



Federal Agency for the Safety
of the Food Chain

Microbiological surveillance of carcasses and meat in Belgium

Scientific exploitation of databases

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Illustration

- NRL food microbiology (animal origin) for AFSCA / FAVV (ULg)
- Surveillance of zoonosis in carcasses and meat:
 - *Salmonella*, *Campylobacter*, STEC O157, indicators
 - Carcasses and meat beef, pork, poultry



Belgian surveillances

- 1997-1999: introductive study
 - Various parameters and matrixes
 - Different dilutions of the same samples
- **2000-2003**
 - **Representative sampling**
 - **Choice of dilutions**
 - **Follow up of contamination**
- 2003-2006 and after
 - Integration in the global food safety surveillance
 - Based on risk analysis
 - ...



INTRODUCTION

- Materials and methods

UTILISATION OF DATABASES

- Assessment of process hygiene criteria for indicators
- Assessment of process hygiene criteria for pathogens
- Risk assessment of *Campylobacter* in poultry meat preparation



INTRODUCTION

REPRESENTATIVENESS OF SAMPLING

- 2000 - 2003 (10 -11 months / year)
- Establishments
- Samples
- Sampling method
- Laboratory analysis

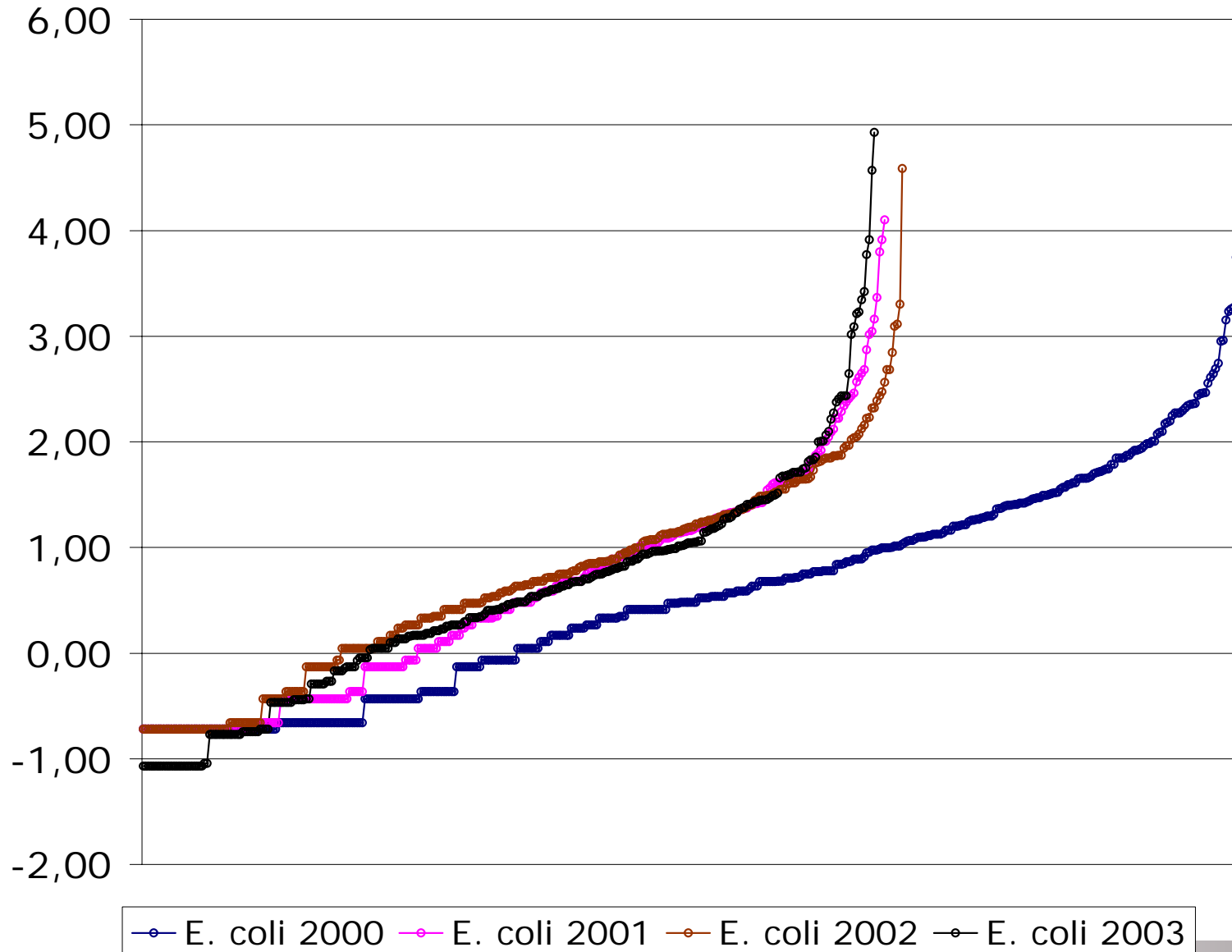


Introduction: microorganisms

- Microorganisms:
 - Pathogenic:
 - *Salmonella*, *Campylobacter*,
 - *Listeria monocytogenes*, *E. coli* O157
 - *Yersinia enterocolitica*
 - Indicators
 - *E. coli*, ACC, Enterobacteriaceae
 - Introductory study:
 - dilution
 - microorganisms and samples
- databases
 - Registration of data
 - According to the objectives
 - Counts: cfu/cm² -> log
 - Values < detection limit



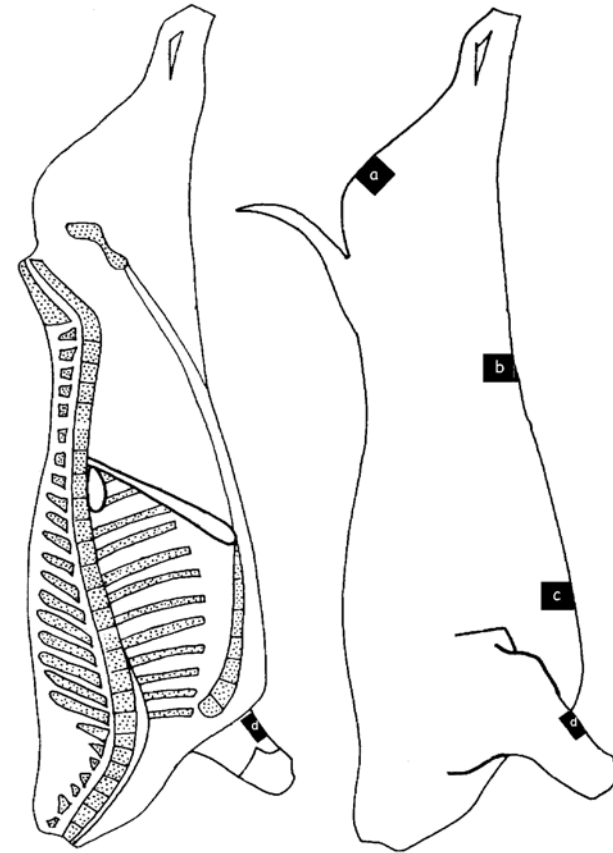
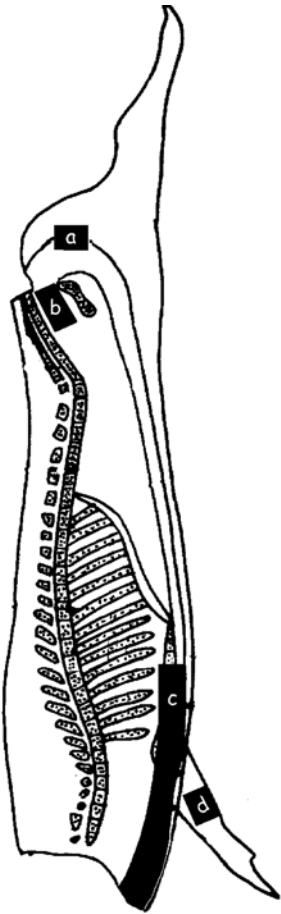
Results: pork carcasses (log cfu/cm²)



