeting report, 2019.
35 Advances in science and risk assessment tools for *Vibrio parahaemolyticus* and *V. vulnificus* associated with seafood: meeting report, 2021
36 Microbiological risk assessment guidance for food, 2021
37 Safety and quality of water used with fresh fruits and vegetables, – Meeting report, 2021
38 *Listeria monocytogenes* in ready-to-eat (RTE) foods: attribution, characterization and monitoring – Meeting report, 2020
39 Control measures for Shiga toxin-producing *Escherichia coli* (STEC) associated with meat and dairy products – Meeting report, 2022
40 Safety and quality of water use and reuse in the production and processing of dairy products – Meeting report, 2023
41 Safety and quality of water used in the production and processing of fish and fishery products – Meeting report, 2023
42 Prevention and control of microbiological hazards in fresh fruits and vegetables – Parts 1 & 2: General principles – Meeting report, 2023
43 Prevention and control of microbiological hazards in fresh fruits and vegetables. Part 3: Sprout – Meeting report, 2023
44 Prevention and control of microbiological hazards in fresh fruits and vegetables – Part 4: Specific commodities – Meeting report, 2023
45 Measures for the control of non-typhoidal *Salmonella* spp. in poultry meat - Meeting report, 2023
46 Measures for the control of Campylobacter spp. in chicken meat - Meeting report, 2024
47 Risk assessment of *Listeria monocytogenes* in foods: Part 1: Formal models - Meeting report, 2024
48 Risk assessment of *Listeria monocytogenes* in foods: Part 2: Risk Assessment - Meeting report, 2025
49 Microbiological risk assessment of viruses in foods. Part 1: Food attribution, analytical methods and indicators - Meeting report, 2024

The first JEMRA reports already articulated the risk posed by *L. monocytogenes* in RTE foods quantitatively



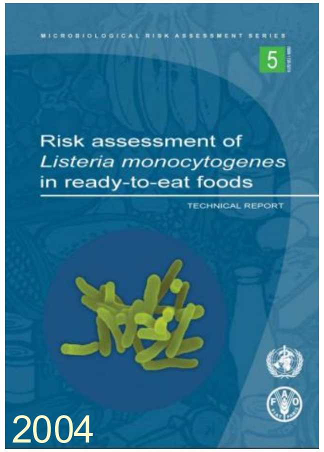
MICROBIOLOGICAL RISK ASSESSMENT SERIES

4

Risk assessment of *Listeria monocytogenes* in ready-to-eat foods

INTERPRETATIVE SUMMARY

2004



MICROBIOLOGICAL RISK ASSESSMENT SERIES

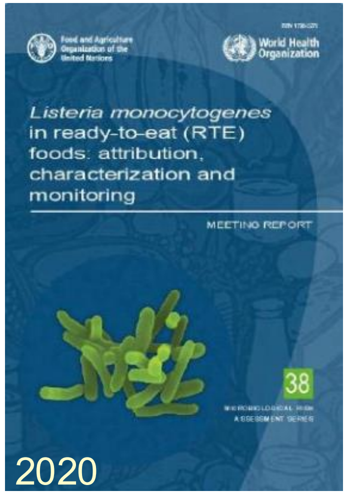
5

Risk assessment of *Listeria monocytogenes* in ready-to-eat foods

TECHNICAL REPORT

2004

- The vast majority of listeriosis cases results from ingestion of very high numbers of pathogen cells
- Consumption of low numbers of pathogen cells (~100 CFU/g) has a low probability to cause illness in healthy consumers
- At-risk subgroups may be >3 orders of magnitude (>1000 times) more vulnerable than generally healthy consumers
- **Ready-To-Eat food products differ in their ability to support growth of the pathogen**



Food and Agriculture Organization of the United Nations

World Health Organization

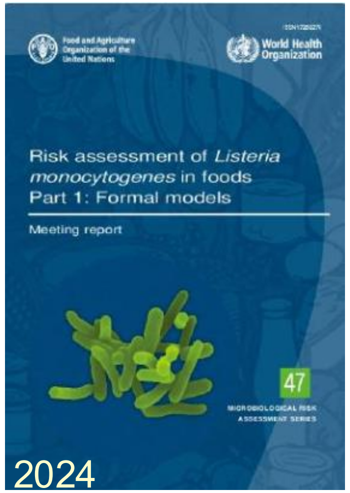
Listeria monocytogenes in ready-to-eat (RTE) foods: attribution, characterization and monitoring

MEETING REPORT

38

MICROBIOLOGICAL RISK ASSESSMENT SERIES

2020



Food and Agriculture Organization of the United Nations

World Health Organization

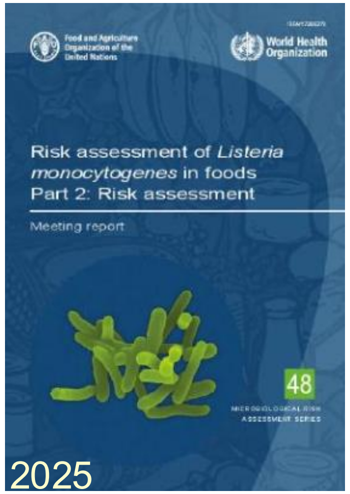
Risk assessment of *Listeria monocytogenes* in foods Part 1: Formal models

