

## DENMARK

The Report referred to in Article 9 of Directive 2003/99/EC

### TRENDS AND SOURCES OF ZOONOSSES AND ZOOTIC AGENTS IN HUMANS, FOODSTUFFS, ANIMALS AND FEEDSTUFFS

including information on foodborne outbreaks,  
antimicrobial resistance in zoonotic agents and some  
pathogenic microbiological agents.

## IN 2010

## INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: Denmark

Reporting Year:

Laboratory name	Description	Contribution
National Food Institute, Technical University of Denmark	The National Food Institute conducts research and gives advice on nutrition, food safety, environment and health. Our work involves the entire food chain within five primary disciplines: nutrition, chemistry, toxicology, microbiology and epidemiology. We carry out scientifically based risk assessments, give advice to Danish and international authorities and industry, monitor food consumption patterns and the national food safety situation, and provide diagnostic and analytical services. The National Food Institute is the national reference laboratory for chemical and microbial food safety and also serves as an international reference laboratory for the EU, WHO (World Health Organization) and EFSA (European Food Safety Authority) in a number of areas.	The national reporting officer is employed at the Danish Zoonosis Centre at The National Food Institute. Contributing with data and text.

## INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Laboratory name	Description	Contribution
Danish Veterinary and Food administrations (DVFA)	The Danish Veterinary and Food Administration (DVFA) is part of the Ministry of Family and Consumer Affairs. DVFA deals with food safety and health from farm to fork. The head office is situated just north of Copenhagen and handles development, co-ordination and the formation of rules and regulations. Food control and veterinary inspections are handled by three regional veterinary and food control centres. The regional centres are local knowledge centres on food issues and give information and advice to consumers, livestock owners, enterprises and practising veterinarians.	Data
Statens Serum Institut (SSI)	Statens Serum Institut is an enterprise under the Danish Ministry for Interior and Health and the Institute's duties partly integrated in the national Danish health services. Statens Serum Institut prevents and controls infectious diseases and congenital disorders.	Data
National Veterinary Institute, technical University of Denmark	The National Veterinary Institute conducts research and gives advice on animal diseases. We carry out scientifically based risk assessments, give advice to Danish and international authorities and provide diagnostic and analytical services. The Institute covers all disciplines relating to infectious diseases: pathology, bacteriology, virology, parasitology, immunology, vaccinology, serology and epidemiology. The National Veterinary Institute serves as an international reference laboratory for the EU and OIE (World Organisation for Animal Health) and gives advice EFSA (European Food Safety Authority) in a number of areas.	Data

## INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Laboratory name	Description	Contribution
Danish Plant Directorate (PDir)	The Danish Plant Directorate is a government institution under the Danish Ministry of Food, Agriculture and Fisheries. The Danish Plant Directorate concentrates on the first stage of the food chain from farm to fork. The Danish Plant Directorate lays down regulations, performs administrative functions, carries out inspections, prepares legislation, provides service to the authorities and prepares policies in its fields of competence.	Data
Danish Agriculture and Food Council (L&F)	The Danish Agriculture & Food Council represents the agricultural and food industry in Denmark and is the result of a merger between the Danish Agricultural Council, Danish Bacon and Meat Council, Danish Pig Production and Danish Agriculture. The merger also includes a major part of the business activities of the Danish Dairy Board.	Data

## PREFACE

This report is submitted to the European Commission in accordance with Article 9 of Council Directive 2003/99/ EC\*. The information has also been forwarded to the European Food Safety Authority (EFSA).

The report contains information on trends and sources of zoonoses and zoonotic agents in Denmark during the year 2010 .

The information covers the occurrence of these diseases and agents in humans, animals, foodstuffs and in some cases also in feedingstuffs. In addition the report includes data on antimicrobial resistance in some zoonotic agents and commensal bacteria as well as information on epidemiological investigations of foodborne outbreaks. Complementary data on susceptible animal populations in the country is also given. The information given covers both zoonoses that are important for the public health in the whole European Community as well as zoonoses, which are relevant on the basis of the national epidemiological situation.

The report describes the monitoring systems in place and the prevention and control strategies applied in the country. For some zoonoses this monitoring is based on legal requirements laid down by the Community Legislation, while for the other zoonoses national approaches are applied.

The report presents the results of the examinations carried out in the reporting year. A national evaluation of the epidemiological situation, with special reference to trends and sources of zoonotic infections, is given. Whenever possible, the relevance of findings in foodstuffs and animals to zoonoses cases in humans is evaluated.

The information covered by this report is used in the annual Community Summary Report on zoonoses that is published each year by EFSA.

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\* Directive 2003/ 99/ EC of the European Parliament and of the Council of 12 December 2003 on the monitoring of zoonoses and zoonotic agents, amending Decision 90/ 424/ EEC and repealing Council Directive 92/ 117/ EEC, OJ L 325, 17.11.2003, p. 31

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## 1. ANIMAL POPULATIONS

The relevance of the findings on zoonoses and zoonotic agents has to be related to the size and nature of the animal population in the country.



## A. Information on susceptible animal population

### Sources of information

Data source: The Central husbandry Register, administered under the ministry of Family and Consumer Affairs. All farmers in Denmark are obliged to report changes in production type and herds size to this database.

### Dates the figures relate to and the content of the figures

Number of livestock and herds in 31 of dec 2010.

Number of slaughtered animals are totals for 2010

### National evaluation of the numbers of susceptible population and trends in these figures

Not all farmers remember to report changes in production type and herds size, even though they are obliged to. So the database is in need of an update.

Table Susceptible animal populations

\* Only if different than current reporting year

Animal species	Category of animals	Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
		Data	Year*	Data	Year*	Data	Year*	Data	Year*
Cattle (bovine animals)	- in total	20829		496494		1631863			
Gallus gallus (fowl)	broilers	589		139753738		22065410		242	
	laying hens	271				3270000		207	
	grandparent breeding flocks for broiler production line - adult	11				80000		5	
	grandparent breeding flocks for broiler production line - during rearing period	14				90000		4	
	laying hens - during rearing period - flocks under control programme	140				1300000		83	
	parent breeding flocks for broiler production line - adult	145				710000		44	
	parent breeding flocks for broiler production line - during rearing period	90				130000		15	
	parent breeding flocks for egg production line - adult	9				30000		8	
	parent breeding flocks for egg production line - during rearing period	6				20000		5	
Goats	- in total <sup>1)</sup>	3624		2680		25368			
Pigs	fattening pigs	7731		19793743		6422624			

Table Susceptible animal populations

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	Category of animals	Data	Year*	Data	Year*	Data	Year*	Data	Year*
Pigs	breeding animals - unspecified - sows and gilts			426982					
Sheep	- in total	8629		85285		172580			
Solipeds, domestic	horses - in total			1872					
Turkeys	- in total	44		5334		483237			
Wild boars	farmed - in total			1384					

## Comments:

<sup>1)</sup> majority of animals are used in petting zoo

## 2. INFORMATION ON SPECIFIC ZONOSSES AND ZOONOTIC AGENTS

Zoonoses are diseases or infections, which are naturally transmissible directly or indirectly between animals and humans. Foodstuffs serve often as vehicles of zoonotic infections. Zoonotic agents cover viruses, bacteria, fungi, parasites or other biological entities that are likely to cause zoonoses.

## 2.1 SALMONELLOSIS

### 2.1.1 General evaluation of the national situation

#### A. General evaluation

##### History of the disease and/or infection in the country

The number of human Salmonella infections in Denmark began to rise in the mid 80s. During the following years three distinct waves of salmonellosis related to the consumption of broiler meat (peaking in 1988), pork (peaking in 1994) and table eggs (peaking in 1997) were observed. Since 1997, a steadily decreasing trend has been seen. This reduction in the incidence of human cases may to a large extent be attributed to the large-scale national efforts aimed at reducing the occurrence of Salmonella in broilers, pigs and table-egg layers raised in Denmark.

To obtain a better understanding of the dynamics of the occurrence of human Salmonella infections, a mathematical model to estimate the contribution of major animal and food sources to human infections with Salmonella has been applied. This model is based on a comparison of the number of human cases caused by different Salmonella sero- and phage types with the prevalence of Salmonella types isolated from the various animal-food sources.

##### National evaluation of the recent situation, the trends and sources of infection

In 2010, 1,598 laboratory-confirmed episodes of salmonellosis were reported corresponding to 28.7 cases per 100,000 inhabitants.

In 2010, there were 388 reported episodes of *S. Enteritidis* corresponding to an incidence of 7.0 per 100,000. There were 521 reported episodes of *S. Typhimurium* corresponding to an incidence of 9.4 per 100,000 inhabitants.

Other Salmonella serotypes accounted for 689 episodes, corresponding to an incidence of 12.4 per 100,000 inhabitants.

In the years prior to 2007, the number of cases reported as travel-related was known to be underreported. Before 2003, the number of travel-related cases among patients with unknown travel history was estimated using data from cases with a known travel history (i.e. responding yes or no to travel). However, from 2003 to 2007, this approach proved extremely difficult, since the majority (approximately 70% in 2005) of patients has no travel information. From middle of 2007 information on travel history was obtained through telephone interviews. And it was estimated that 31% of the cases was travel related in 2007.

##### Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

The Salmonella surveillance programmes for poultry, swine and cattle have clearly showed that there is a strong correlation between the number of human cases and infection level in the herds.

## 2.1.2 Salmonellosis in humans

### A. Salmonellosis in humans

#### Reporting system in place for the human cases

*Salmonella* spp. is notifiable through the laboratory surveillance system. Cases diagnosed by a clinical microbiological laboratory are reported to the Unit of Gastrointestinal Infections at Statens Serum Institut (SSI).

#### Case definition

A case is considered *Salmonella*-positive when *Salmonella* has been isolated in samples from this person, or a clinical case with an epidemiological link to a culture confirmed case.

#### Diagnostic/analytical methods used

Bacteriology followed by serotyping and sometimes genotyping

#### Notification system in place

Cases of notifiable zoonotic enteric pathogens diagnosed by a clinical microbiological laboratory are reported through the laboratory surveillance system to the Unit of Gastrointestinal Infections at SSI. The laboratories must report positive results to the SSI within one week. Further, all *Salmonella* isolates are sent to the reference laboratory at SSI for further typing. The results are recorded in the National Register of Enteric Pathogens (NREP) maintained by SSI. Positive cases are recorded as episodes, i.e. each person-infectious agent combination is only registered once in a six-month period.

#### History of the disease and/or infection in the country

The number of human *Salmonella* infections in Denmark began to rise in the mid 80s. During the following years three distinct waves of salmonellosis related to the consumption of broiler meat (peaking in 1988), pork (peaking in 1994) and table eggs (peaking in 1997) were observed. Since 1997, a steadily decreasing trend has been seen. This reduction in the incidence of human cases may to a large extent be attributed to the large-scale national efforts aimed at reducing the occurrence of *Salmonella* in broilers, pigs and table-egg layers raised in Denmark.

#### Relevance as zoonotic disease

The *Salmonella* surveillance programmes for poultry, swine and cattle have clearly showed that there is a strong correlation between the number of human cases and infection level in the herds.

## 2.1.3 Salmonella in foodstuffs

### A. Salmonella spp. in pig meat and products thereof

#### Monitoring system

##### Sampling strategy

###### At slaughterhouse and cutting plant

Monitoring is based on swab samples taken from three designated areas of chilled half-carasses. The numbers of swabs collected depend on the slaughterhouse capacity. If > 200 pigs are slaughtered per day 5 swabs are collected (pooled). If > 200 pigs are slaughtered per month 5 swabs (pooled) are collected per 200 slaughtered pigs. If 50-200 pigs are slaughtered per month 5 swabs (pooled) are collected per quarter. If < 50 pigs are slaughtered per month one swab is collected per quarter.

###### At meat processing plant

Monitoring for zoonotic pathogens in foodstuffs is coordinated both at the regional and at the central level of administration. Each Regional Veterinary and Food Control Authority (RVFCA) is responsible for the control carried out in its own region, and the Danish Veterinary and Food Administration (DVFA) is responsible for the regulation, control strategy and the surveillance at the overall national level.

###### At retail

Monitoring for zoonotic pathogens in foodstuffs is coordinated both at the regional and at the central level of administration. Each Regional Veterinary and Food Control Authority (RVFCA) is responsible for the control carried out in its own region, and the Danish Veterinary and Food Administration (DVFA) is responsible for the regulation, control strategy and the surveillance at the overall national level.

#### Frequency of the sampling

##### At slaughterhouse and cutting plant

Depend on the slaughterhouse capacity

##### At meat processing plant

Depend on the survey

##### At retail

Depend on the survey

#### Type of specimen taken

##### At slaughterhouse and cutting plant

Surface of carcass

##### At meat processing plant

Depend on the survey

##### At retail

Depend on the survey

#### Methods of sampling (description of sampling techniques)

##### At slaughterhouse and cutting plant

The carcass are swabbed in three designated areas, the jaw, breast and ham using a 16-layers sterile 10x10 cm gauze. Each area covering 10x10cm.

At meat processing plant

Depend on the survey

At retail

Depend on the survey

#### Definition of positive finding

At slaughterhouse and cutting plant

A sample is considered positive when Salmonella has been isolated

At meat processing plant

A sample is considered positive when Salmonella has been isolated

At retail

A sample is considered positive when Salmonella has been isolated

#### Diagnostic/analytical methods used

At slaughterhouse and cutting plant

Depend on the laboratory

At meat processing plant

Depend on the survey

At retail

Depend on the survey

#### Control program/mechanisms

The control program/strategies in place

The Salmonella surveillance programme is mandatory and detection of Salmonella spp. is notifiable to the Danish Food and Veterinary Administration.

Recent actions taken to control the zoonoses

None

Suggestions to the Community for the actions to be taken

None

#### Notification system in place

The Salmonella surveillance programme is mandatory and detection of Salmonella spp. is notifiable to the Danish Food and Veterinary Administration.

#### Results of the investigation

In 2010, 22,485 swab samples were collected and pooled and the prevalence of Salmonella in single swab samples was estimated to be 1,2% (When determining the prevalence of pooled samples, the loss of sensitivity and the probability of more than one sample being positive in each pool are taken into consideration when estimating the animal prevalence).

An additional 223 samples were collected from slaughterhouses with a small production and were analysed individually. Of these samples, 1,8% were positive for Salmonella. As in previous years, the most common serotypes observed were S. Typhimurium, S. Derby and S. Infantis.





## B. Salmonella spp. in bovine meat and products thereof

### Monitoring system

#### Sampling strategy

##### At slaughterhouse and cutting plant

Monitoring is based on swab samples taken from three designated areas of chilled half-car casses.

##### At meat processing plant

Monitoring for zoonotic pathogens in foodstuffs is coordinated both at the regional and at the central level of administration. Each Regional Veterinary and Food Control Authority (RVFCA) is responsible for the control carried out in its own region, and the Danish Veterinary and Food Administration (DVFA) is responsible for the regulation, control strategy and the surveillance at the overall national level.

##### At retail

Monitoring for zoonotic pathogens in foodstuffs is coordinated both at the regional and at the central level of administration. Each RVFCA is responsible for the control carried out in its own region, and the DVFA is responsible for the regulation, control strategy and the surveillance at the overall national level.

#### Frequency of the sampling

##### At slaughterhouse and cutting plant

>200 animals/day = 5 swaps/day pooled into one analysis. >200 animals/month or ≤200 animals/day = 5 swaps/200 animals pooled into one analysis. 50<animal<200/month = 5 samples/quarter pooled into one analysis. 50>animals/month= 1 sample/quarter

##### At meat processing plant

Depend on the survey

##### At retail

Depend on the survey

#### Type of specimen taken

##### At slaughterhouse and cutting plant

Surface of carcass

##### At meat processing plant

Depend on the survey

##### At retail

Depend of the survey

#### Methods of sampling (description of sampling techniques)

##### At slaughterhouse and cutting plant

The carcass are swabed in three designated areas (the rump, breast and flank) after 12 hours of chilling using a 16-layers sterile 10x10 cm gauze. Each area covering 10x10cm.

##### At meat processing plant

Depend on the survey

##### At retail

Depend on the survey

#### Definition of positive finding

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### At slaughterhouse and cutting plant

A sample is considered positive when Salmonella has been isolated

### At meat processing plant

A sample is considered positive when Salmonella has been isolated

### At retail

A sample is considered positive when Salmonella has been isolated

## Diagnostic/analytical methods used

### At slaughterhouse and cutting plant

Depend on the laboratory

### At meat processing plant

Depend on the survey

### At retail

Depend on the survey

## Control program/mechanisms

### The control program/strategies in place

The Salmonella surveillance programme is mandatory and detection of Salmonella spp. is notifiable to the DFVA.

### Recent actions taken to control the zoonoses

None

### Suggestions to the Community for the actions to be taken

None

## Notification system in place

The Salmonella surveillance programme is mandatory and detection of Salmonella spp. is notifiable to the DFVA.

## Results of the investigation

In 2010, 7660 samples were pooled and the prevalence of Salmonella was estimated to be 0.3% after using the conversion factor

(When determining the prevalence of pooled samples, the loss of sensitivity and the probability of more than one sample being positive in each pool are taken into consideration when estimating the animal prevalence).

An additional 162 samples were collected from slaughterhouses with a smaller production and analysed individually. All samples were negative. In total, S. Dublin was isolated from the majority of positive samples

## Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

## C. Salmonella spp. in broiler meat and products thereof

### Monitoring system

#### Sampling strategy

##### At slaughterhouse and cutting plant

A control and eradication programme is running. Last adjusted in Jan 2009.

All AM positive flocks are heat treated.

##### At meat processing plant

Monitoring for zoonotic pathogens in foodstuffs is coordinated both at the regional and at the central level of administration. Each RVFCA is responsible for the control carried out in its own region, and the DVFA is responsible for the regulation, control strategy and the surveillance at the overall national level.

##### At retail

Monitoring for zoonotic pathogens in foodstuffs is coordinated both at the regional and at the central level of administration. Each RVFCA is responsible for the control carried out in its own region, and the DVFA is responsible for the regulation, control strategy and the surveillance at the overall national level.