1. Assessment of process hygiene criteria

Pig and beef carcasses

- Abattoir:
 - Cooling room
 - 2-4h after slaughter



1. Process hygiene criteria: Belgian application for indicators (counting method)

Pig & beef carcasses

a. Dec. 2001/471/EC

⇒ adaptation of AR/KB 4/7/1996 (2002)

b. Reg. (EC) n°2073/2005



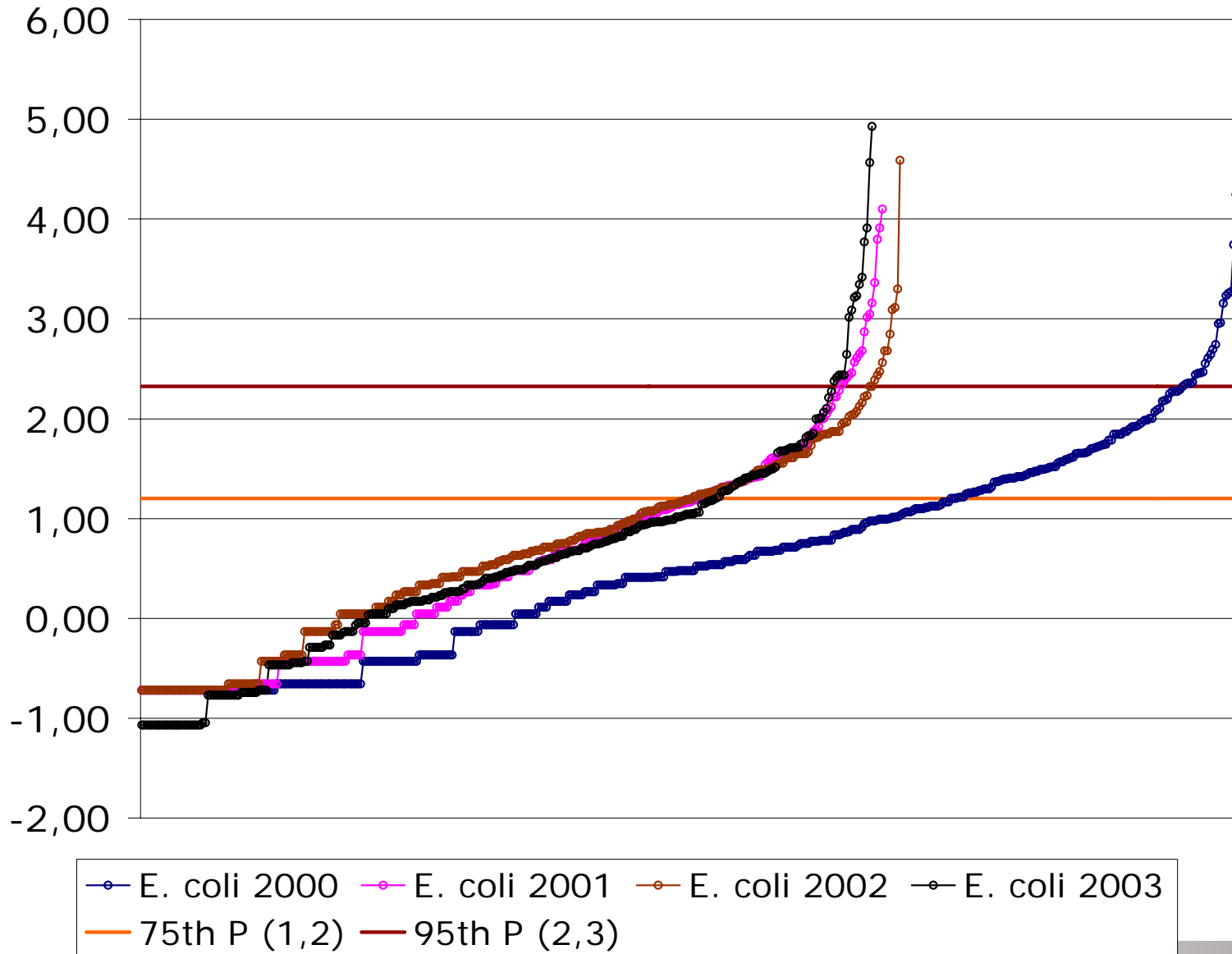
1a. Process hygiene criteria: adaptation of AR/KB 4/7/1996 (2002)

Pig & beef carcasses

- *E. coli*:
 - Indicator of faecal contamination
 - Indicator of a possible presence of pathogenic microorganisms of faecal origin
- Aerobic colony counts:
 - Indicator of general hygiene
- 75th P \Rightarrow m (level of satisfaction)
- 95th P \Rightarrow M (limit of acceptability)



Results: pork carcasses (log cfu/cm²)



Results: pork carcasses (log cfu/cm²)

<i>E. coli</i>	2000-2003		AR 4/7/1996
75th P	1,20	m	1,49
95th P	2,32	M	2,38



Results: pork carcasses (log cfu/cm²)