Meeting report

47

MICROBIOLOGICAL RISK ASSESSMENT SERIES

2024



Food and Agriculture Organization of the United Nations

World Health Organization

Risk assessment of *Listeria monocytogenes* in foods Part 2: Risk assessment

Meeting report

48

MICROBIOLOGICAL RISK ASSESSMENT SERIES

2025

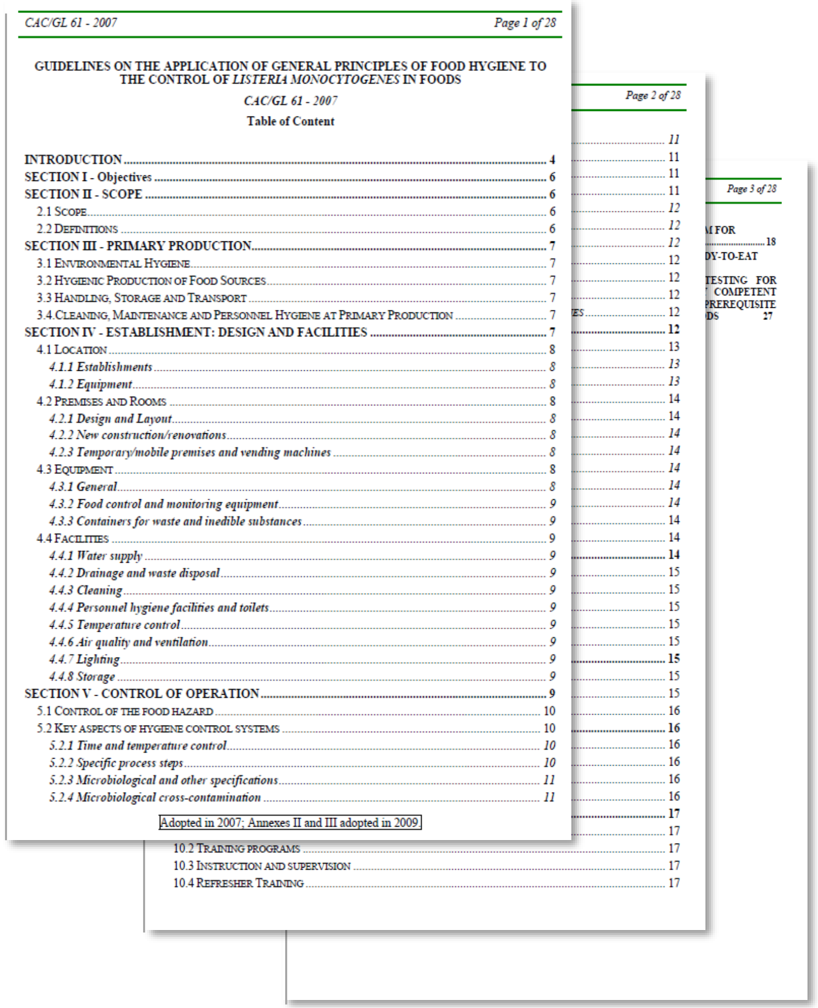
- Later updates did not change the key conclusions of the first JEMRA risk assessments

In 2008, CCFH decided on appropriate risk management and made guidance, incl. MCs

Guidance for Codex Member Countries

Guidelines on the Application of General Principles of Food Hygiene to the Control of *Listeria monocytogenes* in Foods (CAC/GL 61 – 2007)

- **Annex**: Microbiological Criteria suggested for *Listeria monocytogenes* in Ready-To-Eat Foods



CAC/GL 61 - 2007 *Page 1 of 28*

GUIDELINES ON THE APPLICATION OF GENERAL PRINCIPLES OF FOOD HYGIENE TO THE CONTROL OF *LISTERIA MONOCYTOGENES* IN FOODS

CAC/GL 61 - 2007

Table of Content

Adopted in 2007; Annexes II and III adopted in 2009.

Page 2 of 28

Page 3 of 28

Since 1962

Codex advice regarding control of *L. monocytogenes* in RTE foods (CAC/GL 61–2007)

Codex suggested tailored MCs for these two food types:

Foods in which growth of *L. monocytogenes* **will not occur**, *aka* foods that **do not support pathogen growth**

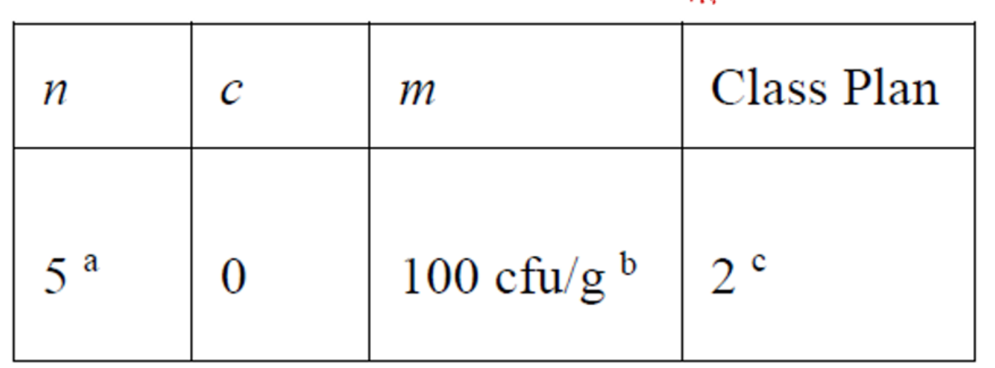
Foods in which growth of *L. monocytogenes* **can occur**, *aka* foods that **do support pathogen growth**

Since 1962

Codex advice regarding control of *L. monocytogenes* in RTE foods (CAC/GL 61–2007)

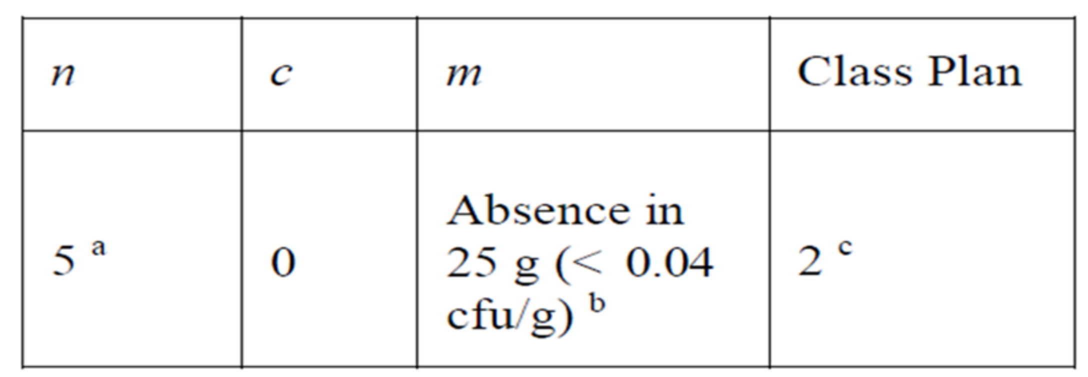
Foods in which growth of *L. monocytogenes* will not occur, i.e., **foods that do not support pathogen growth**