#### Frequency of the sampling

##### At slaughterhouse and cutting plant

Other: slaughterhouses slaughtering only AM negative flocks: sample 1 flock a week (300 neckskin samples of 1 g, pooled into subsamples of 60). Slaughterhouses slaughtering AM positive flocks as well as AM negative flocks: sample all flocks on days when positive flocks are slaughtered as well (300 neckskin samples of 1 g, pooled into subsamples of 60) and sample one flocks on days when no positive flocks are slaughtered (300 neckskin samples of 1 g, pooled into subsamples of 60)

##### At meat processing plant

Depend on the survey

##### At retail

Depend on the survey

#### Type of specimen taken

##### At slaughterhouse and cutting plant

Fresh meat

##### At meat processing plant

depend on the survey

##### At retail

Depend on the survey

#### Methods of sampling (description of sampling techniques)

##### At slaughterhouse and cutting plant

Random sampling of neckskin samples

##### At meat processing plant

Depend on the survey

##### At retail

Depend on the survey

### Definition of positive finding

#### At slaughterhouse and cutting plant

A sample is considered positive when Salmonella has been isolated

#### At meat processing plant

A sample is considered positive when Salmonella has been isolated

#### At retail

A sample is considered positive when Salmonella has been isolated

### Diagnostic/analytical methods used

#### At slaughterhouse and cutting plant

Depend on the laboratory

#### At meat processing plant

Depend on the survey

#### At retail

Depend on the survey

### Preventive measures in place

At the slaughterhouse: AM positive flocks are slaughtered at the end of the day. Special hygienic measures apply

At retail: compliance with the microbiological criteria

### Control program/mechanisms

#### The control program/strategies in place

The national Salmonella control programme for poultry implemented in 1988 and adjusted in 1996, 2000 and 2008. The Salmonella surveillance programme is mandatory.

#### Recent actions taken to control the zoonoses

In 2008 an extra sock sample at the farm was introduced, intensified sampling of AM negative flocks slaughtered at slaughterhouses where AM positive flocks are also slaughtered, and mandatory heat treatment of all positive flocks at slaughter was introduced

### Measures in case of the positive findings or single cases

When Salmonella is detected in a sample, the DFVA must be notified

### Notification system in place

The Salmonella surveillance programme is mandatory and detection of Salmonella sp. is notifiable to the DFVA

### Results of the investigation

In 2010, a total of 346 slaughterbatches were tested and 1 batch was found positive.

### National evaluation of the recent situation, the trends and sources of infection

Generally the level of Salmonella has been declining during the last many years. With the new measures in place at the farm (an extra sock sample was introduced) as well as at slaughter (heat treatment and intensified sampling) we expect a further decline in the coming years.

### Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

Findings of Salmonella in poultry is highly relevant as a source of Salmonella in food and humans



## D. Salmonella spp. in eggs and egg products

### Monitoring system

#### Sampling strategy

The national Salmonella control programme for eggs was implemented in 1996-1997. Eggs are only tested at the producer level. In Denmark the breeder and layer flocks are tested many times during the production period and tested based on serology. Too high serological reaction will result in suspicious sampling at the farm by sock samples

### Preventive measures in place

All shell eggs are distributed in a cold chain (not exceeding 12°C) and kept refrigerated at retail; eggs are generally refrigerated in private homes.

### National evaluation of the recent situation, the trends and sources of infection

The level of Salmonella-contaminated shell eggs has not been measured from the initiation of the control program. However, a year before the program began, a study of 13,000 eggs from different types of production determined the level to be 1 per 1,000 eggs (20% of the contaminated eggs harbored S. Enteritidis)

## E. Salmonella spp. in turkey meat and products thereof

### Monitoring system

#### Sampling strategy

##### At slaughterhouse and cutting plant

Monitoring for zoonotic pathogens in foodstuffs is coordinated both at the regional and at the central level of administration. Each Regional Veterinary and Food Control Authority (RVFCA) is responsible for the control carried out in its own region, and the Danish Veterinary and Food Administration (DVFA) is responsible for the regulation, control strategy and the surveillance at the overall national level.

Since 2004 very few turkeys are slaughtered in Denmark, as the only major turkey slaughterhouse closed. Turkeys raised in Denmark were hereafter transported abroad for slaughter.

##### At meat processing plant

Monitoring for zoonotic pathogens in foodstuffs is coordinated both at the regional and at the central level of administration. Each Regional Veterinary and Food Control Authority (RVFCA) is responsible for the control carried out in its own region, and the Danish Veterinary and Food Administration (DVFA) is responsible for the regulation, control strategy and the surveillance at the overall national level.

##### At retail

Monitoring for zoonotic pathogens in foodstuffs is coordinated both at the regional and at the central level of administration. Each Regional Veterinary and Food Control Authority (RVFCA) is responsible for the control carried out in its own region, and the Danish Veterinary and Food Administration (DVFA) is responsible for the regulation, control strategy and the surveillance at the overall national level.

#### Frequency of the sampling

##### At slaughterhouse and cutting plant

Depend on the survey

##### At meat processing plant

Depend on the survey

##### At retail

Depend on the survey

#### Type of specimen taken

##### At slaughterhouse and cutting plant

Depend on the survey

##### At meat processing plant

Depend on the survey

##### At retail

Depend on the survey

#### Methods of sampling (description of sampling techniques)

##### At slaughterhouse and cutting plant

Depend on the survey

##### At meat processing plant

Depend on survey



## Denmark - 2010 Report on trends and sources of zoonoses

At retail

Depend on survey

### Definition of positive finding

At slaughterhouse and cutting plant

A sample is considered positive when Salmonella has been isolated.

At meat processing plant

A sample is considered positive when Salmonella has been isolated.

At retail

A sample is considered positive when Salmonella has been isolated.

### Diagnostic/analytical methods used

At meat processing plant

Depend on survey

At retail

Depend on survey

### Notification system in place

The Salmonella surveillance programme is mandatory and detection of Salmonella spp. is notifiable to the Danish Food and Veterinary Administration (DFVA).

### Results of the investigation

Since 2004, turkeys are no longer slaughtered commercially in Denmark, as the only major turkey slaughterhouse closed. Most turkeys raised in Denmark are hereafter transported abroad for slaughter.

### National evaluation of the recent situation, the trends and sources of infection

A part of the Danish produced turkey meat is probably re-imported.

Table Salmonella in poultry meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Meat from broilers (Gallus gallus) - fresh - with skin - at slaughterhouse - animal sample - neck skin - Control and eradication programmes - industry sampling - objective sampling	DAFC	Batch	60g	346	1	1		

The following amendments were made:

Date of Modification	Row name	Column name	Old value	New value
2011-12-14	Meat from broilers (Gallus gallus) - fresh - with skin - at slaughterhouse - animal sample - neck skin - Control and eradication programmes - industry sampling - objective sampling	Sample weight		60g

Table Salmonella in red meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	Salmonella spp.
Meat from bovine animals - fresh - at slaughterhouse	-	---	-	0	0	0	0		0
Meat from pig - fresh - at slaughterhouse	-	---	-	0	0		0		0
Meat from bovine animals - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling <sup>1)</sup>	DFVA	Single	3x100cm2	7660	13		2		11
Meat from pig - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling <sup>2)</sup>	DFVA	Single	3x100cm2	22485	154		48		106

## Comments:

1) \_

2) \_

The following amendments were made:

Date of Modification	Row name	Column name	Old value	New value
2011-12-14	Meat from pig - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Sample weight	300cm2	3x100cm2
	Meat from bovine animals - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Sample weight	300cm2	3x100cm2
	Meat from bovine animals - fresh - at slaughterhouse	Sample weight		-
	Meat from bovine animals - fresh - at slaughterhouse	S. Enteritidis		0
	Meat from bovine animals - fresh - at slaughterhouse	Salmonella spp.	11	0
	Meat from bovine animals - fresh - at slaughterhouse	S. Typhimurium	2	0
	Meat from bovine animals - fresh - at slaughterhouse	Sampling unit	Single	---
	Meat from bovine animals - fresh - at slaughterhouse	Total units positive for Salmonella	13	0
	Meat from bovine animals - fresh - at slaughterhouse	Units tested	7660	0
	Meat from bovine animals - fresh - at slaughterhouse	Source of information	DFVA	-
	Meat from pig - fresh - at slaughterhouse	Sample weight		-
	Meat from pig - fresh - at slaughterhouse	Total units positive for Salmonella	154	0
	Meat from pig - fresh - at slaughterhouse	Salmonella spp.	106	0

Date of Modification	Row name	Column name	Old value	New value
2011-12-14	Meat from pig - fresh - at slaughterhouse	Sampling unit	Single	---
	Meat from pig - fresh - at slaughterhouse	Source of information	DFVA	-
	Meat from pig - fresh - at slaughterhouse	Units tested	22485	0
	Meat from pig - fresh - at slaughterhouse	S. Typhimurium	48	0
	Meat from bovine animals - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	S. Typhimurium		2
	Meat from bovine animals - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Source of information		DFVA
	Meat from bovine animals - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Sampling unit		Single
	Meat from bovine animals - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Salmonella spp.		11
	Meat from bovine animals - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Total units positive for Salmonella		13
	Meat from bovine animals - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Units tested		7660

Date of Modification	Row name	Column name	Old value	New value
2011-12-14	Meat from bovine animals - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Comment		-
	Meat from bovine animals - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Sample weight		300cm2
	Meat from pig - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Source of information	DFVF	DFVA
	Meat from pig - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Total units positive for Salmonella		154
	Meat from pig - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Units tested		22485
	Meat from pig - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	S. Typhimurium		48
	Meat from pig - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Salmonella spp.		106
	Meat from pig - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Source of information		DFVF

Date of Modification	Row name	Column name	Old value	New value
2011-12-14	Meat from pig - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Comment		-
	Meat from pig - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Sampling unit		Single
	Meat from pig - carcass - chilled - at slaughterhouse - animal sample - carcass swabs - Control and eradication programmes - industry sampling - objective sampling	Sample weight		300cm2

## 2.1.4 Salmonella in animals

### A. Salmonella spp. in Gallus Gallus - breeding flocks

#### Monitoring system

##### Frequency of the sampling

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

Every flock is sampled

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

Other: Parents-Per Unit: week: 1,2,4,8 and 2 weeks prior to moving. Grand parents-Per unit: week: 4,8 and 2 weeks prior to moving

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Production period

Other: Parent - per unit: every week; Grandparents- per unit: 0-4 weeks before moving 0-8 week before slaughter

##### Type of specimen taken

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

Internal linings of delivery boxes

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

Socks/ boot swabs

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Production period

Socks/ boot swabs

##### Case definition

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

A sample positive with Salmonella

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

A sample positive with Salmonella

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Production period

A sample positive with Salmonella

##### Diagnostic/analytical methods used

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

Depend on the laboratory

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

Depend on the laboratory

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Production period

Depend on the laboratory

#### Vaccination policy

Breeding flocks (separate elite, grand parent and parent flocks when necessary)



Not allowed in Denmark

Other preventive measures than vaccination in place

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

Preventive treatment with antibiotics is not allowed

## B. Salmonella spp. in Gallus Gallus - broiler flocks

### Monitoring system

#### Sampling strategy

##### Broiler flocks

From 2008, all broiler flocks are tested twice during rearing period. 15-21 days and 7-10 days before slaughter at the farm using sock samples

#### Frequency of the sampling

##### Broiler flocks: Rearing period

Every flock is sampled

##### Broiler flocks: Before slaughter at farm

Every flock is sampled

#### Type of specimen taken

##### Broiler flocks: Rearing period

Socks/ boot swabs

##### Broiler flocks: Before slaughter at farm

Socks/ boot swabs

#### Case definition

##### Broiler flocks: Rearing period

A positive case is a flocks found positive in the laboratory

##### Broiler flocks: Before slaughter at farm

A positive case is a flocks found positive in the laboratory

#### Diagnostic/analytical methods used

##### Broiler flocks: Rearing period

Depend on the laboratory

##### Broiler flocks: Before slaughter at farm

Depend on the laboratory

### Vaccination policy

#### Broiler flocks

Not allowed in Denmark

### Other preventive measures than vaccination in place

#### Broiler flocks

Preventive treatment with antimicrobials is not allowed in Denmark

### Control program/mechanisms

#### The control program/strategies in place

##### Broiler flocks

All broiler flocks are sampled two times at the farm unless the flock is declared positive after the first sample. All positive flocks are slaughtered at the same slaughterhouse in Denmark and heat treated after slaughter.

## Measures in case of the positive findings or single cases

### Broiler flocks: Rearing period

If the flock is positive, the flock will be slaughtered under special hygienic precautions and the meat is heat treated. At the farm special hygienic actions are taken.

### Broiler flocks: Before slaughter at farm

If the flock is positive, the flock will be slaughtered under special hygienic precautions and the meat is heat treated. At the farm special hygienic actions are taken.

## Notification system in place

Salmonella sp is notifiable to the Danish veterinary and food administration

## Results of the investigation

In 2010, 3773 flocks were tested and 43 were positive. Additionally, five parent flocks out of 200 were positive during production period. No parent flocks were reported positive during rearing period.

## National evaluation of the recent situation, the trends and sources of infection

The level of Salmonella in the broiler production is very low and has been so for many years.

## C. Salmonella spp. in Gallus Gallus - flocks of laying hens

### Monitoring system

#### Frequency of the sampling

Laying hens: Day-old chicks

Every flock is sampled

Laying hens: Rearing period

4 weeks and 2 weeks before moving

Laying hens: Production period

Every 9 weeks starting at 24 weeks

Laying hens: Before slaughter at farm

Every flock is sampled

Laying hens: At slaughter

Other: AM negative flocks slaughtered at slaughterhouses where only AM negative flocks are slaughtered: 1 flocks a week. AM negative flocks slaughtered at slaughterhouses slaughtering both AM positive and negative flocks: All slaughter batches are sampled. AM positive flocks have to be heat treated at slaughter

#### Type of specimen taken

Laying hens: Day-old chicks

Internal linings of delivery boxes

Laying hens: Rearing period

Socks/ boot swabs

Laying hens: Production period

At 24 weeks: Dust samples and socks/ boot swabs

Laying hens: Before slaughter at farm

Socks/ boot swabs

Laying hens: At slaughter

Neck skin

### Case definition

Laying hens: Day-old chicks

A positive case is a flock where Salmonella has been detected in the laboratory

Laying hens: Rearing period

A positive case is a flock where Salmonella has been detected in the laboratory

Laying hens: Production period

A positive case is a flock where Salmonella has been detected in the laboratory

Laying hens: Before slaughter at farm

A positive case is a flock where Salmonella has been detected in the laboratory

Laying hens: At slaughter

A positive case is a flock where Salmonella has been detected in the laboratory

#### Diagnostic/analytical methods used

Laying hens: Day-old chicks

Depend of the Laboratory

Laying hens: Rearing period

Depend of the Laboratory

Laying hens: Production period

Depend of the Laboratory

Laying hens: Before slaughter at farm

Depend of the Laboratory

Laying hens: At slaughter

Depend of the Laboratory

#### Vaccination policy

Laying hens flocks

Vaccination is not permitted

#### Other preventive measures than vaccination in place

Laying hens flocks

Preventive treatment with Antibiotics is not allowed

#### Control program/mechanisms

The control program/strategies in place

Laying hens flocks

The first national Salmonella control programme for egg production was implemented in 1996-1997 and has been adjusted over the years. The programme is mandatory

#### Measures in case of the positive findings or single cases

Laying hens flocks

If the flock is positive, all eggs have to be heat treated and the flocks will be slaughtered under special hygienic precautions and the meat is heat treated. At the farm, an epidemiological investigation must be undertaken and special hygienic actions are taken.

#### Notification system in place

Detection of Salmonella sp is notifiable and must be reported to the Danish Food and Veterinary Administration (DFVA)

#### Results of the investigation

In 2010, 455 flocks were tested and 8 were positive with Salmonella.

#### National evaluation of the recent situation, the trends and sources of infection

The Salmonella situation in Denmark in the poultry production is very good and Denmark has applied to the EU for a special status.

## D. Salmonella spp. in bovine animals

### Monitoring system

#### Sampling strategy

A voluntary national programme for surveillance of S. Dublin was established in 2002. In 2010, the programme for eradication of S. Dublin from the Danish cattle production was intensified. This implies a new category of level 2 (level 2R) where the most contagious herds in this level are placed under official restrictions by the veterinary authorities.

The herds are assigned to one of three levels based on serological results from tank milk samples taken by the dairy and blood samples from randomly selected animals taken at the slaughterhouse. Bloodsamples can also be requested on account of contact with a herd assigned to a more infectious level.

Bacteriological testing of herds in level 2 and 3 is voluntary, but in case of clinically symptoms of Salmonella bacteriological confirmation tests must be conducted.

The programme is based on serological testing of blood and milk samples collected for the BVD and IBR surveillance programmes.

#### Frequency of the sampling

##### Animals at farm

Milk producing-herd: 4 tank milk samples, distributed over 13 months. Non-milk producing herd: 8 blood samples (at farm or slaughter)

##### Animals at slaughter (herd based approach)

Non-milk producing herd: 8 blood samples (at farm or slaughter)

#### Type of specimen taken

##### Animals at farm

Milk and blood. Sick animals: faecal samples

##### Animals at slaughter (herd based approach)

Blood

#### Methods of sampling (description of sampling techniques)

##### Animals at farm

Serological testing on tank milk-samples and blood samples.

Faecal samples from calves or sick animals.

##### Animals at slaughter (herd based approach)

Milk producing herds:  
four tank milk samples taken within a period of 13 months, min. 3 weeks inbetween.

Non-milk producing herds:  
Blood samples from animals collected at the farm or the slaughterhouse.

#### Case definition

##### Animals at farm

A sample is considered positive when Salmonella has been isolated.

#### Animals at slaughter (herd based approach)

Dairy herds are classified most likely S. Dublin free (level 1) if: 1) The results of the latest four bulk-milk test may not exceed an average antibody level of 25 OD%, 2) the latest bulk-milk sample may not exceed the average of the three previous samples with more than 20 OD%, 3) S. Dublin has not been isolated from any samples collected from the farm within the previous three months.