ACC	2000-2003		AR 4/7/1996
75th P	3,67	m	4,08
95th P	4,74	M	4,92



1b. Process hygiene criteria: Belgian application of Reg. (EC) n°2073/2005

Pig & beef carcasses

- *Enterobacteriaceae* & ACC
- Sampling method to be assessed by MS:

DESTRUCTIVE \Leftrightarrow SWABS

Reference \Leftrightarrow Belgian

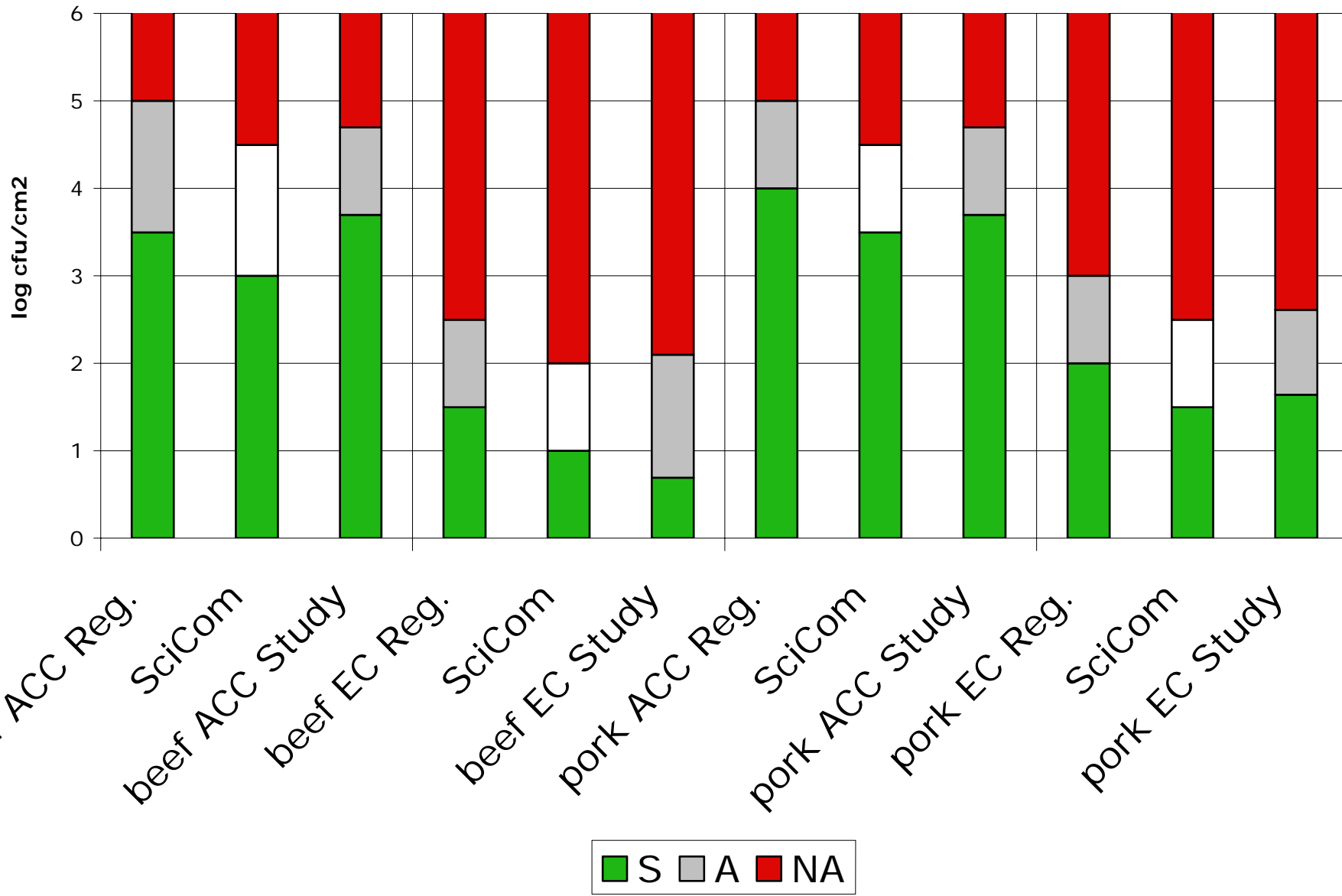
Before cooling



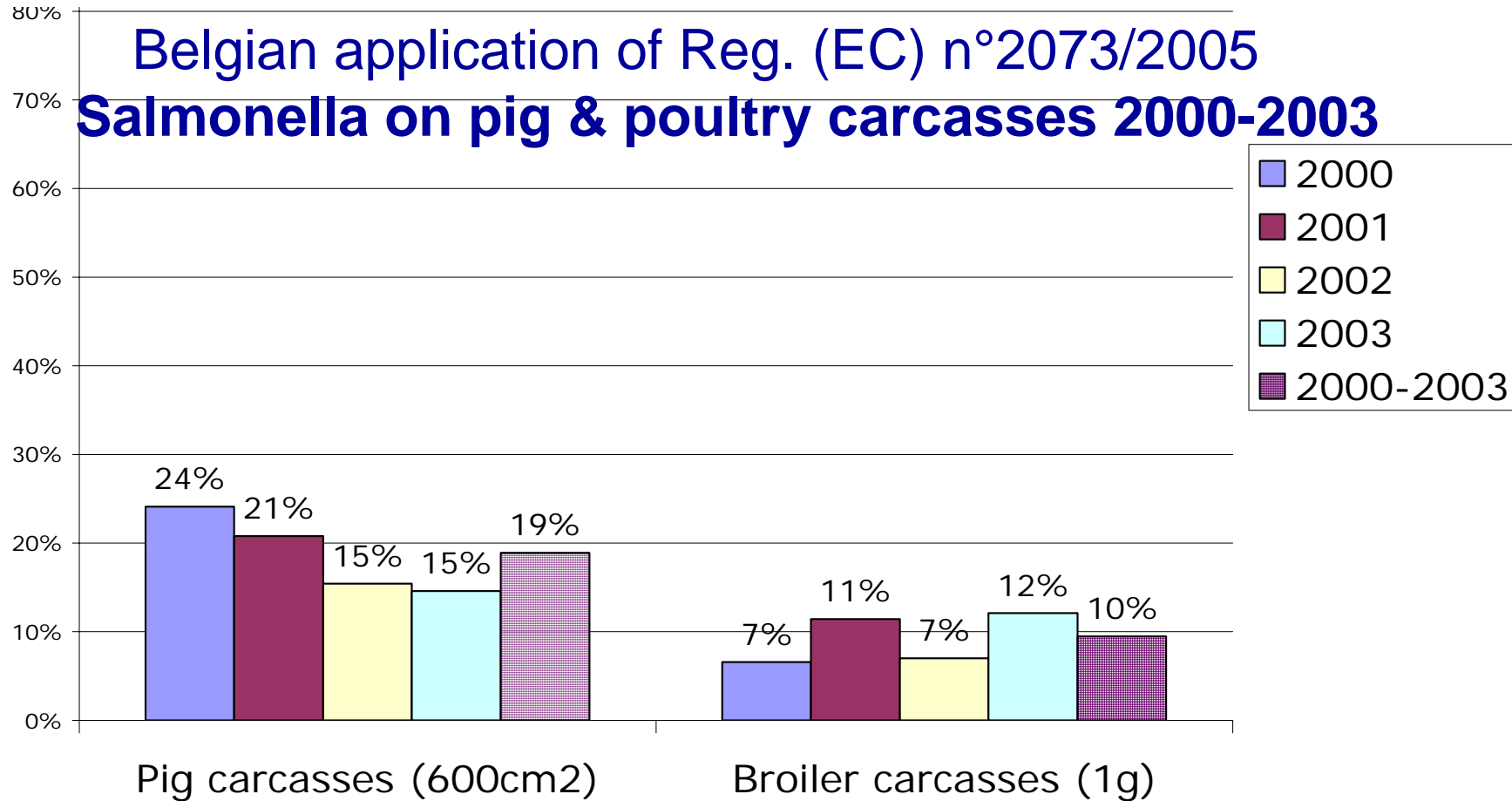
SciCom AFSCA/FAVV

- Sampling: destructive or non-destructive method
- Recuperation of microorganisms
 - 0,5 log (20-50%) in comparison with destructive method





2. Process hygiene criteria: pathogenic agents (P/A)



Salmonella on pig & poultry carcasses

	Pig carcasses (/swabbed area)		Poultry carcasses	
	R2073/2005	BE 2000- 2003	R2073/2005 (/25g)	BE 2000- 2003 (/1g)
n	50	50	50	50
c	5	7,5	7	5