Guidance: certain low levels of the organism may be acceptable



n	*c*	*m*	Class Plan
5 [a]	0	100 cfu/g [b]	2 [c]

Assuming a log-normal distribution of cells, a standard deviation of cells of **0.25 log CFU/g**, and **95% confidence** for detecting non-compliant batches



n	*c*	*m*	Class Plan
5 [a]	0	Absence in 25 g (< 0.04 cfu/g) [b]	2 [c]

Assuming a log-normal distribution of cells, a standard deviation of cells of **0.25 log CFU/g**, and **95% confidence** for detecting non-compliant batches

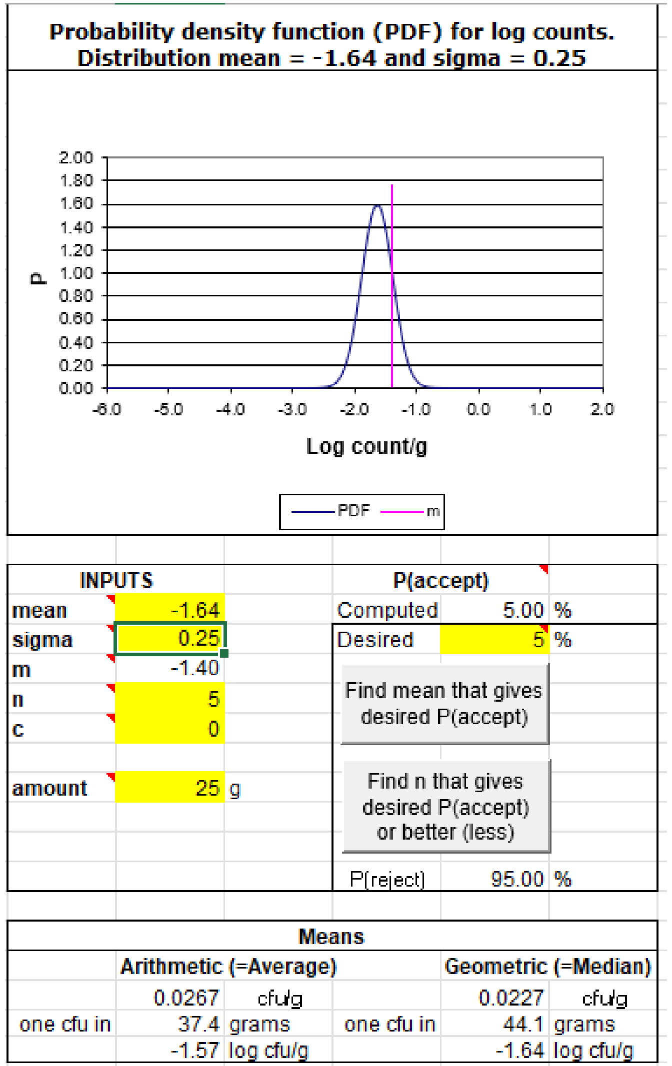
Foods in which growth of *L. monocytogenes* can occur, i.e., **foods that do support pathogen growth**

Guidance: levels of the organism must be very low

Since 1962

Performance of the two Codex MCs for *L. monocytogenes* in different RTE foods

Growth supported

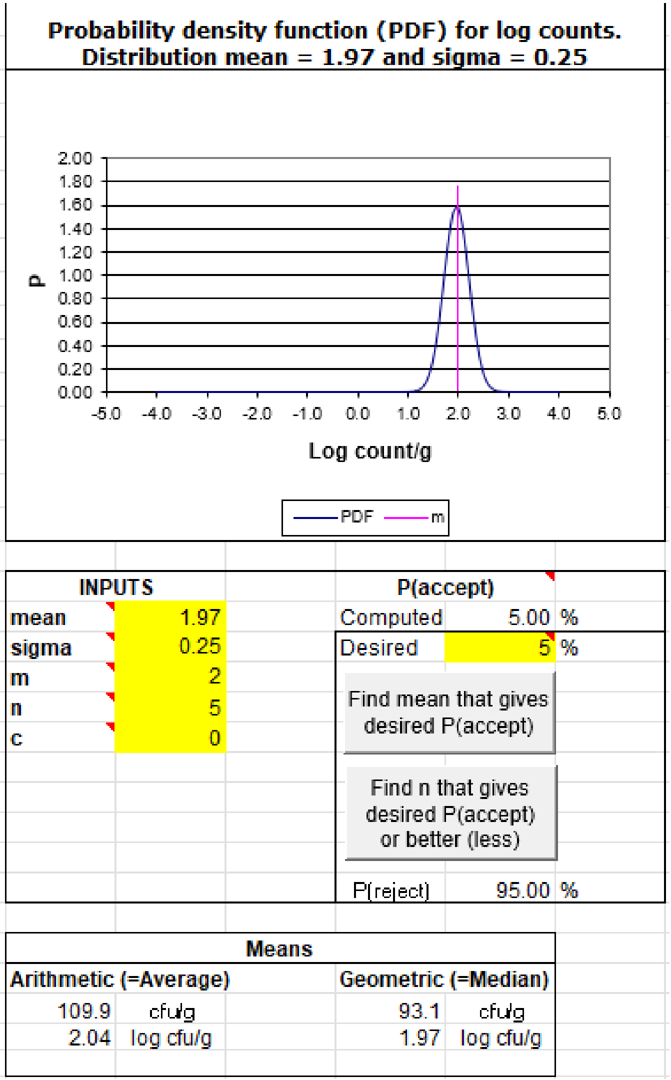


Probability density function (PDF) for log counts.
Distribution mean = -1.64 and sigma = 0.25

INPUTS			P(accept)		
mean	-1.64		Computed	5.00	%
sigma	0.25		Desired	5	%
m	-1.40				
n	5				
c	0				
amount	25	g			
			P(reject)	95.00	%

Means					
	Arithmetic (=Average)			Geometric (=Median)	
	0.0267	cfu/g		0.0227	cfu/g
one cfu in	37.4	grams	one cfu in	44.1	grams
	-1.57	log cfu/g		-1.64	log cfu/g

Growth NOT supported



Probability density function (PDF) for log counts.
Distribution mean = 1.97 and sigma = 0.25