Farms with cattle for the meat production must meet the same obligations, but instead of bulk milk samples all blood samples must be beneath 50 OD%.

#### Diagnostic/analytical methods used

##### Animals at slaughter (herd based approach)

Mix-ELISA

#### Vaccination policy

#### Control program/mechanisms

##### The control program/strategies in place

This programme divides the cattle herds into three levels. Level 1: Most likely S. Dublin free, level 2: S. Dublin is most likely present, or the herd has unknown status, and finally, level 3: S. Dublin has been isolated from the herd, or the herd owner has purchased animals from a known level 3 herd.

This is a voluntary programme, but herds not included cannot sell animals to other herds. It is recommended that herds only purchase animals from level 1.

All trade of live cattle is recorded in a national database. After trade or other contact between cattle herds with different S. Dublin levels, the receiving herds will be placed in the highest level for three months.

Detection of multi-resistant Salmonella Typhimurium DT104 (MRDT104) in Cattle herds is notifiable. Animals are slaughtered under special hygienic precautions and an epidemiological investigation of the herd and its trade contacts are performed.

##### Notification system in place

The Salmonella surveillance programme is mandatory and detection of Salmonella spp. is notifiable to the Danish Food and Veterinary Administration (DFVA).

##### Results of the investigation

In January 2011, 10.0 % of milk-producing and 6.0% of non-milk producing herds were classified into level 2.

##### Additional information

It is well known that S. Dublin serum are transferred with the milk from the S. Dublin infected milk-producing cow to the new born calves and again around day 17 after birth.

## E. Salmonella spp. in ducks - breeding flocks and meat production flocks

### Monitoring system

#### Sampling strategy

##### Meat production flocks

Feecal samples (primarily as sock/boot swabs) are collected at the farm prior to slaughter.

#### Frequency of the sampling

Meat production flocks: Before slaughter at farm

Max 3 weeks before

#### Type of specimen taken

Meat production flocks: Before slaughter at farm

Socks/ boot swabs

#### Methods of sampling (description of sampling techniques)

Meat production flocks: Before slaughter at farm

Two pairs of sock/boot swabs are collected from each flock. The samples are analysed individually

#### Case definition

Meat production flocks: Before slaughter at farm

A sample is considered positive when Salmonella has been isolated.

#### Diagnostic/analytical methods used

Meat production flocks: Before slaughter at farm

Depend on the laboratory

### Vaccination policy

#### Breeding flocks

No Salmonella vaccinations occur.

#### Meat production flocks

No Salmonella vaccinations occur.

### Control program/mechanisms

#### The control program/strategies in place

##### Meat production flocks

The Salmonella surveillance programme is mandatory and detection of Salmonella spp. is notifiable to the Danish Veterinary and Food Administration (DFVA).

### Measures in case of the positive findings or single cases

When Salmonella is detected in a sample, the DFVA must be notified

### Notification system in place

The Salmonella surveillance programme is mandatory and detection of Salmonella spp. is notifiable to the DFVA.

### Results of the investigation

In 2007, the only Danish slaughter house slaughtering ducks was closed and therefore the majority of duck flocks are now being exported as live animals. In 2010, 108 flocks were tested for Salmonella and



56,5% were positive.

National evaluation of the recent situation, the trends and sources of infection

F. Salmonella spp. in geese - breeding flocks and meat production flocks

Additional information

The production of geese in Denmark is limited.

## G. Salmonella spp. in pigs

### Monitoring system

#### Sampling strategy

##### Breeding herds

Every month, blood samples from ten randomly selected young females (4-7 months old) are serologically tested. If the salmonella index, calculated as the average of OD-values for three months (last months average have higher weight than the two previous) are  $\geq 5$ , bacteriologic confirmatory testing is carried out at the farm.

In case of clinically symptoms of Salmonella bacteriological confirmation tests must be conducted.

The surveillance programme for detection of Salmonella infection in pig herds was implemented in the beginning of 1995.

##### Multiplying herds

Every month, blood samples from ten randomly selected young females (4-7 months old) are serologically tested. If the salmonella index, calculated as the average of OD-values for three months (last months average have higher weight than the two previous) are  $\geq 5$ , bacteriologic confirmatory testing is carried out at the farm.

In case of clinically symptoms of Salmonella bacteriological confirmation tests must be conducted.

The surveillance programme for detection of Salmonella infection in pig herds was implemented in the beginning of 1995.

##### Fattening herds

Slaughter pig herds are monitored continuously by serologic testing of meat juice at the slaughter house. Random meat samples for testing are collected at the slaughter line, where the number of samples and frequency of sampling per farm are determined by the size of the herd.

A Salmonella index is calculated for each finisher herd based on the weighted average Salmonella values ( $SV = OD\% \text{ minus } 10$ ) from the previous 3 months, where results from the current month weigh three times as much as the two previous ones.

Every month, finisher herds are assigned to one of three levels according to their Salmonella index: Level 1: no action required; Level 2: herd intervention necessary; Level 3: herd intervention and increased hygienic precautions during slaughter are implemented. Herds with  $40 \leq \text{index} < 70$  are assigned to Level 2; herds with index  $\geq 70$  are assigned to Level 3.

Herds placed in Level 2 or Level 3 will have bacteriologic confirmatory testing carried out. Herds supplying pigs to finisher herds in Levels 2 or 3 will also have bacteriologic confirmatory testing carried out.

In case of clinically symptoms of Salmonella bacteriological confirmation tests must be conducted.

The surveillance programme for detection of Salmonella infection in pig herds was implemented in the beginning of 1995.

#### Frequency of the sampling

Breeding herds

Once a month, and when needed

Multiplying herds

Once a month, and when needed

Fattening herds at farm

When needed

Fattening herds at slaughterhouse (herd based approach)

Depend on herd size

Type of specimen taken

Breeding herds

Blood and faeces

Multiplying herds

Blood and faeces

Fattening herds at farm

Faeces

Fattening herds at slaughterhouse (herd based approach)

Meat juice

Methods of sampling (description of sampling techniques)

Breeding herds

Every month, blood samples from ten randomly selected young females 4-7 months are collected. If the salmonella index, calculated as the average of OD-values for three months (last months average have higher weight than the two previous) are  $\geq 5$ , faecal samples are requested.

The number of faecal samples depend on the herds size. Herds with  $> 400$  animals collect 20 samples (5 pools) and herds with 100-400 animals collect 4-16 samples (1-4 pools).

Multiplying herds

Every month, blood samples from ten randomly selected young females 4-7 months are collected. If the salmonella index, calculated as the average of OD-values for three months (last months average have higher weight than the two previous) are  $\geq 5$ , faecal samples are requested.

The number of faecal samples depend on the herds size. Herds with  $> 400$  animals collect 20 samples (5 pools) and herds with 100-400 animals collect 4-16 samples (1-4 pools).

Fattening herds at farm

Herds placed in Level 2 or Level 3 must collect faecal samples at the farm. The number of samples depend on the herds size. Herds with  $> 400$  animals collect 20 samples (5 pools) and herds with 100-400 animals collect 4-16 samples (1-4 pools).

Fattening herds at slaughterhouse (herd based approach)

Random meat samples are collected in meat juice containers at the slaughter line. Depending on the herd size, 60-100 random samples will be collected from each herd. Herds producing less than 200 slaughter pigs per year are not tested.

Case definition

#### Breeding herds

A herd is considered positive when Salmonella has been isolated from faecal samples.

#### Multiplying herds

A herd is considered positive when Salmonella has been isolated from faecal samples.

#### Fattening herds at farm

A herd is considered positive when Salmonella has been isolated from faecal samples.

#### Fattening herds at slaughterhouse (herd based approach)

An individual sample is considered seropositive if OD% >20.

### Diagnostic/analytical methods used

#### Breeding herds

Bacteriological and serological

#### Multiplying herds

Bacteriological and serological

### Vaccination policy

#### Breeding herds

No salmonella vaccination occur

#### Multiplying herds

No salmonella vaccination occur

#### Fattening herds

No salmonella vaccination occur

### Other preventive measures than vaccination in place

#### Breeding herds

### Control program/mechanisms

#### The control program/strategies in place

##### Breeding herds

Each month, a serological breeder- and multiplier index (BM-index) is calculated for each herd, based on the mean serological reaction from the last three months. The index gives more weight to the results from the more recent months (1:3:6). If the BM-index exceeds 5, it is mandatory to collect pen-faecal samples for Salmonella analysis and the herd owner must inform buyers of breeding animals about the infection level and Salmonella type in the herd.

##### Multiplying herds

Each month, a serological breeder- and multiplier index (BM-index) is calculated for each herd, based on the mean serological reaction from the last three months. The index gives more weight to the results from the more recent months (1:3:6). If the BM-index exceeds 5, it is mandatory to collect pen-faecal samples for Salmonella analysis and the herd owner must inform buyers of breeding animals about the infection level and Salmonella type in the herd.

##### Fattening herds

Surveillance by serological testing of meat juice samples is carried out in herds producing more than 200 slaughter pigs per year. Each month, a serological slaughter pig index (SP-index) is calculated for each

herd, based on the proportion of seropositive meat juice samples from the last three months. The index gives more weight to the results from the most recent month (1:1:3). The SP-index serve to assign the slaughter pig herds to one of three infection levels:

- ; Herds in Level 1 have none or only a small proportion of positive samples,
- ; Herds in Level 2 have a higher proportion of positive samples,
- ; Herds in Level 3 have an unacceptably high proportion of positive samples.

In July 2005, the surveillance system was changed into a risk-based surveillance, following which the sample size in herds with a SP-index of zero (no positive samples the previous 3 months) was reduced to one sample per month.

### Measures in case of the positive findings or single cases

If the salmonella index(three-months average OD-values)in breeder and multiplier herds is  $\geq 5$ , the owners must inform all buyers before the animals are transported.

Herds in Levels 2 and 3 will get a 2% and 4% reduction in payment for finishers sent for slaughter, covering the costs of special hygienic slaughtering procedures.

### Notification system in place

The Salmonella surveillance programme is mandatory and detection of Salmonella spp. is notifiable to the Danish Food and Veterinary Administration (DFVA).

### Results of the investigation

By the end of the year 2010, 3.1 % and 1.1% of the herds were assigned to Level 2 and 3, respectively.

### Additional information

Herds with clinical disease, represents the number of herds submitting material from clinically affected animals to the laboratory with findings of Salmonella.

## H. Salmonella spp. in turkey - breeding flocks and meat production flocks

### Monitoring system

#### Sampling strategy

##### Meat production flocks

Since 2004 very few turkey flocks are slaughtered in Denmark, as the only major turkey slaughterhouse closed. Turkeys raised in Denmark were hereafter transported abroad for slaughter.

#### Frequency of the sampling

Meat production flocks: Before slaughter at farm

max 3 weeks

#### Type of specimen taken

Meat production flocks: Before slaughter at farm

Socks/ boot swabs

#### Methods of sampling (description of sampling techniques)

Meat production flocks: Before slaughter at farm

2 pairs of sock/boot swabs per flock. Analysed individually

#### Case definition

Meat production flocks: Before slaughter at farm

A sample is considered positive when Salmonella has been isolated.

### Control program/mechanisms

#### The control program/strategies in place

Meat production flocks

Mandatory AM examination

### Measures in case of the positive findings or single cases

When Salmonella is detected in a sample, the DFVA must be notified

### Notification system in place

The Salmonella surveillance programme is mandatory and detection of Salmonella spp. is notifiable to the Danish Food and Veterinary Administration (DFVA).

### Results of the investigation

In 2010, 24 flocks were tested for Salmonella and one flock was positive.

### National evaluation of the recent situation, the trends and sources of infection

.

### Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

A part of the Danish produced turkey meat is probalby reimported.

I. Salmonella spp. in animal - Wildlife

Monitoring system

Sampling strategy

Hunters, veterinarians and the public submit wild animals to the national Veterinary Institute.



Table Salmonella in breeding flocks of Gallus gallus

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Hadar	S. Infantis	S. Typhimurium	S. Virchow	S. 1,4,[5],12:i:-
Gallus gallus (fowl) - grandparent breeding flocks for broiler production line - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	18	DAFC	Flock	18	0						
Gallus gallus (fowl) - grandparent breeding flocks for broiler production line - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	7	DAFC	Flock	7	0						
Gallus gallus (fowl) - parent breeding flocks for broiler production line - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	200	DAFC	Flock	200	5			2	3		
Gallus gallus (fowl) - parent breeding flocks for broiler production line - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	126	DAFC	Flock	126	0						
Gallus gallus (fowl) - parent breeding flocks for egg production line - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	9	DAFC	Flock	9	0						
Gallus gallus (fowl) - parent breeding flocks for egg production line - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	15	DAFC	Flock	15	0						

Table Salmonella in breeding flocks of Gallus gallus

	Salmonella spp., unspecified
Gallus gallus (fowl) - grandparent breeding flocks for broiler production line - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	
Gallus gallus (fowl) - grandparent breeding flocks for broiler production line - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	
Gallus gallus (fowl) - parent breeding flocks for broiler production line - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	
Gallus gallus (fowl) - parent breeding flocks for broiler production line - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	
Gallus gallus (fowl) - parent breeding flocks for egg production line - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	
Gallus gallus (fowl) - parent breeding flocks for egg production line - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	

Table Salmonella in breeding flocks of Gallus gallus

Table Salmonella in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Derby	S. II 56:b:-	S. Newport
Badgers - wild - Clinical investigations	Vet-DTU	Animal	11	0							
Birds - wild - Clinical investigations	Vet-DTU	Animal	37	4		2		1	1		
Birds - zoo animal - Clinical investigations	Vet-DTU	Animal	4	1		1					
Cats - pet animals - Clinical investigations	Vet-DTU	Animal	1	0							
Dogs - pet animals - Clinical investigations	Vet-DTU	Animal	9	1				1			
Foxes - wild - Clinical investigations	Vet-DTU	Animal	16	1		1					
Hedgehogs - wild - Clinical investigations	Vet-DTU	Animal	34	26	17	1		8			
Minks - wild - Clinical investigations	Vet-DTU	Animal	7	1				1			
Monkeys - zoo animal - Clinical investigations (chimpanzee)	Vet-DTU	Animal	1	0							
Otter - Clinical investigations	Vet-DTU	Animal	1	0							
Pigs - breeding animals - raised under controlled housing conditions - at farm - animal sample - blood - Surveillance - official controls - objective sampling (serology)	DFVA	Herd	188	15				15			
Pigs - fattening pigs - raised under controlled housing conditions - at slaughterhouse - animal sample - meat juice - Surveillance - official controls - objective sampling (serology)	DFVA	Herd	7823	330				330			
Raccoon dogs - wild - Clinical investigations	Vet-DTU	Animal	24	3	1	1		1			
Reptiles - zoo animal - Clinical investigations	Vet-DTU	Animal	12	4				1		2	1
Squirrels - wild - Clinical investigations	Vet-DTU	Animal	1	0							

Table Salmonella in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Derby	S. II 56:b:-	S. Newport
Wild animals - Clinical investigations (stoat)	Vet-DTU	Animal	1	0							
Zoo animals, all - Clinical investigations (sloth)	Vet-DTU	Animal	1	1				1			
Zoo animals, all - Clinical investigations (unspecified zoo mammals)	Vet-DTU	Animal	4	0							

Table Salmonella in other poultry

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. 4,12:i:-	S. 4,5,12:i:-
Ducks - meat production flocks - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - objective sampling	108	DAFC	Flock	108	61		10		6		
Gallus gallus (fowl) - broilers - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling <sup>1)</sup>	3773	DAFC	Flock	3773	43	1	10			1	1
Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - industry sampling - census	455	DAFC	Flock	455	5	3					
Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	455	DAFC	Flock	455	8	4	1				
Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - objective sampling	455	DAFC	Flock	455	1						
Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - suspect sampling	455	DAFC	Flock	30	2	1	1				
Gallus gallus (fowl) - laying hens - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling	225	DAFC	Flock	225	0						

Table Salmonella in other poultry

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. 4,12:i:-	S. 4,5,12:i:-
Turkeys - meat production flocks - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - objective sampling	24	DAFC	Flock	24	1						
	S. Anatum	S. Derby	S. Indiana	S. Infantis	S. Livingstone	S. Mbandaka	S. Meleagridis	S. Morehead	S. Muenchen	S. Regent	S. Richmond
Ducks - meat production flocks - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - objective sampling	22		5				2			16	
Gallus gallus (fowl) - broilers - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling <sup>1)</sup>		6	7	6	1	1		1	1		1
Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - industry sampling - census				2							
Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling				3							
Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - objective sampling				1							

Table Salmonella in other poultry

	S. Anatum	S. Derby	S. Indiana	S. Infantis	S. Livingstone	S. Mbandaka	S. Meleagridis	S. Morehead	S. Muenchen	S. Regent	S. Richmond
Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - suspect sampling											
Gallus gallus (fowl) - laying hens - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling											
Turkeys - meat production flocks - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - objective sampling											
	S. Saintpaul	S. Senftenberg	S. Tennessee								
Ducks - meat production flocks - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - objective sampling											
Gallus gallus (fowl) - broilers - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling <sup>1)</sup>		1	7								



Table Salmonella in other poultry

	S. Saintpaul	S. Senftenberg	S. Tennessee
Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - industry sampling - census			
Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling			
Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - objective sampling			
Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - suspect sampling			
Gallus gallus (fowl) - laying hens - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling			
Turkeys - meat production flocks - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - objective sampling	1		

## Comments:

<sup>1)</sup> 2 flocks are infected with more than one serovar

Table Salmonella in other poultry

## 2.1.5 Salmonella in feedingstuffs

### A. Salmonella spp. in feed

#### National evaluation of the recent situation, the trends and sources of infection

After the EU regulation on feed hygiene (1831/2003) came into force in 2006, the feed companies have developed and implemented HACCP based quality systems which includes regular monitoring for Salmonella at their identified CCP's.

After this change in the responsibilities of the seed business operators, the official surveys have been mainly risk based.

#### Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

The most common serotypes isolated from feeding stuff is relatively uncommon among the human cases.