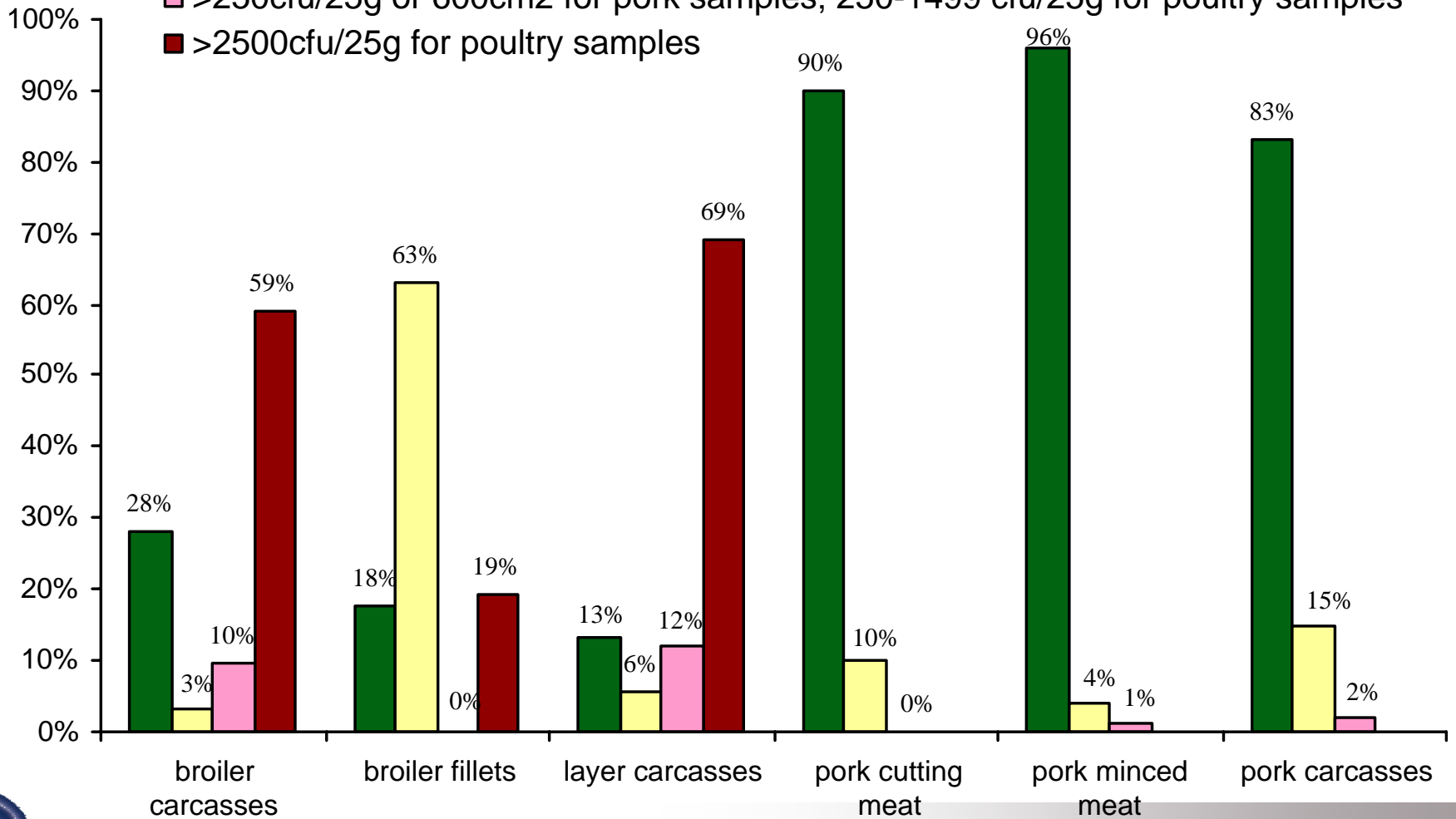


3. Semi-quantative estimation of *Campylobacter* prevalence: Poultry meat preparation

- 25g samples + 225 ml broth (1/10th)
- homogenisation
- Dilutions: 10ml (1g), 1ml (0,1g), 0,1ml (0,01g) -> in 9 or 90 ml of broth
- Incubation & analysis