INPUTS		P(accept)		
mean	1.97	Computed	5.00	%
sigma	0.25	Desired	5	%
m	2			
n	5			
c	0			
		P(reject)	95.00	%

Means			
Arithmetic (=Average)		Geometric (=Median)	
109.9	cfu/g	93.1	cfu/g
2.04	log cfu/g	1.97	log cfu/g

Since 1962

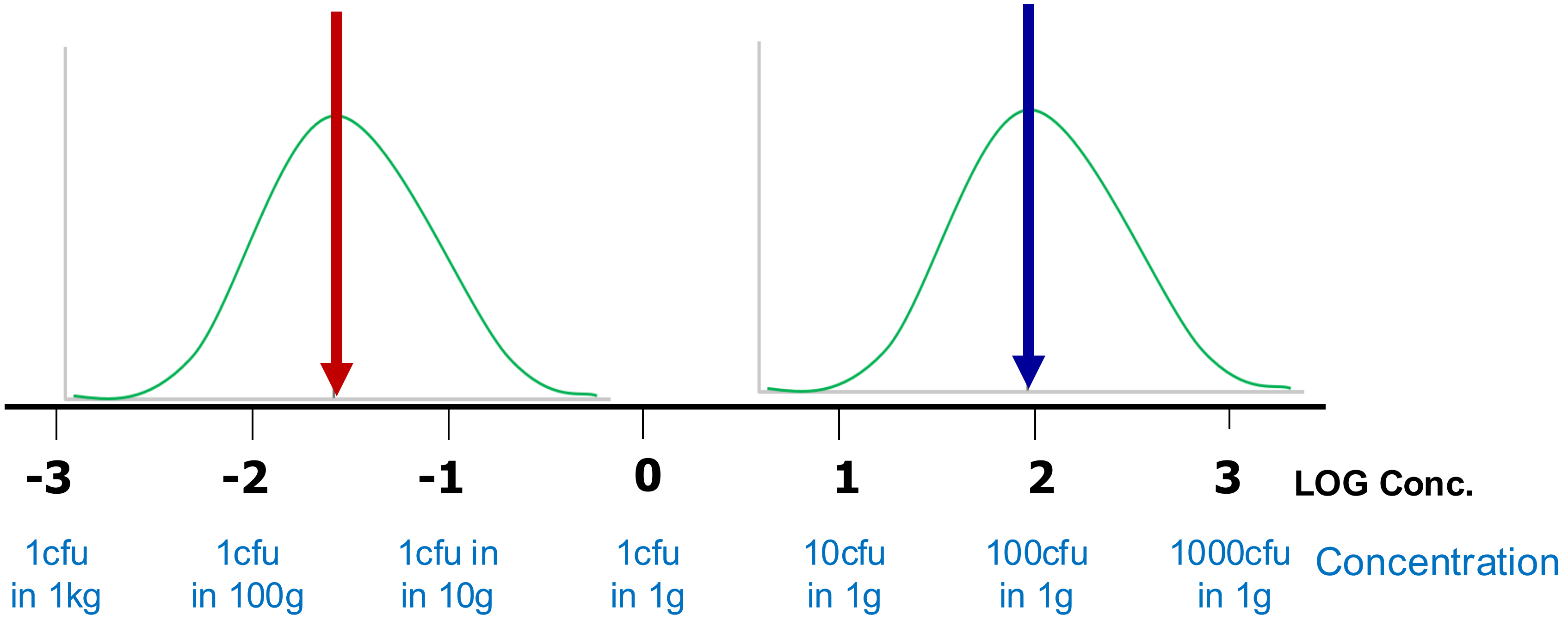
Performance of the two Codex MCs for *L. monocytogenes* in different RTE foods

Foods supporting *Lm* growth

0.023 CFU/g
(- 1.64 Log CFU/g)

Foods NOT supporting *Lm* growth

93 CFU/g
(1.97 Log CFU/g)



Geometric mean

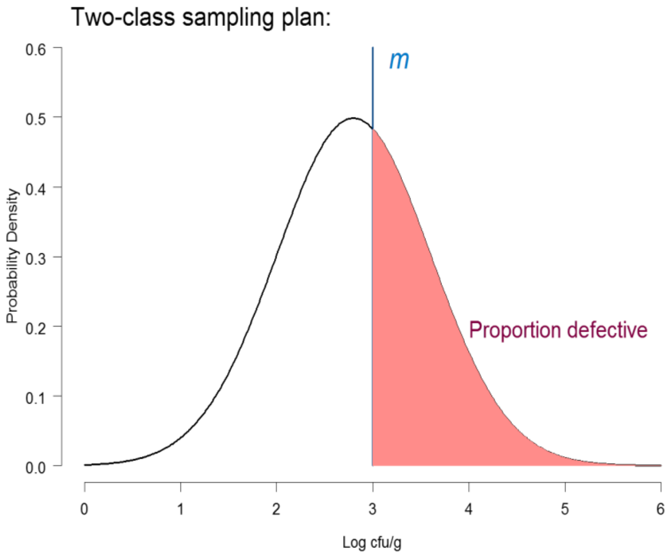
L. monocytogenes distribution of log CFU/g-values for a just compliant food lot/batch*

* *For Standard Deviation: **0.25** and Confidence Level: **95%** to reject a non-compliant batch*

MC for RTE foods not supporting *Lm* growth

n	*c*	*m*	Class Plan
5 [a]	0	100 cfu/g [b]	2 [c]

Assuming a log-normal distribution of cells, a standard deviation of cells of **0.25 log CFU/g**, and **95% confidence** for detecting non-compliant batches