#### Recent actions taken to control the zoonoses

The Danish Plant Directorate inspects all feed compounders at risk for the presence of Salmonella. The EU regulation on feed hygiene (1831/2003) came into force in January 2006 and the Danish Plant Directorate changed focus from control of the feed to control of the responsibility of the feed business operators. Therefore fewer samples are collected by the Danish Plant Directorate and more samples are collected by the feed business operators as part of their own check system. In 2004, 2005 and 2010, the Danish Plant Directorate sampled large ships of soy bean meal, but this sampling is done routinely by the importers.

In 2010, the Plant Direktorat decided to address the focus for the actions to be taken on 5-10 specified serotypes. These serotypes were chosen based on either their high frequency of diagnosis in human cases or the health impact on individuals infected by the specific serotype.

The routine inspection of feed includes:

- ; The presence of Salmonella in compound feed is indirectly monitored by the environmental samples collected during feed processing. Companies are sampled 1 to 2 times a year depending on their individual risk profile.
- ; Sampling of feed materials at risk (predominantly soy bean meal and rapeseed cake). 200 samples per year.

Table Salmonella in compound feedingstuffs

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	S. Kentucky
Pet food - dog snacks (pig ears, chewing bones)	PDIR	Single	25 g	2	1				1
Compound feedingstuffs for pigs - process control - at feed mill - Monitoring	PDIR	Single	25 g	350	0				

Table Salmonella in feed material of animal origin

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Feed material of land animal origin - meat meal - at feed mill - Monitoring	PDIR	Batch	25 g	1	0			
Feed material of marine animal origin - fish meal - at feed mill - Monitoring	PDIR	Batch	25 g	4	0			
Feed material of marine animal origin - other fish products - at feed mill - Monitoring	PDIR	Batch	25 g	1	0			

Footnote:

All samples are from feed that is not heat treated and the feed is delivered directly to farms.

Table Salmonella in other feed matter

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	S. Agona	S. California	S. Havana
Feed material of cereal grain origin - barley derived - at feed mill - Monitoring	PDIR	Batch	25 g	6	0						
Feed material of cereal grain origin - other cereal grain derived - at feed mill - Monitoring	PDIR	Batch	25 g	2	0						
Feed material of oil seed or fruit origin - rape seed derived - at feed mill - Monitoring	PDIR	Batch	25 g	97	6						4
Feed material of oil seed or fruit origin - soya (bean) derived - at feed mill - Monitoring	PDIR	Batch	25 g	247	15			1		1	
Feed material of oil seed or fruit origin - sunflower seed derived - at feed mill - Monitoring	PDIR	Batch	25 g	10	1				1		
Other feed material - tubers, roots and similar products - at feed mill - Monitoring	PDIR	Batch	25 g	3	0						

	S. Livingstone	S. Mbandaka	S. Minnesota	S. Montevideo	S. Putten	S. Rissen	S. Senftenberg
Feed material of cereal grain origin - barley derived - at feed mill - Monitoring							
Feed material of cereal grain origin - other cereal grain derived - at feed mill - Monitoring							
Feed material of oil seed or fruit origin - rape seed derived - at feed mill - Monitoring					2		
Feed material of oil seed or fruit origin - soya (bean) derived - at feed mill - Monitoring	3	1	1	1		1	6

Table Salmonella in other feed matter

	S. Livingstone	S. Mbandaka	S. Minnesota	S. Montevideo	S. Putten	S. Rissen	S. Senftenberg
Feed material of oil seed or fruit origin - sunflower seed derived - at feed mill - Monitoring							
Other feed material - tubers, roots and similar products - at feed mill - Monitoring							

## Footnote:

All samples is from feed that is not heat treated and the feed is delivered directly to farms.

## 2.1.6 Salmonella serovars and phagetype distribution

The methods of collecting, isolating and testing of the Salmonella isolates are described in the chapters above respectively for each animal species, foodstuffs and humans. The serotype and phagetype distributions can be used to investigate the sources of the Salmonella infections in humans. Findings of same serovars and phagetypes in human cases and in foodstuffs or animals may indicate that the food category or animal species in question serves as a source of human infections. However as information is not available from all potential sources of infections, conclusions have to be drawn with caution.

Table Salmonella serovars in animals

Serovar	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Sources of isolates													
Number of isolates in the laboratory													
Number of isolates serotyped	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of isolates per serovar													
S. 4,12:i:-													
S. 4,5,12:i:-													
S. Anatum													
S. Derby													
S. Enteritidis													
S. Indiana													



Table Salmonella serovars in animals

Serovar	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Sources of isolates													
Number of isolates in the laboratory													
Number of isolates serotyped	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of isolates per serovar													
S. Infantis													
S. Livingstone													
S. Mbandaka													
S. Meleagridis													
S. Morehead													
S. Muenchen													
S. Regent													
S. Richmond													
S. Saintpaul													
S. Senftenberg													
S. Tennessee													

Table Salmonella serovars in animals

Serovar	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Sources of isolates													
Number of isolates in the laboratory													
Number of isolates serotyped	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of isolates per serovar													
S. Typhimurium													
Salmonella spp.													

Serovar	Other poultry			Ducks - meat production flocks - before slaughter - at farm - environmental sample - boot swabs - Monitoring - industry sampling - objective sampling				Gallus gallus (fowl) - broilers - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling (2 flocks are infected with more than one serovar)				Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - census	
	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring
Sources of isolates													
Number of isolates in the laboratory					61			45				8	
Number of isolates serotyped	0	0	0	0	61	0	0	45	0	0	0	8	0
Number of isolates per serovar													
S. 4,12:i:-								1					
S. 4,5,12:i:-								1					

Table Salmonella serovars in animals

Serovar	Other poultry			Ducks - meat production flocks - before slaughter - at farm - environmental sample - boot swabs - Monitoring - industry sampling - objective sampling			Gallus gallus (fowl) - broilers - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling (2 flocks are infected with more than one serovar)				Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - census		
	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring
Sources of isolates													
Number of isolates in the laboratory					61			45				8	
Number of isolates serotyped	0	0	0	0	61	0	0	45	0	0	0	8	0
Number of isolates per serovar													
S. Anatum					22								
S. Derby								6					
S. Enteritidis								1				4	
S. Indiana					5			7					
S. Infantis								6				3	
S. Livingstone								1					
S. Mbandaka								1					
S. Meleagridis					2								
S. Morehead								1					

Table Salmonella serovars in animals

Serovar	Other poultry			Ducks - meat production flocks - before slaughter - at farm - environmental sample - boot swabs - Monitoring - industry sampling - objective sampling			Gallus gallus (fowl) - broilers - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - objective sampling (2 flocks are infected with more than one serovar)				Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - census		
	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring
Sources of isolates													
Number of isolates in the laboratory					61			45				8	
Number of isolates serotyped	0	0	0	0	61	0	0	45	0	0	0	8	0
Number of isolates per serovar													
S. Muenchen								1					
S. Regent					16								
S. Richmond								1					
S. Saintpaul													
S. Senftenberg								1					
S. Tennessee								7					
S. Typhimurium					10			10				1	
Salmonella spp.					6								

Table Salmonella serovars in animals

Serovar	Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - census		Turkeys - meat production flocks - before slaughter - at farm - environmental sample - boot swabs - Monitoring - industry sampling - objective sampling			
	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Sources of isolates						
Number of isolates in the laboratory				1		
Number of isolates serotyped	0	0	0	1	0	0
Number of isolates per serovar						
S. 4,12:i:-						
S. 4,5,12:i:-						
S. Anatum						
S. Derby						
S. Enteritidis						
S. Indiana						
S. Infantis						
S. Livingstone						
S. Mbandaka						

Table Salmonella serovars in animals

Serovar	Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - census		Turkeys - meat production flocks - before slaughter - at farm - environmental sample - boot swabs - Monitoring - industry sampling - objective sampling			
	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Sources of isolates						
Number of isolates in the laboratory				1		
Number of isolates serotyped	0	0	0	1	0	0
Number of isolates per serovar						
S. Meleagridis						
S. Morehead						
S. Muenchen						
S. Regent						
S. Richmond						
S. Saintpaul				1		
S. Senftenberg						
S. Tennessee						
S. Typhimurium						

Table Salmonella serovars in animals

Serovar	Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - census		Turkeys - meat production flocks - before slaughter - at farm - environmental sample - boot swabs - Monitoring - industry sampling - objective sampling			
	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Sources of isolates						
Number of isolates in the laboratory				1		
Number of isolates serotyped	0	0	0	1	0	0
Number of isolates per serovar						
Salmonella spp.						

Table Salmonella serovars in feed

Serovar	Compound feedingstuffs for pigs		Feed material of oil seed or fruit origin - rape seed derived		Feed material of oil seed or fruit origin - soya (bean) derived		Feed material of oil seed or fruit origin - sunflower seed derived		Pet food - dog snacks (pig ears, chewing bones)	
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
Sources of isolates										
Number of isolates in the laboratory			6		15		1		1	
Number of isolates serotyped	0	0	6	0	15	0	1	0	1	0
Number of isolates per serovar										
Salmonella spp., unspecified					1					
S. Agona							1			
S. California					1					
S. Havana			4							
S. Kentucky									1	
S. Livingstone					3					
S. Mbandaka					1					
S. Minnesota					1					
S. Montevideo					1					
S. Putten			2							



Table Salmonella serovars in feed

Serovar	Compound feedingstuffs for pigs		Feed material of oil seed or fruit origin - rape seed derived		Feed material of oil seed or fruit origin - soya (bean) derived		Feed material of oil seed or fruit origin - sunflower seed derived		Pet food - dog snacks (pig ears, chewing bones)	
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
Sources of isolates										
Number of isolates in the laboratory			6		15		1		1	
Number of isolates serotyped	0	0	6	0	15	0	1	0	1	0
Number of isolates per serovar										
S. Rissen					1					
S. Senftenberg					6					

Table Salmonella serovars in food

Serovar	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Meat from other poultry species		Other products of animal origin	
	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance
Sources of isolates										
Number of isolates in the laboratory	13		154		1					
Number of isolates serotyped	13	0	154	0	1	0	0	0	0	0
Number of isolates per serovar										
Not typeable	2		29							
S. 4,12:-:1,2			1							
S. 4,5,12:-:-			1							
S. 9,12:lv:-			4							
S. Brandenburg			2							
S. Derby	1		45							
S. Dublin	5									
S. Enteritidis					1					
S. Falkensee			1							
S. Give			1							
S. Infantis			10							

Table Salmonella serovars in food

Serovar	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Meat from other poultry species		Other products of animal origin	
	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance
Sources of isolates										
Number of isolates in the laboratory	13		154		1					
Number of isolates serotyped	13	0	154	0	1	0	0	0	0	0
Number of isolates per serovar										
S. Livingstone			3							
S. London			5							
S. Typhimurium	2		48							
Salmonella spp.	3		4							

Table Salmonella Enteritidis phage types in animals

Phagetype	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Sources of isolates													
Number of isolates in the laboratory													
Number of isolates phagetyped	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of isolates per phagetype													
PT 1b													
PT 8													

Phagetype	Other poultry			Gallus gallus (fowl) - broilers - during rearing period - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - objective sampling				Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes			
	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Sources of isolates											
Number of isolates in the laboratory				1				4			
Number of isolates phagetyped	0	0	0	1	0	0	0	4	0	0	0
Number of isolates per phagetype											
PT 1b				1							
PT 8								4			

Table Salmonella Enteritidis phagetypes in animals

Table Salmonella Enteritidis phagetypes in food

Phagetype	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Meat from other poultry species		Other products of animal origin		Meat from broilers (Gallus gallus) - fresh - with skin - at slaughterhouse - animal sample - neck skin - Control and eradication programmes - industry sampling - selective sampling	
	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance
Sources of isolates												
Number of isolates in the laboratory												1
Number of isolates phagetyped	0	0	0	0	0	0	0	0	0	0	0	1
Number of isolates per phagetype												
PT 1												1

Table Salmonella Typhimurium phage types in animals

Phagetype	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Sources of isolates													
Number of isolates in the laboratory													
Number of isolates phagetyped	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of isolates per phagetype													
DT 104													
DT 120													
DT 15a													
DT 193													
DT 41													
Not typeable													

Table Salmonella Typhimurium phagetypes in animals

Phagetype	Other poultry			Ducks - meat production flocks - at farm - environmental sample - boot swabs - Control and eradication programmes - official sampling - objective sampling			Gallus gallus (fowl) - breeding flocks for broiler production line - adult - at farm - environmental sample - boot swabs - Surveillance - official controls - objective sampling				Gallus gallus (fowl) - broilers - before slaughter - at farm - animal sample - faeces - Control and eradication programmes - official sampling - census		
	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring
Sources of isolates													
Number of isolates in the laboratory				10							3	10	
Number of isolates phagetyped	0	0	0	10	0	0	0	0	0	0	3	10	0
Number of isolates per phagetype													
DT 104												1	
DT 120												5	
DT 15a												1	
DT 193												1	
DT 41				8							3	2	
Not typeable				2									



Table Salmonella Typhimurium phage types in animals

Phagetype	Gallus gallus (fowl) - broilers - before slaughter - at farm - animal sample - faeces - Control and eradication programmes - official sampling - census		Gallus gallus (fowl) - laying hens - adult - at farm - environmental sample - boot swabs - Control and eradication programmes			
	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Sources of isolates						
Number of isolates in the laboratory			1			
Number of isolates phagetyped	0	0	1	0	0	0
Number of isolates per phagetype						
DT 104						
DT 120						
DT 15a						
DT 193						
DT 41			1			
Not typeable						

## 2.1.7 Antimicrobial resistance in Salmonella isolates

### A. Antimicrobial resistance in Salmonella in cattle

#### Sampling strategy used in monitoring

##### Frequency of the sampling

Salmonella isolates are collected from animals with clinical salmonellosis. Sampling is based on suspicion due to clinical symptoms.

##### Type of specimen taken

Primarily faecal samples.

##### Procedures for the selection of isolates for antimicrobial testing

All S. Typhimurium and S. Enteritidis isolates are susceptibility tested.

##### Methods used for collecting data

Isolates tested at laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD).

#### Laboratory used for detection for resistance

##### Antimicrobials included in monitoring

See tables

##### Cut-off values used in testing

See tables

#### Preventive measures in place

None

#### Control program/mechanisms

##### The control program/strategies in place

Detection of multi-resistant Salmonella Typhimurium DT104 (MRDT104) in Cattle herds is notifiable. The herds are placed under official veterinary supervision an epidemiological investigation of the herd and its trade contacts are performed.

##### Recent actions taken to control the zoonoses

None

#### Measures in case of the positive findings or single cases

Animals are slaughtered under special hygienic precautions.

#### Results of the investigation

See tables

## B. Antimicrobial resistance in Salmonella in foodstuff derived from cattle

### Sampling strategy used in monitoring

#### Frequency of the sampling

The Salmonella isolates from Danish pork and beef originate from the Salmonella surveillance programme at the slaughter houses, comprising swab samples of pork and beef carcasses taken at the slaughterhouses after cooling.

The numbers of swabs collected depend on the slaughterhouse capacity. If > 200 animals are slaughtered per day 5 swabs are collected (pooled). If > 200 animals are slaughtered per month 5 swabs (pooled) are collected per 200 slaughtered animals. If 50-200 animals are slaughtered per month 5 swabs (pooled) are collected every 3rd month. If < 50 animals are slaughtered per month one swab is collected every 3rd month.

#### Type of specimen taken

Carcass swabs in three designated areas (3x100cm<sup>2</sup>) after 12 hours chilling.

#### Procedures for the selection of isolates for antimicrobial testing

All *S. Typhimurium* and *S. Enteritidis* isolates are susceptibility tested.

#### Methods used for collecting data

All *S. Typhimurium* and *S. Enteritidis* isolates tested at the laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Only reported to EFSA if 15 isolates or more.

### Laboratory used for detection for resistance

#### Antimicrobials included in monitoring

See tables

#### Cut-off values used in testing

See tables

### Preventive measures in place

None

### Control program/mechanisms

#### The control program/strategies in place

The Salmonella surveillance programme is mandatory and detection of *Salmonella* spp. is notifiable to the Danish Food and Veterinary Administration.

#### Recent actions taken to control the zoonoses

None

### Measures in case of the positive findings or single cases

When *Salmonella* is detected in a sample, the DFVA must be notified, and if levels in a specific slaughter house are high, actions will be taken to identify the source. No specific actions regarding antimicrobial resistance.

### Results of the investigation

See tables

## C. Antimicrobial resistance in Salmonella in foodstuff derived from pigs

### Sampling strategy used in monitoring

#### Frequency of the sampling

The Salmonella isolates from Danish pork and beef originate from the Salmonella surveillance programme at the slaughter houses, comprising swab samples of pork and beef carcasses taken at the slaughterhouses after cooling.

The numbers of swabs collected depend on the slaughterhouse capacity. If > 200 animals are slaughtered per day 5 swabs are collected (pooled). If > 200 animals are slaughtered per month 5 swabs (pooled) are collected per 200 slaughtered animals. If 50-200 animals are slaughtered per month 5 swabs (pooled) are collected every 3rd month. If < 50 animals are slaughtered per month one swab is collected every 3rd month.

#### Type of specimen taken

Carcass swabs in three designated areas (3x100cm<sup>2</sup>) after 12 hours chilling.

#### Procedures for the selection of isolates for antimicrobial testing

All *S. Typhimurium* and *S. Enteritidis* isolates are susceptibility tested.

#### Methods used for collecting data

All *S. Typhimurium* and *S. Enteritidis* isolates tested at the laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Only reported to EFSA if 15 isolates or more.

### Laboratory used for detection for resistance

#### Antimicrobials included in monitoring

See tables

#### Cut-off values used in testing

See tables

### Preventive measures in place

None

### Control program/mechanisms

#### The control program/strategies in place

The Salmonella surveillance programme is mandatory and detection of Salmonella spp. is notifiable to the Danish Food and Veterinary Administration. Animals from herds with high serology are slaughtered under special hygienic conditions, and there is a reduction in the payment.