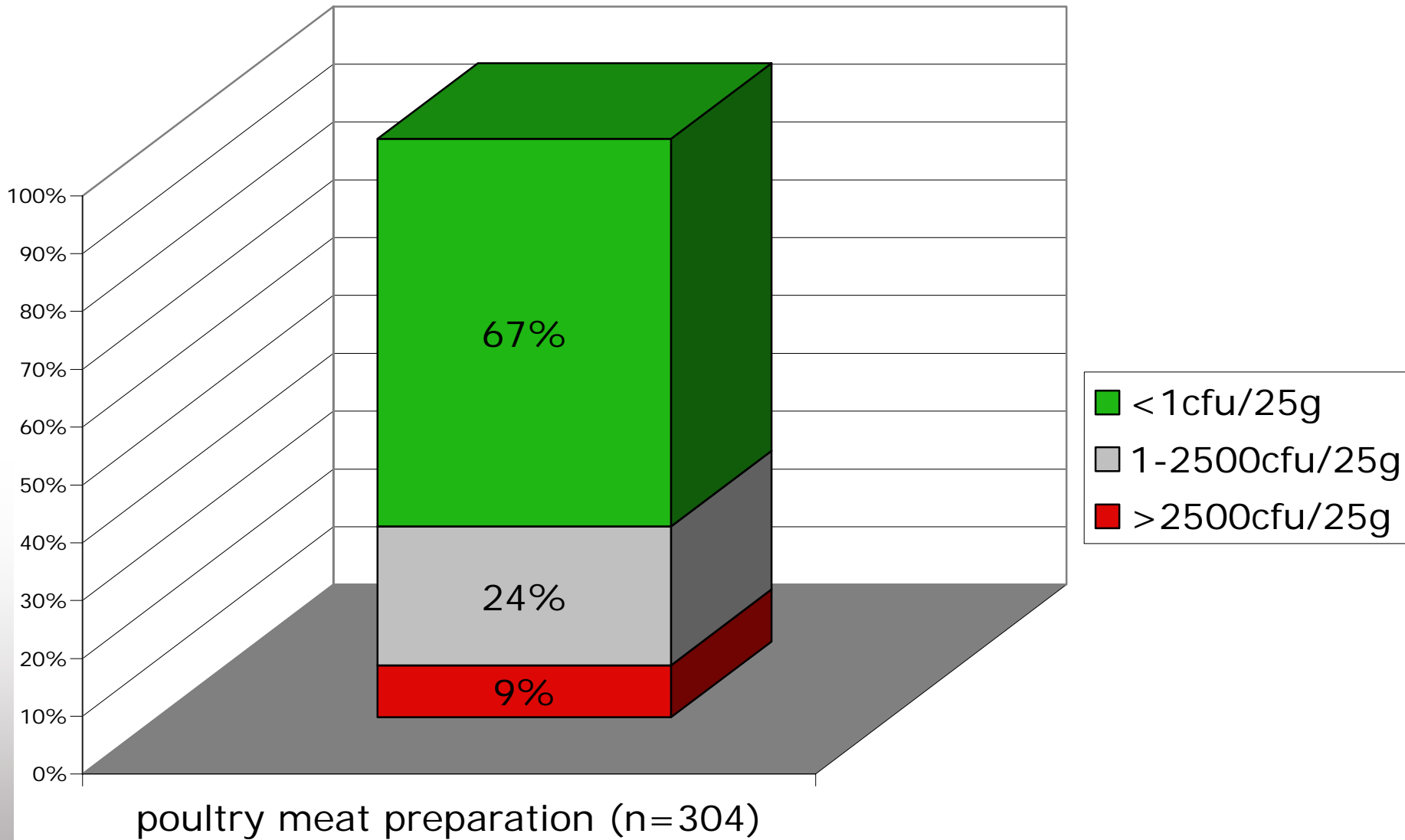
- <1cfu/25g or 600cm²
- 1-249cfu/25g or 600cm²
- >250cfu/25g or 600cm² for pork samples; 250-1499 cfu/25g for poultry samples
- >2500cfu/25g for poultry samples



Samples

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Risk assessment of *Campylobacter* in poultry meat preparation: Superior Health Council

- Elimination of highly contaminated samples
 - > 1000 *Campylobacter* / g
 - > 100 *Campylobacter* / g
- Good cooking of poultry meat



Conclusion

Importance of surveillance system & data collection

- Determination of limits
- Take into account the Belgian situation
- Risk assessment



Thanks for your attention