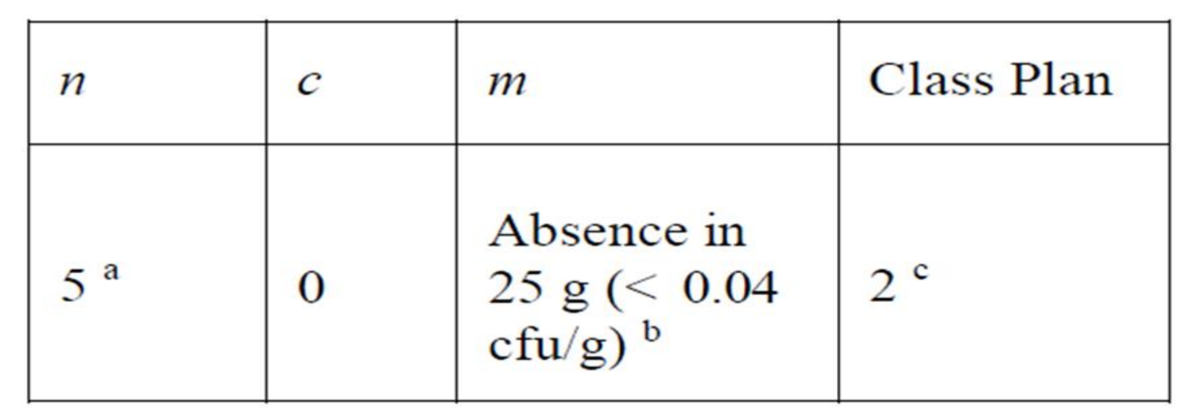
Two-class sampling plan:

Status of a "just compliant" lot as described by Codex:

- such a lot may consist of 55% of the samples being below 100 cfu/g and
- up to 45% of all the samples from this lot may be above 100 cfu/g, whereas
- 0.002% of all the samples may be above 1000 cfu/g, and
- 0.0000000000005% ($5*10^{-13}$) of all the samples may be above 9000 cfu/g

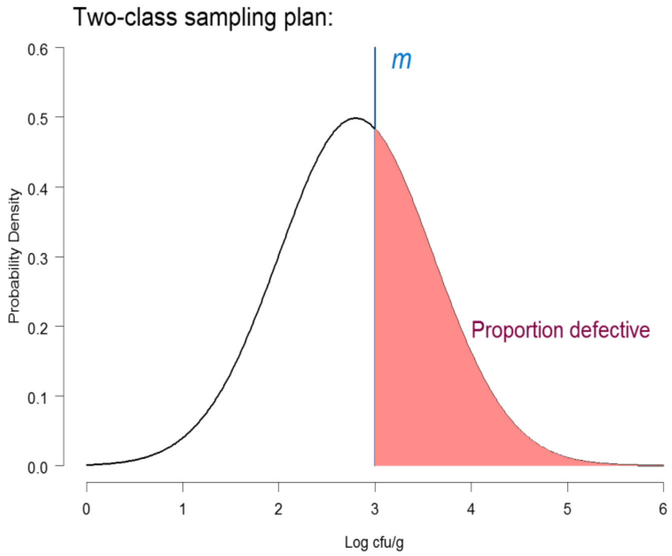
Since 1962

MC for RTE foods supporting *Lm* growth



n	*c*	*m*	Class Plan
5 [a]	0	Absence in 25 g (< 0.04 cfu/g) [b]	2 [c]

Assuming a log-normal distribution of cells, a standard deviation of cells of **0.25 log CFU/g**, and **95% confidence** for detecting non-compliant batches



Status of a "just compliant" lot as described by Codex:

- Such a lot may consist of 55% of the 25g samples being negative, and
- up to 45% of 25 g samples may be positive *(> 0.04 cfu/g detection limit)*, and
- 0.5 % of this lot may harbour concentrations above 0.1 cfu/g, and
- 0.000000000002% ($2*10^{-9}$) of this lot may have concentrations over 1 cfu/g

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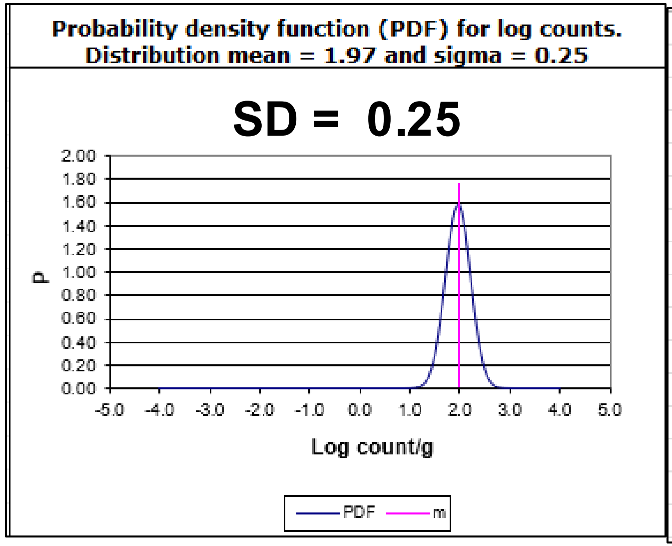
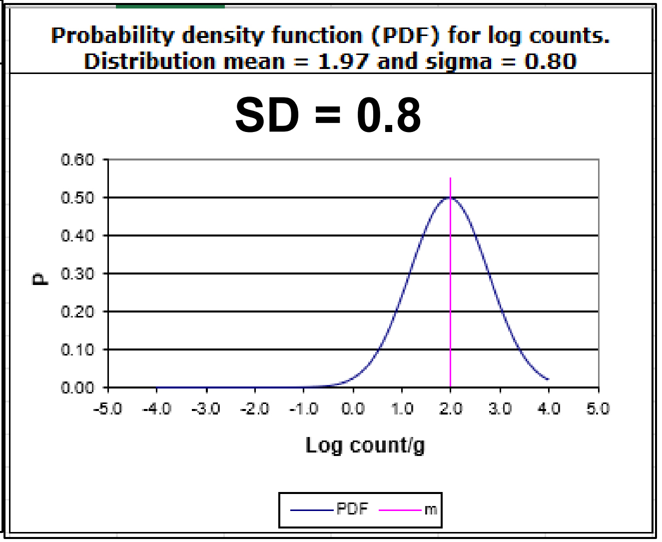
Importance of understanding distribution (SD)

(Foods not supporting growth example)