#### Recent actions taken to control the zoonoses

None

### Measures in case of the positive findings or single cases

When Salmonella is detected in a sample, the DFVA must be notified, and levels in a specific slaughter house are high, actions will be taken to identify the source. No specific actions regarding antimicrobial resistance.

### Notification system in place

### Results of the investigation

See tables



D. Antimicrobial resistance in Salmonella in foodstuff derived from poultry

Results of the investigation

No results from susceptibility testing of poultry meat samples were available for 2010.

## E. Antimicrobial resistance in Salmonella in pigs

### Sampling strategy used in monitoring

#### Frequency of the sampling

Salmonella isolates are collected from sub-clinical infections detected via the serological surveillance program well as from herds with clinical salmonellosis. Sampling is based on suspicion either due to high serology or clinical symptoms.

#### Type of specimen taken

Primarily faecal samples.

#### Procedures for the selection of isolates for antimicrobial testing

All S. Typhimurium and S. Enteritidis isolates are susceptibility tested.

#### Methods used for collecting data

One isolate per herd per year if S. Typhimurium or S. Enteritidis. Results only reported to EFSA if 15 isolates or more.

### Laboratory methodology used for identification of the microbial isolates

### Laboratory used for detection for resistance

#### Antimicrobials included in monitoring

See tables

#### Cut-off values used in testing

See tables

### Preventive measures in place

None

### Control program/mechanisms

#### The control program/strategies in place

The majority of the Salmonella isolates from pigs originates from the Danish Salmonella surveillance programmes: The results of a serosurveillance at the slaughterhouses and in all breeding herds appoint risk herds to be further examined by analyzing pen-faecal samples 1) from finisher herds at level 2 and level 3 farms (i.e. farms with high level of S. Typhimurium antibodies in three successive months in meat juice samples taken at slaughter), 2) from related (supplying) sow herds, and finally 3) from breeding and multiplier herds with high serum levels in three monthly samples.

#### Recent actions taken to control the zoonoses

None

### Measures in case of the positive findings or single cases

Positive findings are reported to the Danish Veterinary and Food Administration. Animals from herds with high serology are slaughtered under special hygienic conditions, and there is a reduction in the payment. In high risk breeder and multiplier herds, the owners must inform all buyers before the animals are transported. No specific actions regarding antimicrobial resistance.

### Results of the investigation

See tables





## F. Antimicrobial resistance of Salmonella spp. in Animals Gallus gallus (fowl) - laying hens

### Sampling strategy used in monitoring

#### Frequency of the sampling

Salmonella isolates originate from infected flocks detected via the national control program, mainly from subclinical cases of salmonellosis.

During rearing Flocks are tested as day-old chicks, 4 weeks, two weeks before moving. During production flocks are tested at week 24 and every 9th week thereafter.

#### Type of specimen taken

Faecal/dust samples or boot swabs.

#### Procedures for the selection of isolates for antimicrobial testing

One isolate per flock per serotype were susceptibility tested.

#### Methods used for collecting data

All isolates from positive flocks were tested at laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Data reported as required by Decision 2007/407/EC.

### Laboratory used for detection for resistance

#### Antimicrobials included in monitoring

See tables

#### Cut-off values used in testing

See tables

### Control program/mechanisms

#### The control program/strategies in place

The Salmonella Monitoring and control programme is mandatory and detection of Salmonella spp. is notifiable to the Danish Food and Veterinary Administration. Programme according to Regulation (EC) No 2160/2003, meeting the sampling requirements set out by Regulation (EC) No 1168/2006.

### Measures in case of the positive findings or single cases

If the flock is positive, all eggs have to be heat treated and the flocks will be slaughtered under special hygienic precautions and the meat is heat treated. At the farm, an epidemiological investigation must be undertaken and special hygienic actions are taken. (Regulation (EC) 2160/2003). No specific actions regarding antimicrobial resistance.

### Results of the investigation

See tables

## G. Antimicrobial resistance of Salmonella spp. in Animals Gallus gallus (fowl) - broilers

### Sampling strategy used in monitoring

#### Frequency of the sampling

Salmonella isolates originate from infected flocks detected via the national control program, mainly from subclinical cases of salmonellosis. Flocks are tested twice before slaughter (15-21 days and 7-10 days before).

#### Type of specimen taken

Boot swabs (5 pairs.)

#### Procedures for the selection of isolates for antimicrobial testing

One isolate per flock per serotype were susceptibility tested.

#### Methods used for collecting data

All isolates from positive flocks were tested at laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Data reported as required by Decision 2007/407/EC.

### Laboratory used for detection for resistance

#### Antimicrobials included in monitoring

See tables

#### Cut-off values used in testing

See tables

### Control program/mechanisms

#### The control program/strategies in place

The Salmonella Monitoring and control programme is mandatory and detection of Salmonella spp. is notifiable to the Danish Food and Veterinary Administration. Programme according to Regulation (EC) No 2160/2003, meeting the sampling requirements set out by Regulation (EC) No 646/2007.

### Measures in case of the positive findings or single cases

If the flock is positive, after slaughter the meat is heat treated. At the farm, an epidemiological investigation must be undertaken and special hygienic actions are taken. No specific actions regarding antimicrobial resistance.

### Results of the investigation

See tables

## H. Antimicrobial resistance of Salmonella spp. in Animals Turkeys

### Sampling strategy used in monitoring

#### Frequency of the sampling

Salmonella isolates originate from infected flocks detected via the national control program, mainly from subclinical cases of salmonellosis. Flocks are tested 1-3 weeks before slaughter. In Denmark most turkeys are slaughtered abroad, hence almost no sampling.

#### Type of specimen taken

Boot swabs (2 pairs.)

#### Procedures for the selection of isolates for antimicrobial testing

One isolate per flock per serotype were susceptibility tested.

#### Methods used for collecting data

All isolates from positive flocks were tested at laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Data reported as required by Decision 2007/407/EC.

### Laboratory used for detection for resistance

#### Antimicrobials included in monitoring

See tables

#### Cut-off values used in testing

See tables

### Control program/mechanisms

#### The control program/strategies in place

The Salmonella Monitoring and control programme is mandatory and detection of Salmonella spp. is notifiable to the Danish Food and Veterinary Administration.

### Measures in case of the positive findings or single cases

No specific actions regarding antimicrobial resistance.

### Results of the investigation

See tables

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - Not typeable in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

Not typeable	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	5	0																			5					
Amphenicols - Florfenicol	16	5	0																			5					
Tetracyclines - Tetracycline	8	5	1																	4							
Fluoroquinolones - Ciprofloxacin	0.06	5	0			2		3																			
Quinolones - Nalidixic acid	16	5	0																			5					
Trimethoprim	2	5	0															5									
Aminoglycosides - Streptomycin	32	5	3																					2			
Aminoglycosides - Gentamicin	2	5	0													4		1									
Aminoglycosides - Neomycin	4	5	0																	4		1					
Penicillins - Ampicillin	8	5	2															3									
Cephalosporins - Cefotaxim	0.5	5	0									5															
Aminoglycosides - Apramycin	16	5	0																			5					
Aminoglycosides - Spectinomycin	64	5	1																								
Cephalosporins - Ceftiofur	2	5	0													3		2									
Polymyxins - Colistin	2	5	0															5									
Sulphonamides - Sulfamethoxazol	256	5	3																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - Not typeable in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

Not typeable	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin						1	2											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			2															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		3		1					1									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				2									3					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 15a in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 15a	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	1	0																			1						
Amphenicols - Florfenicol	16	1	0																			1						
Tetracyclines - Tetracycline	8	1	0																	1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																			1						
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	0																							1		
Aminoglycosides - Gentamicin	2	1	0													1												
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	0															1										
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																			1						
Aminoglycosides - Spectinomycin	64	1	0																									
Cephalosporins - Ceftiofur	2	1	0															1										
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	0																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 15a in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 15a	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 170 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 170		Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																											
		Isolates out of a monitoring program (yes/no)																											
		Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16			
Amphenicols - Chloramphenicol	16	1	0																			1							
Amphenicols - Florfenicol	16	1	0																			1							
Tetracyclines - Tetracycline	8	1	0																	1									
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																					
Quinolones - Nalidixic acid	16	1	0																			1							
Trimethoprim	2	1	0															1											
Aminoglycosides - Streptomycin	32	1	0																							1			
Aminoglycosides - Gentamicin	2	1	0													1													
Aminoglycosides - Neomycin	4	1	0																	1									
Penicillins - Ampicillin	8	1	0															1											
Cephalosporins - Cefotaxim	0.5	1	0									1																	
Aminoglycosides - Apramycin	16	1	0																			1							
Aminoglycosides - Spectinomycin	64	1	0																										
Cephalosporins - Ceftiofur	2	1	0													1													
Polymyxins - Colistin	2	1	0															1											
Sulphonamides - Sulfamethoxazol	256	1	0																										



Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 170 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 170	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin				1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 17 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 17	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	20	0																			9		11				
Amphenicols - Florfenicol	16	20	0																			19		1				
Tetracyclines - Tetracycline	8	20	0																	20								
Fluoroquinolones - Ciprofloxacin	0.06	20	0					20																				
Quinolones - Nalidixic acid	16	20	0																			19		1				
Trimethoprim	2	20	0															20										
Aminoglycosides - Streptomycin	32	20	1																					8		10		
Aminoglycosides - Gentamicin	2	20	0													18		2										
Aminoglycosides - Neomycin	4	20	0																	20								
Penicillins - Ampicillin	8	20	0															18		2								
Cephalosporins - Cefotaxim	0.5	20	0									20																
Aminoglycosides - Apramycin	16	20	0																			18		2				
Aminoglycosides - Spectinomycin	64	20	0																									
Cephalosporins - Ceftiofur	2	20	0													7		13										
Polymyxins - Colistin	2	20	0															20										
Sulphonamides - Sulfamethoxazol	256	20	0																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 17 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 17	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin		1		1														8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		18		2														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				20														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 104 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 104	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	1	1																									
Amphenicols - Florfenicol	16	1	0																								1	
Tetracyclines - Tetracycline	8	1	1																									
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																						
Quinolones - Nalidixic acid	16	1	0																			1						
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	1																									
Aminoglycosides - Gentamicin	2	1	0													1												
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	1																									
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																			1						
Aminoglycosides - Spectinomycin	64	1	1																									
Cephalosporins - Ceftiofur	2	1	0													1												
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	1																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 104 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 104   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol					1													2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin							1											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin								1										16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol													1					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 323 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

U 323	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16
Amphenicols - Chloramphenicol	16	8	0																			5		3			
Amphenicols - Florfenicol	16	8	0																			8					
Tetracyclines - Tetracycline	8	8	0																	8							
Fluoroquinolones - Ciprofloxacin	0.06	8	0					7		1																	
Quinolones - Nalidixic acid	16	8	0																			4		4			
Trimethoprim	2	8	0															8									
Aminoglycosides - Streptomycin	32	8	7																							1	
Aminoglycosides - Gentamicin	2	8	0													4		4									
Aminoglycosides - Neomycin	4	8	0																	8							
Penicillins - Ampicillin	8	8	6															2									
Cephalosporins - Cefotaxim	0.5	8	0									8															
Aminoglycosides - Apramycin	16	8	0																			6		2			
Aminoglycosides - Spectinomycin	64	8	0																								
Cephalosporins - Ceftiofur	2	8	0													5		3									
Polymyxins - Colistin	2	8	0															8									
Sulphonamides - Sulfamethoxazol	256	8	7																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 323 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

U 323   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin							7											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			6															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		3		5														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1									7					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 302 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

U 302	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	1	0																			1						
Amphenicols - Florfenicol	16	1	0																			1						
Tetracyclines - Tetracycline	8	1	0																	1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																			1						
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	0																					1				
Aminoglycosides - Gentamicin	2	1	0												1													
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	0																	1								
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																			1						
Aminoglycosides - Spectinomycin	64	1	0																									
Cephalosporins - Ceftiofur	2	1	0															1										
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	0																									



Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 302 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

U 302	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Typhimurium	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	2	0																			1		1			
Amphenicols - Florfenicol	16	2	0																			1		1			
Tetracyclines - Tetracycline	8	2	2																								
Fluoroquinolones - Ciprofloxacin	0.06	2	0					1		1																	
Quinolones - Nalidixic acid	16	2	0																			1		1			
Trimethoprim	2	2	0															2									
Aminoglycosides - Streptomycin	32	2	1																							1	
Aminoglycosides - Gentamicin	2	2	0													1		1									
Aminoglycosides - Neomycin	4	2	0																	2							
Penicillins - Ampicillin	8	2	2																								
Cephalosporins - Cefotaxim	0.5	2	0									1		1													
Aminoglycosides - Apramycin	16	2	0																			2					
Aminoglycosides - Spectinomycin	64	2	0																								
Cephalosporins - Ceftiofur	2	2	0															1		1							
Polymyxins - Colistin	2	2	0															2									
Sulphonamides - Sulfamethoxazol	256	2	1																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

S. Typhimurium	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			2															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin							1											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			2															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		2																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1									1					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 193 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 193	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	9	3																			3		3				
Amphenicols - Florfenicol	16	9	0																			9						
Tetracyclines - Tetracycline	8	9	7																	2								
Fluoroquinolones - Ciprofloxacin	0.06	9	0			1		7		1																		
Quinolones - Nalidixic acid	16	9	0																			6		3				
Trimethoprim	2	9	0															9										
Aminoglycosides - Streptomycin	32	9	5																					2		1		
Aminoglycosides - Gentamicin	2	9	0													3		6										
Aminoglycosides - Neomycin	4	9	2																	6		1						
Penicillins - Ampicillin	8	9	5															4										
Cephalosporins - Cefotaxim	0.5	9	0									9																
Aminoglycosides - Apramycin	16	9	0																			3		6				
Aminoglycosides - Spectinomycin	64	9	0																									
Cephalosporins - Ceftiofur	2	9	0													2		7										
Polymyxins - Colistin	2	9	0															9										
Sulphonamides - Sulfamethoxazol	256	9	5																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 193 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 193	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol					3													2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			7															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin		1					5											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin			2															2	32
Penicillins - Ampicillin			5															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		5		4														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				4									5					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT RDNC in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT RDNC	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16
Amphenicols - Chloramphenicol	16	4	0																			4					
Amphenicols - Florfenicol	16	4	0																			4					
Tetracyclines - Tetracycline	8	4	1																	3							
Fluoroquinolones - Ciprofloxacin	0.06	4	0					4																			
Quinolones - Nalidixic acid	16	4	0																			4					
Trimethoprim	2	4	0															4									
Aminoglycosides - Streptomycin	32	4	2																							2	
Aminoglycosides - Gentamicin	2	4	0													1		3									
Aminoglycosides - Neomycin	4	4	0																	4							
Penicillins - Ampicillin	8	4	2															2									
Cephalosporins - Cefotaxim	0.5	4	0									4															
Aminoglycosides - Apramycin	16	4	0																			4					
Aminoglycosides - Spectinomycin	64	4	0																								
Cephalosporins - Ceftiofur	2	4	0													3		1									
Polymyxins - Colistin	2	4	0															4									
Sulphonamides - Sulfamethoxazol	256	4	2																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT RDNC in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

DT RDNC   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory  Antimicrobials:	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin							2											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			2															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		4																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				2									2					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 12 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 12	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	7	0																			5		2				
Amphenicols - Florfenicol	16	7	0																			6		1				
Tetracyclines - Tetracycline	8	7	0																	7								
Fluoroquinolones - Ciprofloxacin	0.06	7	0					7																				
Quinolones - Nalidixic acid	16	7	0																			6		1				
Trimethoprim	2	7	0															7										
Aminoglycosides - Streptomycin	32	7	0																					3		3		
Aminoglycosides - Gentamicin	2	7	0													5		1		1								
Aminoglycosides - Neomycin	4	7	0																	7								
Penicillins - Ampicillin	8	7	0															6		1								
Cephalosporins - Cefotaxim	0.5	7	0									7																
Aminoglycosides - Apramycin	16	7	0																			5		2				
Aminoglycosides - Spectinomycin	64	7	0																									
Cephalosporins - Ceftiofur	2	7	0													4		3										
Polymyxins - Colistin	2	7	0															7										
Sulphonamides - Sulfamethoxazol	256	7	0																									



Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 12 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 12	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin		1																8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		4		3														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				7														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 120 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 120	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	22	0																			13		9				
Amphenicols - Florfenicol	16	22	0																			17		5				
Tetracyclines - Tetracycline	8	22	7																	13		2						
Fluoroquinolones - Ciprofloxacin	0.06	22	0			2		17		3																		
Quinolones - Nalidixic acid	16	22	0																			15		7				
Trimethoprim	2	22	1															21										
Aminoglycosides - Streptomycin	32	22	13																					2		7		
Aminoglycosides - Gentamicin	2	22	0													11		11										
Aminoglycosides - Neomycin	4	22	0																	19		3						
Penicillins - Ampicillin	8	22	13															4		4		1						
Cephalosporins - Cefotaxim	0.5	22	0									19		3														
Aminoglycosides - Apramycin	16	22	0																			15		7				
Aminoglycosides - Spectinomycin	64	22	2																									
Cephalosporins - Ceftiofur	2	22	0													10		11		1								
Polymyxins - Colistin	2	22	0															22										
Sulphonamides - Sulfamethoxazol	256	22	13																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 120 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 120   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory  Antimicrobials:	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			7															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			1															1	32
Aminoglycosides - Streptomycin							13											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			13															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		15		5				1	1									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				9									13					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 7 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 7	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	2	0																			1		1				
Amphenicols - Florfenicol	16	2	0																			2						
Tetracyclines - Tetracycline	8	2	1																	1								
Fluoroquinolones - Ciprofloxacin	0.06	2	0					2																				
Quinolones - Nalidixic acid	16	2	0																			2						
Trimethoprim	2	2	0															2										
Aminoglycosides - Streptomycin	32	2	0																							1		
Aminoglycosides - Gentamicin	2	2	0													1		1										
Aminoglycosides - Neomycin	4	2	0																	2								
Penicillins - Ampicillin	8	2	0															2										
Cephalosporins - Cefotaxim	0.5	2	0									2																
Aminoglycosides - Apramycin	16	2	0																			2						
Aminoglycosides - Spectinomycin	64	2	0																									
Cephalosporins - Ceftiofur	2	2	0													1		1										
Polymyxins - Colistin	2	2	0															2										
Sulphonamides - Sulfamethoxazol	256	2	0																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 7 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 7	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin		1																8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1		1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				2														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 66 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 66	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	1	0																			1						
Amphenicols - Florfenicol	16	1	0																			1						
Tetracyclines - Tetracycline	8	1	0																	1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																			1						
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	0																							1		
Aminoglycosides - Gentamicin	2	1	0															1										
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	0															1										
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																			1						
Aminoglycosides - Spectinomycin	64	1	0																									
Cephalosporins - Ceftiofur	2	1	0															1										
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	0																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 66 in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 66   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