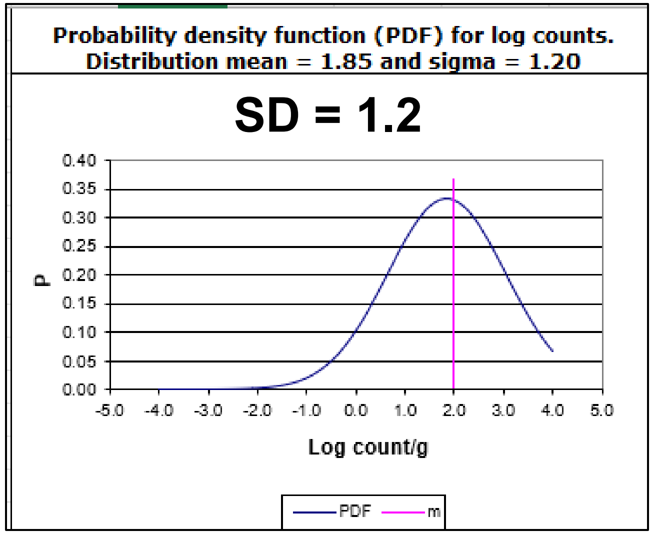
Probability density function (PDF) for log counts.
Distribution mean = 1.97 and sigma = 0.25

SD = 0.25



Probability density function (PDF) for log counts.
Distribution mean = 1.97 and sigma = 0.80

SD = 0.8



Probability density function (PDF) for log counts.
Distribution mean = 1.85 and sigma = 1.20

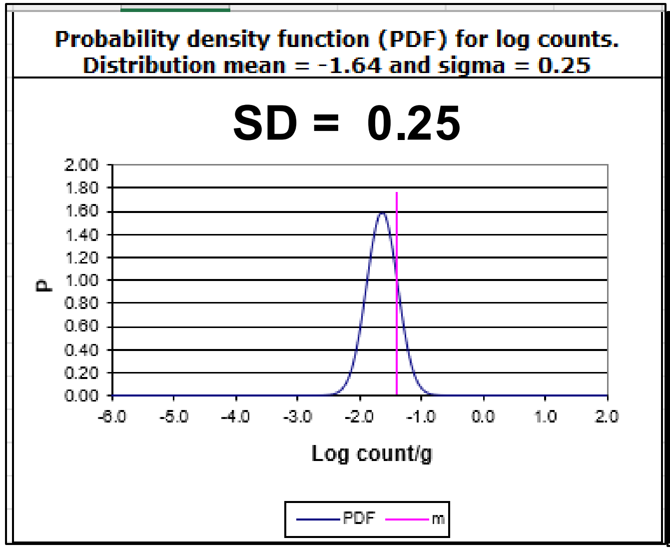
SD = 1.2

Food not supporting growth

n	*c*	*m*
5 [a]	0	100 cfu/g [b]

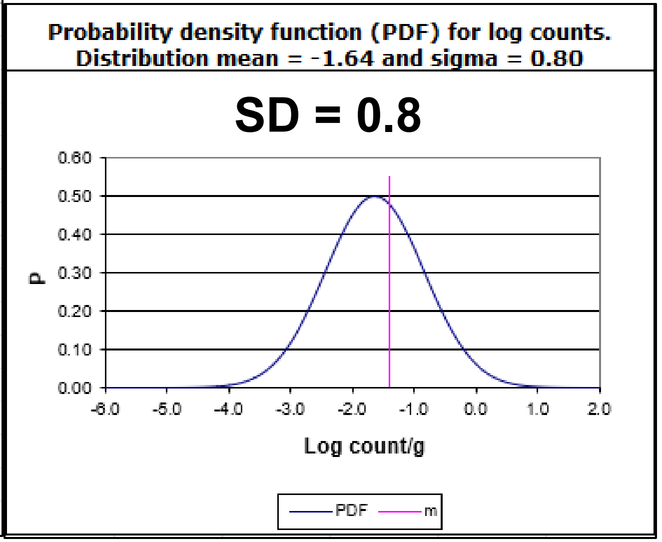
SD	Proportion of a food lot over			
	100 cfu/g	1000 cfu/g	10000 cfu/g	100,000 cfu/g
0.25	45 %	0.002 %	∞	∞
0.8	48 %	9.9 %	0.56 %	0.008 %
1.2	48 %	19.5 %	4.5 %	0.006 %

Importance of understanding distribution (SD)



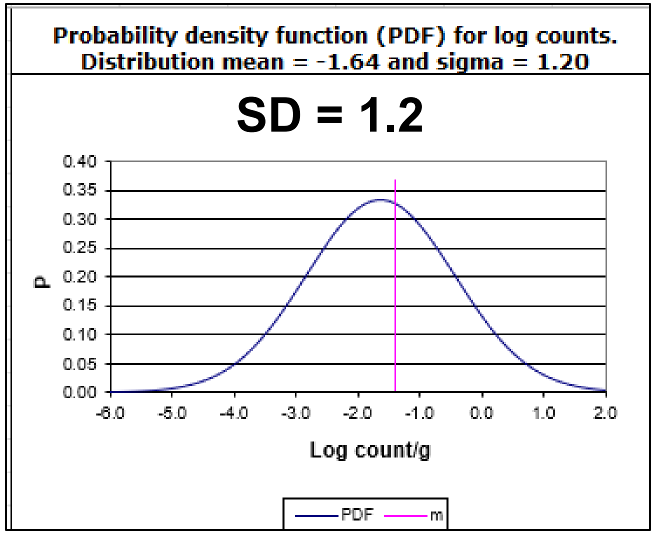
Probability density function (PDF) for log counts.
Distribution mean = -1.64 and sigma = 0.25

SD = 0.25



Probability density function (PDF) for log counts.
Distribution mean = -1.64 and sigma = 0.80

SD = 0.8



Probability density function (PDF) for log counts.
Distribution mean = -1.64 and sigma = 1.20

SD = 1.2

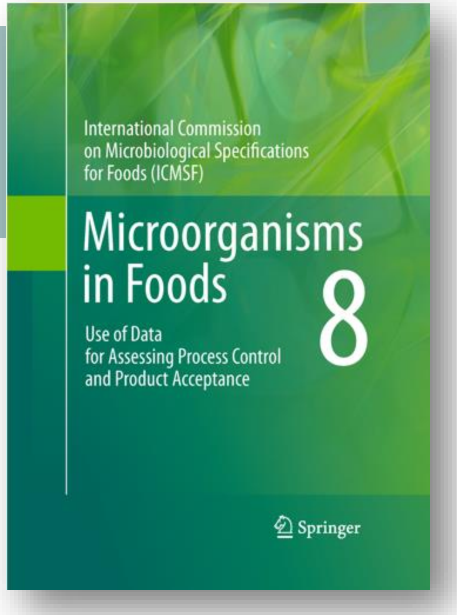
Food supporting growth

n	*c*	*m*
5 [a]	0	Absence in 25 g (< 0.04 cfu/g) [b]

[b] Not detected in 25 g sample

SD	Proportion of a food lot over		
	≥0.1 cfu/g	≥1.0 cfu/g	≥10 cfu/g
0.25	0.5 %	$2*10^{-9}$ %	∞
0.8	2 %	0.05 %	0.00026 %
1.2	8 %	1.2 %	0.12 %

Latest ICMSF "useful testing" advice



International Commission
on Microbiological Specifications
for Foods (ICMSF)

Microorganisms
in Foods
8

Use of Data
for Assessing Process Control
and Product Acceptance

Springer

Part I: Principles of using Data in Microbiological Control

1. Utility of Microbiological Testing for Safety and Quality
2. Validation of Control Measures
3. Verification of Process Control
4. Verification of Environmental Control
5. Corrective Actions to Reestablish Control
6. Microbiological Testing in Customer–Supplier Relations

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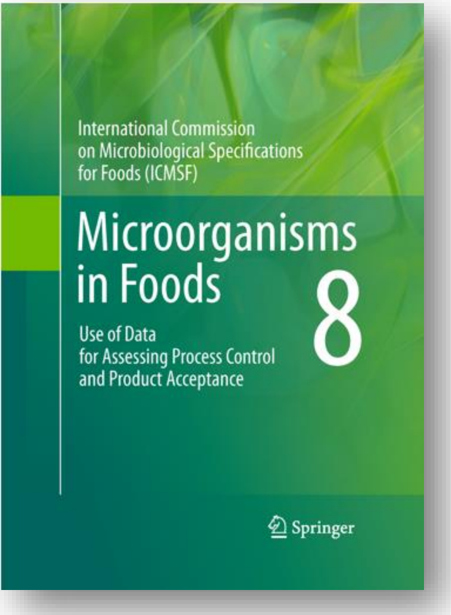
Latest ICMSF “useful testing” advice



International Commission on Microbiological Specifications for Foods (ICMSF)

Microorganisms in Foods 8

Use of Data for Assessing Process Control and Product Acceptance

Springer

Part II: Application of Principles to Product Categories

8: Meat Products
9: Poultry Products
10: Fish and Seafood Products
11: Feeds and Pet Food
12: Vegetables and Vegetable Products
13: Fruits and Fruit products
14: Spice, Dry Soups and Asian Flavourings
15: Cereals and Cereal Products
16: Nuts, Oilseeds, Dried Legumes and Coffee
17: Cocoa, Chocolate and Confectionery
18: Oil- and Fat-Based Foods
19: Sugar, Syrups and Honey
20: Non-alcoholic Beverages
21: Water
22: Eggs and Egg Products
23: Milk and Dairy Products
24: Shelf-Stable Heat-treated Foods
25: Dry Foods for Infants and Young Children
26: Combination Foods

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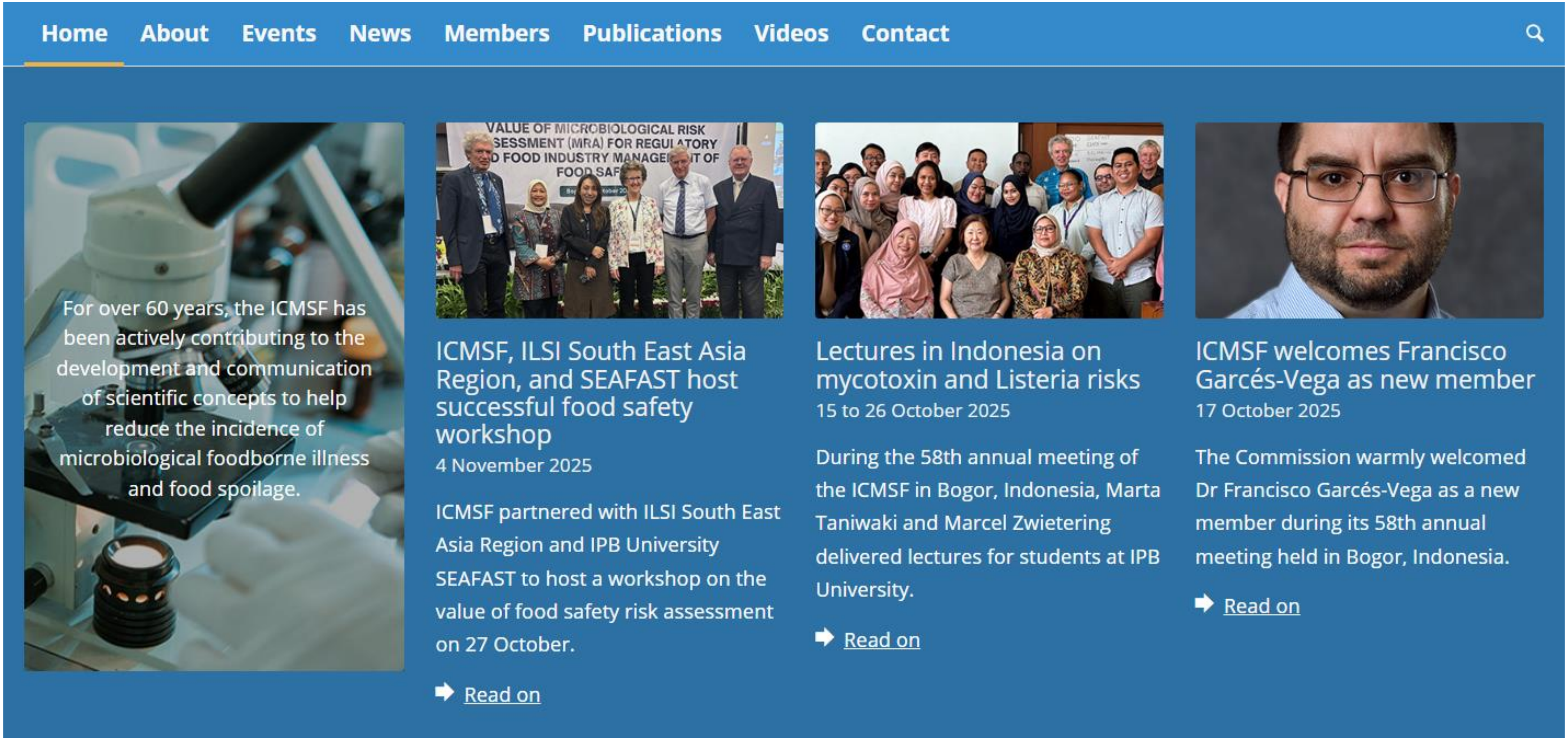
ICMSF online



For over 60 years, the ICMSF has been actively contributing to the development and communication of scientific concepts to help reduce the incidence of microbiological foodborne illness and food spoilage.