**Table Antimicrobial susceptibility testing of S. Typhimurium - DT 104b in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 104b	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	1	1																									
Amphenicols - Florfenicol	16	1	1																									
Tetracyclines - Tetracycline	8	1	1																									
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																			1						
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	1																									
Aminoglycosides - Gentamicin	2	1	0															1										
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	1																									
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																					1				
Aminoglycosides - Spectinomycin	64	1	1																									
Cephalosporins - Ceftiofur	2	1	0															1										
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	1																									



Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 104b in Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 104b	Meat from pig - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Antimicrobials:																			
Amphenicols - Chloramphenicol					1													2	64
Amphenicols - Florfenicol		1																2	64
Tetracyclines - Tetracycline		1																2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin							1											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin									1									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol													1					64	1024

**Table Antimicrobial susceptibility testing of *S. Infantis* in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Infantis	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	6	0																			1		5			
Amphenicols - Florfenicol	16	6	0																			4		2			
Tetracyclines - Tetracycline	8	6	0																	6							
Fluoroquinolones - Ciprofloxacin	0.06	6	0			1		5																			
Quinolones - Nalidixic acid	16	6	0																			6					
Trimethoprim	2	6	0															6									
Aminoglycosides - Streptomycin	32	6	0																					4		2	
Aminoglycosides - Gentamicin	2	6	0													6											
Aminoglycosides - Neomycin	4	6	0																	6							
Penicillins - Ampicillin	8	6	0															4		2							
Cephalosporins - Cefotaxim	0.5	6	0									6															
Aminoglycosides - Apramycin	16	6	0																			6					
Aminoglycosides - Spectinomycin	64	6	0																								
Cephalosporins - Ceftiofur	2	6	0													1		4		1							
Polymyxins - Colistin	2	6	0															6									
Sulphonamides - Sulfamethoxazol	256	6	0																								

Table Antimicrobial susceptibility testing of *S. Infantis* in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

S. Infantis	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		6																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				6														64	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 193 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 193		Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																									
		Isolates out of a monitoring program (yes/no)																									
		Number of isolates available in the laboratory																									
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	86	1																			71		13		1	
Amphenicols - Florfenicol	16	86	0																			79		6		1	
Tetracyclines - Tetracycline	8	86	76																	10							
Fluoroquinolones - Ciprofloxacin	0.06	86	0			3		81		2																	
Quinolones - Nalidixic acid	16	86	0																			81		4		1	
Trimethoprim	2	86	5															81									
Aminoglycosides - Streptomycin	32	86	73																					3		8	
Aminoglycosides - Gentamicin	2	86	1													36		46		3		1					
Aminoglycosides - Neomycin	4	86	1																	82		3					
Penicillins - Ampicillin	8	86	75															8		3							
Cephalosporins - Cefotaxim	0.5	86	0									82		4													
Aminoglycosides - Apramycin	16	86	0																			63		22		1	
Aminoglycosides - Spectinomycin	64	86	11																								
Cephalosporins - Ceftiofur	2	86	0													50		35		1							
Polymyxins - Colistin	2	86	0															86									
Sulphonamides - Sulfamethoxazol	256	86	73																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 193 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 193	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Antimicrobials:																			
Amphenicols - Chloramphenicol				1														2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			76															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			5															1	32
Aminoglycosides - Streptomycin		2					73											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin			1															2	32
Penicillins - Ampicillin			75															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		48		27				1	10									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				13									73					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 141 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 141	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	1	0																			1						
Amphenicols - Florfenicol	16	1	0																			1						
Tetracyclines - Tetracycline	8	1	0																	1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																			1						
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	0																					1				
Aminoglycosides - Gentamicin	2	1	0												1													
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	0															1										
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																			1						
Aminoglycosides - Spectinomycin	64	1	0																									
Cephalosporins - Ceftiofur	2	1	0													1												
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	0																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 141 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 141	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 7 in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 7		Cattle (bovine animals) - at farm - animal sample - Clinical investigations																											
		Isolates out of a monitoring program (yes/no)																											
		Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16			
Amphenicols - Chloramphenicol	16	1	0																			1							
Amphenicols - Florfenicol	16	1	0																			1							
Tetracyclines - Tetracycline	8	1	1																										
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																					
Quinolones - Nalidixic acid	16	1	0																			1							
Trimethoprim	2	1	0															1											
Aminoglycosides - Streptomycin	32	1	1																										
Aminoglycosides - Gentamicin	2	1	0													1													
Aminoglycosides - Neomycin	4	1	0																			1							
Penicillins - Ampicillin	8	1	1																										
Cephalosporins - Cefotaxim	0.5	1	0									1																	
Aminoglycosides - Apramycin	16	1	0																			1							
Aminoglycosides - Spectinomycin	64	1	0																										
Cephalosporins - Ceftiofur	2	1	0													1													
Polymyxins - Colistin	2	1	0															1											
Sulphonamides - Sulfamethoxazol	256	1	1																										



Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 7 in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]

DT 7	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin							1											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin				1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol													1					64	1024

Table Antimicrobial susceptibility testing of S. Livingstone in Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Livingstone   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory			Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16				
Amphenicols - Chloramphenicol	16	1	0																					1						
Amphenicols - Florfenicol	16	1	0																			1								
Tetracyclines - Tetracycline	8	1	0																	1										
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																						
Quinolones - Nalidixic acid	16	1	0																			1								
Trimethoprim	2	1	0															1												
Aminoglycosides - Streptomycin	32	1	0																					1						
Aminoglycosides - Gentamicin	2	1	0													1														
Aminoglycosides - Neomycin	4	1	0																	1										
Penicillins - Ampicillin	8	1	0															1												
Cephalosporins - Cefotaxim	0.5	1	0									1																		
Aminoglycosides - Apramycin	16	1	0																			1								
Aminoglycosides - Spectinomycin	64	1	0																											
Cephalosporins - Ceftiofur	2	1	0													1														
Polymyxins - Colistin	2	1	0															1												
Sulphonamides - Sulfamethoxazol	256	1	0																											

Table Antimicrobial susceptibility testing of *S. Livingstone* in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

S. Livingstone	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																			
	Isolates out of a monitoring program (yes/no)																			
	Number of isolates available in the laboratory																			
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64	
Amphenicols - Florfenicol																		2	64	
Tetracyclines - Tetracycline																		2	32	
Fluoroquinolones - Ciprofloxacin																		0.016	4	
Quinolones - Nalidixic acid																		4	64	
Trimethoprim																		1	32	
Aminoglycosides - Streptomycin																		8	128	
Aminoglycosides - Gentamicin																		0.5	16	
Aminoglycosides - Neomycin																		2	32	
Penicillins - Ampicillin																		1	32	
Cephalosporins - Cefotaxim																		0.12	4	
Aminoglycosides - Apramycin																		4	32	
Aminoglycosides - Spectinomycin		1																16	256	
Cephalosporins - Ceftiofur																		0.5	8	
Polymyxins - Colistin																		1	16	
Sulphonamides - Sulfamethoxazol				1														64	1024	

**Table Antimicrobial susceptibility testing of *S. Infantis* in Gallus gallus (fowl) - laying hens - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Infantis	Gallus gallus (fowl) - laying hens - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	3	0																					3			
Amphenicols - Florfenicol	16	3	0																		2			1			
Tetracyclines - Tetracycline	8	3	0																	3							
Fluoroquinolones - Ciprofloxacin	0.06	3	0					3																			
Quinolones - Nalidixic acid	16	3	0																			3					
Trimethoprim	2	3	0															3									
Aminoglycosides - Streptomycin	32	3	0																					2		1	
Aminoglycosides - Gentamicin	2	3	0													3											
Aminoglycosides - Neomycin	4	3	0																	3							
Penicillins - Ampicillin	8	3	0															3									
Cephalosporins - Cefotaxim	0.5	3	0									3															
Aminoglycosides - Apramycin	16	3	0																			3					
Aminoglycosides - Spectinomycin	64	3	0																								
Cephalosporins - Ceftiofur	2	3	0													1		2									
Polymyxins - Colistin	2	3	0															3									
Sulphonamides - Sulfamethoxazol	256	3	0																								

Table Antimicrobial susceptibility testing of *S. Infantis* in *Gallus gallus* (fowl) - laying hens - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

S. Infantis	Gallus gallus (fowl) - laying hens - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																			
	Isolates out of a monitoring program (yes/no)																			
	Number of isolates available in the laboratory																			
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
	Amphenicols - Chloramphenicol																		2	64
	Amphenicols - Florfenicol																		2	64
	Tetracyclines - Tetracycline																		2	32
	Fluoroquinolones - Ciprofloxacin																		0.016	4
	Quinolones - Nalidixic acid																		4	64
	Trimethoprim																		1	32
	Aminoglycosides - Streptomycin																		8	128
	Aminoglycosides - Gentamicin																		0.5	16
	Aminoglycosides - Neomycin																		2	32
	Penicillins - Ampicillin																		1	32
	Cephalosporins - Cefotaxim																		0.12	4
	Aminoglycosides - Apramycin																		4	32
	Aminoglycosides - Spectinomycin		3																16	256
	Cephalosporins - Ceftiofur																		0.5	8
	Polymyxins - Colistin																		1	16
	Sulphonamides - Sulfamethoxazol				3														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 310 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

U 310	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	≤0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	1	0																					1				
Amphenicols - Florfenicol	16	1	0																					1				
Tetracyclines - Tetracycline	8	1	1																									
Fluoroquinolones - Ciprofloxacin	0.06	1	0							1																		
Quinolones - Nalidixic acid	16	1	0																					1				
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	1																									
Aminoglycosides - Gentamicin	2	1	0															1										
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	1																									
Cephalosporins - Cefotaxim	0.5	1	0											1														
Aminoglycosides - Apramycin	16	1	0																					1				
Aminoglycosides - Spectinomycin	64	1	0																									
Cephalosporins - Ceftiofur	2	1	0															1										
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	1																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 310 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

U 310	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin							1											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol													1					64	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - U 288 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

U 288	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	16	8																			4		4			
Amphenicols - Florfenicol	16	16	1																			8		1		6	
Tetracyclines - Tetracycline	8	16	7																	9							
Fluoroquinolones - Ciprofloxacin	0.06	16	1					15				1															
Quinolones - Nalidixic acid	16	16	0																			15				1	
Trimethoprim	2	16	8															8									
Aminoglycosides - Streptomycin	32	16	9																							5	
Aminoglycosides - Gentamicin	2	16	0													11		5									
Aminoglycosides - Neomycin	4	16	0																	16							
Penicillins - Ampicillin	8	16	7															9									
Cephalosporins - Cefotaxim	0.5	16	0									15		1													
Aminoglycosides - Apramycin	16	16	0																			14		2			
Aminoglycosides - Spectinomycin	64	16	11																								
Cephalosporins - Ceftiofur	2	16	0													8		7		1							
Polymyxins - Colistin	2	16	0															16									
Sulphonamides - Sulfamethoxazol	256	16	9																								



Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 288 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

U 288  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory  <b>Antimicrobials:</b>	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol		2		5	1													2	64
Amphenicols - Florfenicol					1													2	64
Tetracyclines - Tetracycline			7															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			8															1	32
Aminoglycosides - Streptomycin		2					9											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			7															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		4		1					11									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				7									9					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 66 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 66	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	9	0																			4		5				
Amphenicols - Florfenicol	16	9	0																			9						
Tetracyclines - Tetracycline	8	9	1																	8								
Fluoroquinolones - Ciprofloxacin	0.06	9	0					9																				
Quinolones - Nalidixic acid	16	9	0																			7		2				
Trimethoprim	2	9	0															9										
Aminoglycosides - Streptomycin	32	9	1																					1		7		
Aminoglycosides - Gentamicin	2	9	0													4		4		1								
Aminoglycosides - Neomycin	4	9	0																	9								
Penicillins - Ampicillin	8	9	0															5		4								
Cephalosporins - Cefotaxim	0.5	9	0									9																
Aminoglycosides - Apramycin	16	9	0																			5		4				
Aminoglycosides - Spectinomycin	64	9	0																									
Cephalosporins - Ceftiofur	2	9	0													2		7										
Polymyxins - Colistin	2	9	0															9										
Sulphonamides - Sulfamethoxazol	256	9	0																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 66 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 66   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin							1											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		7		2														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				9														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 7 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 7	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	4	0																					3		1		
Amphenicols - Florfenicol	16	4	0																		2			1		1		
Tetracyclines - Tetracycline	8	4	2																	2								
Fluoroquinolones - Ciprofloxacin	0.06	4	0					3		1																		
Quinolones - Nalidixic acid	16	4	0																			3		1				
Trimethoprim	2	4	0															4										
Aminoglycosides - Streptomycin	32	4	2																					1		1		
Aminoglycosides - Gentamicin	2	4	0													3		1										
Aminoglycosides - Neomycin	4	4	0																	4								
Penicillins - Ampicillin	8	4	2															2										
Cephalosporins - Cefotaxim	0.5	4	0									2		2														
Aminoglycosides - Apramycin	16	4	0																			4						
Aminoglycosides - Spectinomycin	64	4	0																									
Cephalosporins - Ceftiofur	2	4	0													1		1		2								
Polymyxins - Colistin	2	4	0															4										
Sulphonamides - Sulfamethoxazol	256	4	2																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 7 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 7	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			2															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin							2											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			2															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		4																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				2									2					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 3 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 3	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	6	0																			5		1				
Amphenicols - Florfenicol	16	6	0																	1		4		1				
Tetracyclines - Tetracycline	8	6	1																	4		1						
Fluoroquinolones - Ciprofloxacin	0.06	6	0					6																				
Quinolones - Nalidixic acid	16	6	0																			5		1				
Trimethoprim	2	6	0															6										
Aminoglycosides - Streptomycin	32	6	2																							4		
Aminoglycosides - Gentamicin	2	6	1													4		1										
Aminoglycosides - Neomycin	4	6	0																	5		1						
Penicillins - Ampicillin	8	6	0															3		3								
Cephalosporins - Cefotaxim	0.5	6	0									6																
Aminoglycosides - Apramycin	16	6	0																			6						
Aminoglycosides - Spectinomycin	64	6	1																									
Cephalosporins - Ceftiofur	2	6	0													2		4										
Polymyxins - Colistin	2	6	0															6										
Sulphonamides - Sulfamethoxazol	256	6	2																									

**Table Antimicrobial susceptibility testing of S. Typhimurium - DT 3 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

DT 3	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin						2												8	128
Aminoglycosides - Gentamicin	1																	0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		5							1									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				4									2					64	1024

**Table Antimicrobial susceptibility testing of S. Typhimurium - DT 2 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 2	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	1	0																								1	
Amphenicols - Florfenicol	16	1	0																						1			
Tetracyclines - Tetracycline	8	1	1																									
Fluoroquinolones - Ciprofloxacin	0.06	1	0							1																		
Quinolones - Nalidixic acid	16	1	0																						1			
Trimethoprim	2	1	1																									
Aminoglycosides - Streptomycin	32	1	1																									
Aminoglycosides - Gentamicin	2	1	0													1												
Aminoglycosides - Neomycin	4	1	1																									
Penicillins - Ampicillin	8	1	1																									
Cephalosporins - Cefotaxim	0.5	1	0											1														
Aminoglycosides - Apramycin	16	1	0																				1					
Aminoglycosides - Spectinomycin	64	1	1																									
Cephalosporins - Ceftiofur	2	1	0																	1								
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	1																									



Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 2 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 2	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Antimicrobials:																			
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			1															1	32
Aminoglycosides - Streptomycin							1											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin			1															2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin									1									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol													1					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT RDNC in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT RDNC  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory		Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16			
Amphenicols - Chloramphenicol	16	44	1																			32		10		1			
Amphenicols - Florfenicol	16	44	0																	1		41		2					
Tetracyclines - Tetracycline	8	44	14																	30									
Fluoroquinolones - Ciprofloxacin	0.06	44	0			2		41		1																			
Quinolones - Nalidixic acid	16	44	0																			40		4					
Trimethoprim	2	44	12															32											
Aminoglycosides - Streptomycin	32	44	15																					3		25			
Aminoglycosides - Gentamicin	2	44	0													24		17		3									
Aminoglycosides - Neomycin	4	44	6																	37		1		1					
Penicillins - Ampicillin	8	44	14															26		4									
Cephalosporins - Cefotaxim	0.5	44	0									40		4															
Aminoglycosides - Apramycin	16	44	0																			38		6					
Aminoglycosides - Spectinomycin	64	44	6																										
Cephalosporins - Ceftiofur	2	44	0													21		22		1									
Polymyxins - Colistin	2	44	0															44											
Sulphonamides - Sulfamethoxazol	256	44	18																										

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT RDNC in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT RDNC	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol					1													2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			14															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			12															1	32
Aminoglycosides - Streptomycin		1					15											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin			5															2	32
Penicillins - Ampicillin			14															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		25		13				3	3									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				26									18					64	1024