ICMSF, ILSI South East Asia Region, and SEAFAST host successful food safety workshop

4 November 2025

ICMSF partnered with ILSI South East Asia Region and IPB University SEAFAST to host a workshop on the value of food safety risk assessment on 27 October.

➡ Read on

Lectures in Indonesia on mycotoxin and Listeria risks

15 to 26 October 2025

During the 58th annual meeting of the ICMSF in Bogor, Indonesia, Marta Taniwaki and Marcel Zwietering delivered lectures for students at IPB University.

➡ Read on

ICMSF welcomes Francisco Garcés-Vega as new member

17 October 2025

The Commission warmly welcomed Dr Francisco Garcés-Vega as a new member during its 58th annual meeting held in Bogor, Indonesia.

➡ Read on

Video clips

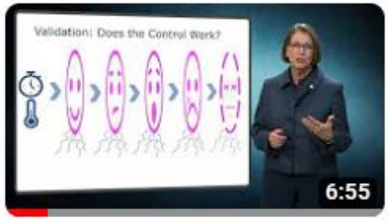
(In English with subtitles in several languages)

Annually meeting as a working party since 1962, 50 meetings in 28 countries

Komisi ini memiliki sejarah panjang dan dibentuk para tahun 1962 dan selama bertahun-tahun

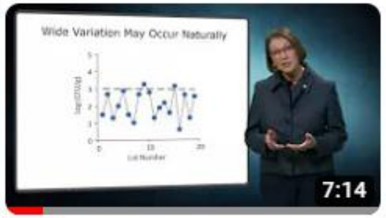
ICMSF 2017 01 "History of ICMSF", Martin B. Cole

ICMSF 2017 02 "Microbiological Testing...

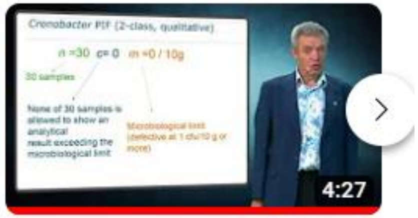


ICMSF 2017 03 "Microbiological Testing for...

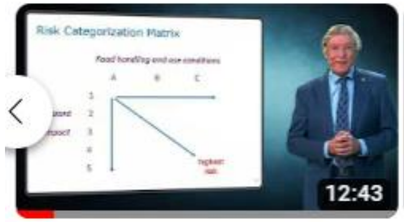
ICMSF 2017 04 "Microbiological testing for...



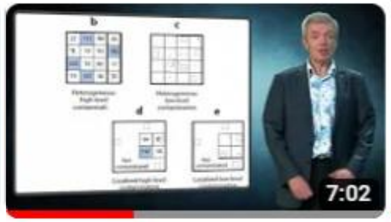
ICMSF 2017 05 "Microbiological testing for...



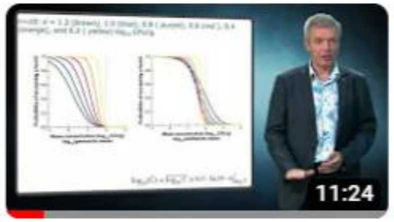
ICMSF 2017 06 "Anatomy of a sampling plan", Marcel H....



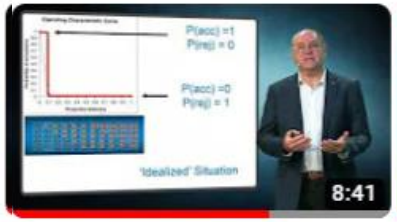
ICMSF 2017 07 "The ICMSF cases", Leon G.M. Gorris



ICMSF 2017 08 "Microbiological Testing an...



ICMSF 2017 09 "Microbiological testing and...



ICMSF 2017 10 "Examples "sampling plan performance...

ICMSF 2020 11 "WhySoManySamplingPlan...

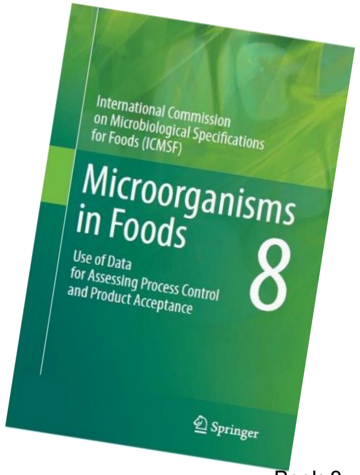
ICMSF 2020 12 "Introduction ICMSF tool", Leon G.M. Gorris

Summary: ICMSF’s Useful Testing for Food Safety advice focuses on Acceptability of lots/Port of entry approach

Manufacturing dimension/PoE = MC approach

- **Producer:** MCs are a verification tool, targeted at ensuring a robust understanding of the microbiological status of raw materials, production environment, and end products
- **Authority:** when lots/batches meet suggested MCs (food safety/process hygiene), they are likely produced with robust GHP/HACCP in place

Book 7:
http://www.springer.com/la/book/9783319684581



Book 8:
https://link.springer.com/book/10.1007/978-1-4419-9374-8

Incidents & market surveillance by authorities ≠ MC approach

- **Authorities respond to incidents and pro-actively sample on market products randomly:** finding relevant positives is a signal to investigate further in collaboration with producers. **BUT: is very different for testing for acceptability of food lots/batches**
- **Producers’ response:** authorities finding positives possibly triggers halting production and recall; it always involves root cause analysis/scrutiny and correction. It adds to verification information.

Since 1962