**Table Antimicrobial susceptibility testing of S. Typhimurium - DT 120 in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 120	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16
Amphenicols - Chloramphenicol	16	4	0																			2		2			
Amphenicols - Florfenicol	16	4	0																			2		2			
Tetracyclines - Tetracycline	8	4	2																	2							
Fluoroquinolones - Ciprofloxacin	0.06	4	0					3		1																	
Quinolones - Nalidixic acid	16	4	0																			3		1			
Trimethoprim	2	4	0															4									
Aminoglycosides - Streptomycin	32	4	2																							1	
Aminoglycosides - Gentamicin	2	4	0													1		3									
Aminoglycosides - Neomycin	4	4	0																	4							
Penicillins - Ampicillin	8	4	2																	2							
Cephalosporins - Cefotaxim	0.5	4	0									3		1													
Aminoglycosides - Apramycin	16	4	0																			3		1			
Aminoglycosides - Spectinomycin	64	4	0																								
Cephalosporins - Ceftiofur	2	4	0													2		2									
Polymyxins - Colistin	2	4	0															4									
Sulphonamides - Sulfamethoxazol	256	4	2																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 120 in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]

DT 120   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory  Antimicrobials:	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			2															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin		1					2											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			2															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		4																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				2									2					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 135 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 135	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	4	0																			4					
Amphenicols - Florfenicol	16	4	0																			4					
Tetracyclines - Tetracycline	8	4	1																	3							
Fluoroquinolones - Ciprofloxacin	0.06	4	0					4																			
Quinolones - Nalidixic acid	16	4	0																			4					
Trimethoprim	2	4	1															3									
Aminoglycosides - Streptomycin	32	4	1																							3	
Aminoglycosides - Gentamicin	2	4	0													3		1									
Aminoglycosides - Neomycin	4	4	0																	4							
Penicillins - Ampicillin	8	4	1															3									
Cephalosporins - Cefotaxim	0.5	4	0									4															
Aminoglycosides - Apramycin	16	4	0																			4					
Aminoglycosides - Spectinomycin	64	4	1																								
Cephalosporins - Ceftiofur	2	4	0													1		3									
Polymyxins - Colistin	2	4	0															4									
Sulphonamides - Sulfamethoxazol	256	4	1																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 135 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 135   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			1															1	32
Aminoglycosides - Streptomycin							1											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		3						1										16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				3									1					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 170 in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 170	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16
Amphenicols - Chloramphenicol	16	1	0																			1					
Amphenicols - Florfenicol	16	1	0																			1					
Tetracyclines - Tetracycline	8	1	0																	1							
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																			
Quinolones - Nalidixic acid	16	1	0																			1					
Trimethoprim	2	1	0															1									
Aminoglycosides - Streptomycin	32	1	0																							1	
Aminoglycosides - Gentamicin	2	1	0													1											
Aminoglycosides - Neomycin	4	1	0																	1							
Penicillins - Ampicillin	8	1	0															1									
Cephalosporins - Cefotaxim	0.5	1	0									1															
Aminoglycosides - Apramycin	16	1	0																			1					
Aminoglycosides - Spectinomycin	64	1	0																								
Cephalosporins - Ceftiofur	2	1	0													1											
Polymyxins - Colistin	2	1	0															1									
Sulphonamides - Sulfamethoxazol	256	1	0																								



Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 170 in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]

DT 170	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin				1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 99 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 99	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	1	0																					1				
Amphenicols - Florfenicol	16	1	0																					1				
Tetracyclines - Tetracycline	8	1	0																	1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																		1							
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	0																									
Aminoglycosides - Gentamicin	2	1	0															1										
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	0																	1								
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																					1				
Aminoglycosides - Spectinomycin	64	1	0																									
Cephalosporins - Ceftiofur	2	1	0															1										
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	0																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 99 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 99	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin		1																8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin				1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 302 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

U 302	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	5	2																			2		1			
Amphenicols - Florfenicol	16	5	2																			3					
Tetracyclines - Tetracycline	8	5	2																	3							
Fluoroquinolones - Ciprofloxacin	0.06	5	0					5																			
Quinolones - Nalidixic acid	16	5	0																			5					
Trimethoprim	2	5	0															5									
Aminoglycosides - Streptomycin	32	5	2																							3	
Aminoglycosides - Gentamicin	2	5	0													1		4									
Aminoglycosides - Neomycin	4	5	0																	5							
Penicillins - Ampicillin	8	5	2															3									
Cephalosporins - Cefotaxim	0.5	5	0									5															
Aminoglycosides - Apramycin	16	5	0																			4		1			
Aminoglycosides - Spectinomycin	64	5	2																								
Cephalosporins - Ceftiofur	2	5	0													2		3									
Polymyxins - Colistin	2	5	0															5									
Sulphonamides - Sulfamethoxazol	256	5	2																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 302 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

U 302   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory  Antimicrobials:	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol					2													2	64
Amphenicols - Florfenicol		2																2	64
Tetracyclines - Tetracycline		2																2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin						2												8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			2															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin				3				2										16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				3									2					64	1024

Table Antimicrobial susceptibility testing of S. Saintpaul in Turkeys - at farm - animal sample - faeces - Control and eradication programmes - industry sampling - objective sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Saintpaul   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory		Turkeys - at farm - animal sample - faeces - Control and eradication programmes - industry sampling - objective sampling																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16			
Amphenicols - Chloramphenicol	16	1	0																					1					
Amphenicols - Florfenicol	16	1	0																					1					
Tetracyclines - Tetracycline	8	1	1																										
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																					
Quinolones - Nalidixic acid	16	1	0																					1					
Trimethoprim	2	1	1																										
Aminoglycosides - Streptomycin	32	1	1																										
Aminoglycosides - Gentamicin	2	1	0																	1									
Aminoglycosides - Neomycin	4	1	0																	1									
Penicillins - Ampicillin	8	1	1																										
Cephalosporins - Cefotaxim	0.5	1	0									1																	
Aminoglycosides - Apramycin	16	1	0																			1							
Aminoglycosides - Spectinomycin	64	1	1																										
Cephalosporins - Ceftiofur	2	1	0															1											
Polymyxins - Colistin	2	1	0															1											
Sulphonamides - Sulfamethoxazol	256	1	1																										

Table Antimicrobial susceptibility testing of *S. Saintpaul* in Turkeys - at farm - animal sample - faeces - Control and eradication programmes - industry sampling - objective sampling - quantitative data [ Dilution method ]

S. Saintpaul	Turkeys - at farm - animal sample - faeces - Control and eradication programmes - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			1															1	32
Aminoglycosides - Streptomycin				1														8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin									1									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol													1					64	1024

**Table Antimicrobial susceptibility testing of *S. Richmond* in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Richmond	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	1	0																					1			
Amphenicols - Florfenicol	16	1	0																		1						
Tetracyclines - Tetracycline	8	1	0																	1							
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																			
Quinolones - Nalidixic acid	16	1	0																			1					
Trimethoprim	2	1	0															1									
Aminoglycosides - Streptomycin	32	1	0																							1	
Aminoglycosides - Gentamicin	2	1	0													1											
Aminoglycosides - Neomycin	4	1	0																	1							
Penicillins - Ampicillin	8	1	0															1									
Cephalosporins - Cefotaxim	0.5	1	0									1															
Aminoglycosides - Apramycin	16	1	0																			1					
Aminoglycosides - Spectinomycin	64	1	0																								
Cephalosporins - Ceftiofur	2	1	0															1									
Polymyxins - Colistin	2	1	0															1									
Sulphonamides - Sulfamethoxazol	256	1	0																								



Table Antimicrobial susceptibility testing of *S. Richmond* in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

S. Richmond	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin				1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 1 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 1	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	1	0																					1				
Amphenicols - Florfenicol	16	1	0																		1							
Tetracyclines - Tetracycline	8	1	0																	1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																			1						
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	0																							1		
Aminoglycosides - Gentamicin	2	1	0															1										
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	0															1										
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																					1				
Aminoglycosides - Spectinomycin	64	1	0																									
Cephalosporins - Ceftiofur	2	1	0															1										
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	0																									

**Table Antimicrobial susceptibility testing of S. Typhimurium - DT 1 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

DT 1	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Antimicrobials:																			
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 170 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 170	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Cut-off value	N	n	≤0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	23	0																			21		2				
Amphenicols - Florfenicol	16	23	0																			22		1				
Tetracyclines - Tetracycline	8	23	5																	16		2						
Fluoroquinolones - Ciprofloxacin	0.06	23	0			5		17		1																		
Quinolones - Nalidixic acid	16	23	0																			22		1				
Trimethoprim	2	23	1															22										
Aminoglycosides - Streptomycin	32	23	4																					6		13		
Aminoglycosides - Gentamicin	2	23	0													16		7										
Aminoglycosides - Neomycin	4	23	0																	22		1						
Penicillins - Ampicillin	8	23	1															17		5								
Cephalosporins - Cefotaxim	0.5	23	0									21		2														
Aminoglycosides - Apramycin	16	23	0																			23						
Aminoglycosides - Spectinomycin	64	23	0																								2	
Cephalosporins - Ceftiofur	2	23	0													8		15										
Polymyxins - Colistin	2	23	0															23										
Sulphonamides - Sulfamethoxazol	256	23	5																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 170 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 170	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			5															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			1															1	32
Aminoglycosides - Streptomycin							4											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		16		5														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				18									5					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 107 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 107	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16
Amphenicols - Chloramphenicol	16	2	0																			2					
Amphenicols - Florfenicol	16	2	0																			2					
Tetracyclines - Tetracycline	8	2	1																	1							
Fluoroquinolones - Ciprofloxacin	0.06	2	0			1		1																			
Quinolones - Nalidixic acid	16	2	0																			2					
Trimethoprim	2	2	0															2									
Aminoglycosides - Streptomycin	32	2	1																					1			
Aminoglycosides - Gentamicin	2	2	0													1		1									
Aminoglycosides - Neomycin	4	2	0																	2							
Penicillins - Ampicillin	8	2	0															2									
Cephalosporins - Cefotaxim	0.5	2	0									2															
Aminoglycosides - Apramycin	16	2	0																			2					
Aminoglycosides - Spectinomycin	64	2	1																								
Cephalosporins - Ceftiofur	2	2	0													2											
Polymyxins - Colistin	2	2	0															2									
Sulphonamides - Sulfamethoxazol	256	2	1																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 107 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 107	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin				1														8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1							1									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1									1					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 97 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 97	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	1	0																					1				
Amphenicols - Florfenicol	16	1	0																		1							
Tetracyclines - Tetracycline	8	1	0																	1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																			1						
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	0																							1		
Aminoglycosides - Gentamicin	2	1	0													1												
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	0															1										
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																			1						
Aminoglycosides - Spectinomycin	64	1	0																									
Cephalosporins - Ceftiofur	2	1	0													1												
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	0																									



Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 97 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 97	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin				1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 46a in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 46a	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	1	0																			1						
Amphenicols - Florfenicol	16	1	0																			1						
Tetracyclines - Tetracycline	8	1	1																									
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																			1						
Trimethoprim	2	1	1																									
Aminoglycosides - Streptomycin	32	1	1																									
Aminoglycosides - Gentamicin	2	1	0													1												
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	1																									
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																			1						
Aminoglycosides - Spectinomycin	64	1	1																									
Cephalosporins - Ceftiofur	2	1	0													1												
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	1																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 46a in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 46a	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Antimicrobials:																			
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			1															1	32
Aminoglycosides - Streptomycin						1												8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin									1									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol													1					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 120 in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 120	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	4	0																			4					
Amphenicols - Florfenicol	16	4	0																			4					
Tetracyclines - Tetracycline	8	4	1																	3							
Fluoroquinolones - Ciprofloxacin	0.06	4	0			1		2		1																	
Quinolones - Nalidixic acid	16	4	0																			4					
Trimethoprim	2	4	2															2									
Aminoglycosides - Streptomycin	32	4	3																							1	
Aminoglycosides - Gentamicin	2	4	0													2		2									
Aminoglycosides - Neomycin	4	4	0																	4							
Penicillins - Ampicillin	8	4	3															1									
Cephalosporins - Cefotaxim	0.5	4	0									4															
Aminoglycosides - Apramycin	16	4	0																			4					
Aminoglycosides - Spectinomycin	64	4	2																								
Cephalosporins - Ceftiofur	2	4	0													2		2									
Polymyxins - Colistin	2	4	0															4									
Sulphonamides - Sulfamethoxazol	256	4	3																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 120 in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 120	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																			
	Isolates out of a monitoring program (yes/no)																			
	Number of isolates available in the laboratory																			
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64	
Amphenicols - Florfenicol																		2	64	
Tetracyclines - Tetracycline			1															2	32	
Fluoroquinolones - Ciprofloxacin																		0.016	4	
Quinolones - Nalidixic acid																		4	64	
Trimethoprim			2															1	32	
Aminoglycosides - Streptomycin							3											8	128	
Aminoglycosides - Gentamicin																		0.5	16	
Aminoglycosides - Neomycin																		2	32	
Penicillins - Ampicillin			3															1	32	
Cephalosporins - Cefotaxim																		0.12	4	
Aminoglycosides - Apramycin																		4	32	
Aminoglycosides - Spectinomycin		2							2									16	256	
Cephalosporins - Ceftiofur																		0.5	8	
Polymyxins - Colistin																		1	16	
Sulphonamides - Sulfamethoxazol				1									3					64	1024	

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 120 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 120	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16
Amphenicols - Chloramphenicol	16	104	3																			65		33		3	
Amphenicols - Florfenicol	16	104	0																			81		21		2	
Tetracyclines - Tetracycline	8	104	55																	47		2					
Fluoroquinolones - Ciprofloxacin	0.06	104	0			1		82		21																	
Quinolones - Nalidixic acid	16	104	0																			69		30		5	
Trimethoprim	2	104	3															101									
Aminoglycosides - Streptomycin	32	104	75																					4		21	
Aminoglycosides - Gentamicin	2	104	0													47		55		2							
Aminoglycosides - Neomycin	4	104	1																	99		4					
Penicillins - Ampicillin	8	104	70															24		8		2					
Cephalosporins - Cefotaxim	0.5	104	0									95		7		2											
Aminoglycosides - Apramycin	16	104	0																			79		25			
Aminoglycosides - Spectinomycin	64	104	4																								
Cephalosporins - Ceftiofur	2	104	0													47		43		14							
Polymyxins - Colistin	2	104	0															104									
Sulphonamides - Sulfamethoxazol	256	104	74																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 120 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 120	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol				1	2													2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			55															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			3															1	32
Aminoglycosides - Streptomycin		4		1		1	73											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin			1															2	32
Penicillins - Ampicillin			70															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		57		43				1	3									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				30									74					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 12 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 12	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16
Amphenicols - Chloramphenicol	16	40	0																	1		25		14			
Amphenicols - Florfenicol	16	40	0																	1		38		1			
Tetracyclines - Tetracycline	8	40	2																	33		5					
Fluoroquinolones - Ciprofloxacin	0.06	40	0			2		36		2																	
Quinolones - Nalidixic acid	16	40	0																			37		3			
Trimethoprim	2	40	0																40								
Aminoglycosides - Streptomycin	32	40	2																					8		29	
Aminoglycosides - Gentamicin	2	40	1													27		12									
Aminoglycosides - Neomycin	4	40	0																	38		2					
Penicillins - Ampicillin	8	40	1															33		5		1					
Cephalosporins - Cefotaxim	0.5	40	0									40															
Aminoglycosides - Apramycin	16	40	1																			32		7			
Aminoglycosides - Spectinomycin	64	40	1																								
Cephalosporins - Ceftiofur	2	40	0													28		11		1							
Polymyxins - Colistin	2	40	0															40									
Sulphonamides - Sulfamethoxazol	256	40	2																								



Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 12 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 12	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline		1	1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin		1					2											8	128
Aminoglycosides - Gentamicin	1																	0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin			1															4	32
Aminoglycosides - Spectinomycin		26		13					1									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				38									2					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 104 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 104	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	31	23																			3		5			
Amphenicols - Florfenicol	16	31	23																			8					
Tetracyclines - Tetracycline	8	31	24																	7							
Fluoroquinolones - Ciprofloxacin	0.06	31	0			5		26																			
Quinolones - Nalidixic acid	16	31	0																			29		2			
Trimethoprim	2	31	0															31									
Aminoglycosides - Streptomycin	32	31	24																					1		4	
Aminoglycosides - Gentamicin	2	31	0													13		18									
Aminoglycosides - Neomycin	4	31	2																	28		1					
Penicillins - Ampicillin	8	31	23															5		3							
Cephalosporins - Cefotaxim	0.5	31	0									30		1													
Aminoglycosides - Apramycin	16	31	0																			23		7		1	
Aminoglycosides - Spectinomycin	64	31	24																								
Cephalosporins - Ceftiofur	2	31	0													14		17									
Polymyxins - Colistin	2	31	0															30		1							
Sulphonamides - Sulfamethoxazol	256	31	25																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 104 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 104	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Antimicrobials:																			
Amphenicols - Chloramphenicol					23													2	64
Amphenicols - Florfenicol		17		2	4													2	64
Tetracyclines - Tetracycline		17	7															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin		2		1		17	6											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin			2															2	32
Penicillins - Ampicillin			23															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		7							24									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				6									25					64	1024

Table Antimicrobial susceptibility testing of S. Morehead in Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Morehead   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory			Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16				
Amphenicols - Chloramphenicol	16	1	0																			1								
Amphenicols - Florfenicol	16	1	0																			1								
Tetracyclines - Tetracycline	8	1	0																	1										
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																								
Quinolones - Nalidixic acid	16	1	0																			1								
Trimethoprim	2	1	0															1												
Aminoglycosides - Streptomycin	32	1	0																					1						
Aminoglycosides - Gentamicin	2	1	0													1														
Aminoglycosides - Neomycin	4	1	0																	1										
Penicillins - Ampicillin	8	1	0															1												
Cephalosporins - Cefotaxim	0.5	1	0									1																		
Aminoglycosides - Apramycin	16	1	0																			1								
Aminoglycosides - Spectinomycin	64	1	0																											
Cephalosporins - Ceftiofur	2	1	0													1														
Polymyxins - Colistin	2	1	0															1												
Sulphonamides - Sulfamethoxazol	256	1	0																											

Table Antimicrobial susceptibility testing of *S. Morehead* in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

S. Morehead	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																			
	Isolates out of a monitoring program (yes/no)																			
	Number of isolates available in the laboratory																			
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64	
Amphenicols - Florfenicol																		2	64	
Tetracyclines - Tetracycline																		2	32	
Fluoroquinolones - Ciprofloxacin																		0.016	4	
Quinolones - Nalidixic acid																		4	64	
Trimethoprim																		1	32	
Aminoglycosides - Streptomycin																		8	128	
Aminoglycosides - Gentamicin																		0.5	16	
Aminoglycosides - Neomycin																		2	32	
Penicillins - Ampicillin																		1	32	
Cephalosporins - Cefotaxim																		0.12	4	
Aminoglycosides - Apramycin																		4	32	
Aminoglycosides - Spectinomycin		1																16	256	
Cephalosporins - Ceftiofur																		0.5	8	
Polymyxins - Colistin																		1	16	
Sulphonamides - Sulfamethoxazol				1														64	1024	

**Table Antimicrobial susceptibility testing of S. Typhimurium - DT 12 in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 12	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16
Amphenicols - Chloramphenicol	16	2	0																			1		1			
Amphenicols - Florfenicol	16	2	0																			2					
Tetracyclines - Tetracycline	8	2	0																	2							
Fluoroquinolones - Ciprofloxacin	0.06	2	0					2																			
Quinolones - Nalidixic acid	16	2	0																			2					
Trimethoprim	2	2	0															2									
Aminoglycosides - Streptomycin	32	2	0																					1			
Aminoglycosides - Gentamicin	2	2	0												1		1										
Aminoglycosides - Neomycin	4	2	0																	2							
Penicillins - Ampicillin	8	2	0														2										
Cephalosporins - Cefotaxim	0.5	2	0									2															
Aminoglycosides - Apramycin	16	2	0																			2					
Aminoglycosides - Spectinomycin	64	2	0																								
Cephalosporins - Ceftiofur	2	2	0															2									
Polymyxins - Colistin	2	2	0															2									
Sulphonamides - Sulfamethoxazol	256	2	0																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 12 in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]

DT 12	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin		1																8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1		1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				2														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 15a in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 15a	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	8	0																			3		5			
Amphenicols - Florfenicol	16	8	0																			5		3			
Tetracyclines - Tetracycline	8	8	1																	6		1					
Fluoroquinolones - Ciprofloxacin	0.06	8	0					7		1																	
Quinolones - Nalidixic acid	16	8	0																			6		2			
Trimethoprim	2	8	0															8									
Aminoglycosides - Streptomycin	32	8	1																					2		4	
Aminoglycosides - Gentamicin	2	8	0													5		3									
Aminoglycosides - Neomycin	4	8	0																	8							
Penicillins - Ampicillin	8	8	1															4		2		1					
Cephalosporins - Cefotaxim	0.5	8	0									7		1													
Aminoglycosides - Apramycin	16	8	0																			7		1			
Aminoglycosides - Spectinomycin	64	8	0																								
Cephalosporins - Ceftiofur	2	8	0													3		4		1							
Polymyxins - Colistin	2	8	0															7		1							
Sulphonamides - Sulfamethoxazol	256	8	1																								



Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 15a in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 15a	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Antimicrobials:																			
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin		1					1											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		7		1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				7									1					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 15a in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 15a	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	1	0																			1					
Amphenicols - Florfenicol	16	1	0																			1					
Tetracyclines - Tetracycline	8	1	0																	1							
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																			
Quinolones - Nalidixic acid	16	1	0																			1					
Trimethoprim	2	1	1																								
Aminoglycosides - Streptomycin	32	1	0																							1	
Aminoglycosides - Gentamicin	2	1	0													1											
Aminoglycosides - Neomycin	4	1	0																	1							
Penicillins - Ampicillin	8	1	0															1									
Cephalosporins - Cefotaxim	0.5	1	0									1															
Aminoglycosides - Apramycin	16	1	0																			1					
Aminoglycosides - Spectinomycin	64	1	1																								
Cephalosporins - Ceftiofur	2	1	0													1											
Polymyxins - Colistin	2	1	0															1									
Sulphonamides - Sulfamethoxazol	256	1	1																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 15a in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 15a	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																			
	Isolates out of a monitoring program (yes/no)																			
	Number of isolates available in the laboratory																			
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64	
Amphenicols - Florfenicol																		2	64	
Tetracyclines - Tetracycline																		2	32	
Fluoroquinolones - Ciprofloxacin																		0.016	4	
Quinolones - Nalidixic acid																		4	64	
Trimethoprim			1															1	32	
Aminoglycosides - Streptomycin																		8	128	
Aminoglycosides - Gentamicin																		0.5	16	
Aminoglycosides - Neomycin																		2	32	
Penicillins - Ampicillin																		1	32	
Cephalosporins - Cefotaxim																		0.12	4	
Aminoglycosides - Apramycin																		4	32	
Aminoglycosides - Spectinomycin								1										16	256	
Cephalosporins - Ceftiofur																		0.5	8	
Polymyxins - Colistin																		1	16	
Sulphonamides - Sulfamethoxazol													1					64	1024	

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 17 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 17	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	30	0																			19		11				
Amphenicols - Florfenicol	16	30	0																			28		2				
Tetracyclines - Tetracycline	8	30	0																	30								
Fluoroquinolones - Ciprofloxacin	0.06	30	0					30																				
Quinolones - Nalidixic acid	16	30	0																			29		1				
Trimethoprim	2	30	1															29										
Aminoglycosides - Streptomycin	32	30	1																					11		18		
Aminoglycosides - Gentamicin	2	30	0													22		8										
Aminoglycosides - Neomycin	4	30	0																	29		1						
Penicillins - Ampicillin	8	30	1															25		4								
Cephalosporins - Cefotaxim	0.5	30	0									30																
Aminoglycosides - Apramycin	16	30	0																			29		1				
Aminoglycosides - Spectinomycin	64	30	1																									
Cephalosporins - Ceftiofur	2	30	0													19		11										
Polymyxins - Colistin	2	30	0															30										
Sulphonamides - Sulfamethoxazol	256	30	1																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 17 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 17	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			1															1	32
Aminoglycosides - Streptomycin							1											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		26		3				1										16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				29									1					64	1024

**Table Antimicrobial susceptibility testing of S. Typhimurium - DT 193 in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 193	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16
Amphenicols - Chloramphenicol	16	7	0																			5		2			
Amphenicols - Florfenicol	16	7	0																			7					
Tetracyclines - Tetracycline	8	7	7																								
Fluoroquinolones - Ciprofloxacin	0.06	7	0					7																			
Quinolones - Nalidixic acid	16	7	0																			7					
Trimethoprim	2	7	0															7									
Aminoglycosides - Streptomycin	32	7	6																							1	
Aminoglycosides - Gentamicin	2	7	0													3		4									
Aminoglycosides - Neomycin	4	7	0																	7							
Penicillins - Ampicillin	8	7	6															1									
Cephalosporins - Cefotaxim	0.5	7	0									7															
Aminoglycosides - Apramycin	16	7	0																			5		2			
Aminoglycosides - Spectinomycin	64	7	0																								
Cephalosporins - Ceftiofur	2	7	0													6		1									
Polymyxins - Colistin	2	7	0															7									
Sulphonamides - Sulfamethoxazol	256	7	6																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 193 in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]

DT 193	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			7															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin							6											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			6															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		5		2														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1									6					64	1024

**Table Antimicrobial susceptibility testing of S. Typhimurium - U 302 in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

U 302	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	1	1																									
Amphenicols - Florfenicol	16	1	1																									
Tetracyclines - Tetracycline	8	1	1																									
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																			1						
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	1																									
Aminoglycosides - Gentamicin	2	1	0															1										
Aminoglycosides - Neomycin	4	1	0																			1						
Penicillins - Ampicillin	8	1	1																									
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																			1						
Aminoglycosides - Spectinomycin	64	1	1																									
Cephalosporins - Ceftiofur	2	1	0															1										
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	1																									



Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 302 in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]

U 302   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory  Antimicrobials:	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol					1													2	64
Amphenicols - Florfenicol		1																2	64
Tetracyclines - Tetracycline		1																2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin							1											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin								1										16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol													1					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 10 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 10	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	1	0																			1						
Amphenicols - Florfenicol	16	1	0																			1						
Tetracyclines - Tetracycline	8	1	0																	1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																					1				
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	0																					1				
Aminoglycosides - Gentamicin	2	1	0													1												
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	0															1										
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																			1						
Aminoglycosides - Spectinomycin	64	1	0																									
Cephalosporins - Ceftiofur	2	1	0													1												
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	0																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 10 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 10	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

**Table Antimicrobial susceptibility testing of S. Tennessee in Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Tennessee	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	7	0																					6		1	
Amphenicols - Florfenicol	16	7	0																			6		1			
Tetracyclines - Tetracycline	8	7	0																	7							
Fluoroquinolones - Ciprofloxacin	0.06	7	0			4		3																			
Quinolones - Nalidixic acid	16	7	0																			6		1			
Trimethoprim	2	7	0															7									
Aminoglycosides - Streptomycin	32	7	0																							6	
Aminoglycosides - Gentamicin	2	7	0													5		2									
Aminoglycosides - Neomycin	4	7	0																	7							
Penicillins - Ampicillin	8	7	1															5		1							
Cephalosporins - Cefotaxim	0.5	7	0									6		1													
Aminoglycosides - Apramycin	16	7	0																			7					
Aminoglycosides - Spectinomycin	64	7	0																								
Cephalosporins - Ceftiofur	2	7	0															7									
Polymyxins - Colistin	2	7	0															7									
Sulphonamides - Sulfamethoxazol	256	7	0																								

Table Antimicrobial susceptibility testing of *S. Tennessee* in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

S. Tennessee	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin		1																8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		2		5														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				7														64	1024

**Table Antimicrobial susceptibility testing of *S. Mbandaka* in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Mbandaka	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	1	0																					1			
Amphenicols - Florfenicol	16	1	0																		1						
Tetracyclines - Tetracycline	8	1	0																	1							
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																					
Quinolones - Nalidixic acid	16	1	0																			1					
Trimethoprim	2	1	0															1									
Aminoglycosides - Streptomycin	32	1	0																					1			
Aminoglycosides - Gentamicin	2	1	0													1											
Aminoglycosides - Neomycin	4	1	0																	1							
Penicillins - Ampicillin	8	1	0															1									
Cephalosporins - Cefotaxim	0.5	1	0									1															
Aminoglycosides - Apramycin	16	1	0																			1					
Aminoglycosides - Spectinomycin	64	1	0																								
Cephalosporins - Ceftiofur	2	1	0															1									
Polymyxins - Colistin	2	1	0															1									
Sulphonamides - Sulfamethoxazol	256	1	0																								

**Table Antimicrobial susceptibility testing of S. Mbandaka in Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

S. Mbandaka	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

Table Antimicrobial susceptibility testing of S. Muenchen in Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Muenchen   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory			Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16				
Amphenicols - Chloramphenicol	16	1	0																			1								
Amphenicols - Florfenicol	16	1	0																			1								
Tetracyclines - Tetracycline	8	1	0																	1										
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																								
Quinolones - Nalidixic acid	16	1	0																			1								
Trimethoprim	2	1	0															1												
Aminoglycosides - Streptomycin	32	1	0																					1						
Aminoglycosides - Gentamicin	2	1	0													1														
Aminoglycosides - Neomycin	4	1	0																1											
Penicillins - Ampicillin	8	1	0															1												
Cephalosporins - Cefotaxim	0.5	1	0									1																		
Aminoglycosides - Apramycin	16	1	0																			1								
Aminoglycosides - Spectinomycin	64	1	0																											
Cephalosporins - Ceftiofur	2	1	0													1														
Polymyxins - Colistin	2	1	0															1												
Sulphonamides - Sulfamethoxazol	256	1	0																											



Table Antimicrobial susceptibility testing of *S. Muenchen* in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

S. Muenchen	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																			
	Isolates out of a monitoring program (yes/no)																			
	Number of isolates available in the laboratory																			
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64	
Amphenicols - Florfenicol																		2	64	
Tetracyclines - Tetracycline																		2	32	
Fluoroquinolones - Ciprofloxacin																		0.016	4	
Quinolones - Nalidixic acid																		4	64	
Trimethoprim																		1	32	
Aminoglycosides - Streptomycin																		8	128	
Aminoglycosides - Gentamicin																		0.5	16	
Aminoglycosides - Neomycin																		2	32	
Penicillins - Ampicillin																		1	32	
Cephalosporins - Cefotaxim																		0.12	4	
Aminoglycosides - Apramycin																		4	32	
Aminoglycosides - Spectinomycin		1																16	256	
Cephalosporins - Ceftiofur																		0.5	8	
Polymyxins - Colistin																		1	16	
Sulphonamides - Sulfamethoxazol				1														64	1024	

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 32 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 32	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	1	0																			1						
Amphenicols - Florfenicol	16	1	0																			1						
Tetracyclines - Tetracycline	8	1	0																	1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																			1						
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	0																							1		
Aminoglycosides - Gentamicin	2	1	0													1												
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	0															1										
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																			1						
Aminoglycosides - Spectinomycin	64	1	0																									
Cephalosporins - Ceftiofur	2	1	0													1												
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	0																									

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 32 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 32	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

**Table Antimicrobial susceptibility testing of S. Typhimurium - DT 41 in Gallus gallus (fowl) - laying hens - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 41	Gallus gallus (fowl) - laying hens - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	1	0																			1					
Amphenicols - Florfenicol	16	1	0																			1					
Tetracyclines - Tetracycline	8	1	0																	1							
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																			
Quinolones - Nalidixic acid	16	1	0																			1					
Trimethoprim	2	1	0															1									
Aminoglycosides - Streptomycin	32	1	0																							1	
Aminoglycosides - Gentamicin	2	1	0																	1							
Aminoglycosides - Neomycin	4	1	0																			1					
Penicillins - Ampicillin	8	1	0															1									
Cephalosporins - Cefotaxim	0.5	1	0									1															
Aminoglycosides - Apramycin	16	1	0																					1			
Aminoglycosides - Spectinomycin	64	1	0																								
Cephalosporins - Ceftiofur	2	1	0													1											
Polymyxins - Colistin	2	1	0															1									
Sulphonamides - Sulfamethoxazol	256	1	0																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 41 in *Gallus gallus* (fowl) - laying hens - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 41	Gallus gallus (fowl) - laying hens - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024



**Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 292 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

U 292	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	5	0																			2		3			
Amphenicols - Florfenicol	16	5	0																			3		2			
Tetracyclines - Tetracycline	8	5	1																	2		2					
Fluoroquinolones - Ciprofloxacin	0.06	5	0					3		2																	
Quinolones - Nalidixic acid	16	5	0																			3		2			
Trimethoprim	2	5	2															3									
Aminoglycosides - Streptomycin	32	5	2																							1	
Aminoglycosides - Gentamicin	2	5	1													2		2									
Aminoglycosides - Neomycin	4	5	0																	4		1					
Penicillins - Ampicillin	8	5	2															1		1		1					
Cephalosporins - Cefotaxim	0.5	5	0									3		2													
Aminoglycosides - Apramycin	16	5	1																			3		1			
Aminoglycosides - Spectinomycin	64	5	2																								
Cephalosporins - Ceftiofur	2	5	0															3		2							
Polymyxins - Colistin	2	5	0															5									
Sulphonamides - Sulfamethoxazol	256	5	2																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 292 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

U 292  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory  Antimicrobials:	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			2															1	32
Aminoglycosides - Streptomycin		2				1	1											8	128
Aminoglycosides - Gentamicin	1																	0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			2															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin			1															4	32
Aminoglycosides - Spectinomycin		2		1		1		1										16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				3									2					64	1024



**Table Antimicrobial susceptibility testing of *S. Enteritidis* - PT 1b in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

PT 1b	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	1	0																			1					
Amphenicols - Florfenicol	16	1	0																			1					
Tetracyclines - Tetracycline	8	1	0																	1							
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																			
Quinolones - Nalidixic acid	16	1	0																			1					
Trimethoprim	2	1	0															1									
Aminoglycosides - Streptomycin	32	1	0																					1			
Aminoglycosides - Gentamicin	2	1	0												1												
Aminoglycosides - Neomycin	4	1	0																	1							
Penicillins - Ampicillin	8	1	0																	1							
Cephalosporins - Cefotaxim	0.5	1	0									1															
Aminoglycosides - Apramycin	16	1	0																			1					
Aminoglycosides - Spectinomycin	64	1	0																								
Cephalosporins - Ceftiofur	2	1	0															1									
Polymyxins - Colistin	2	1	0															1									
Sulphonamides - Sulfamethoxazol	256	1	0																								

Table Antimicrobial susceptibility testing of *S. Enteritidis* - PT 1b in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

PT 1b	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

**Table Antimicrobial susceptibility testing of S. Derby in Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Derby	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	6	0																			1		5			
Amphenicols - Florfenicol	16	6	0																			6					
Tetracyclines - Tetracycline	8	6	0																	6							
Fluoroquinolones - Ciprofloxacin	0.06	6	0			2		4																			
Quinolones - Nalidixic acid	16	6	0																			6					
Trimethoprim	2	6	0															6									
Aminoglycosides - Streptomycin	32	6	0																					2		4	
Aminoglycosides - Gentamicin	2	6	0													4		2									
Aminoglycosides - Neomycin	4	6	0																	6							
Penicillins - Ampicillin	8	6	0															6									
Cephalosporins - Cefotaxim	0.5	6	0									6															
Aminoglycosides - Apramycin	16	6	0																			6					
Aminoglycosides - Spectinomycin	64	6	0																								
Cephalosporins - Ceftiofur	2	6	0													3		3									
Polymyxins - Colistin	2	6	0															6									
Sulphonamides - Sulfamethoxazol	256	6	0																								

**Table Antimicrobial susceptibility testing of S. Derby in Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

S. Derby	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		6																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				6														64	1024

**Table Antimicrobial susceptibility testing of *S. Senftenberg* in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Senftenberg	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	1	0																					1			
Amphenicols - Florfenicol	16	1	0																		1						
Tetracyclines - Tetracycline	8	1	0																	1							
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																					
Quinolones - Nalidixic acid	16	1	0																			1					
Trimethoprim	2	1	0															1									
Aminoglycosides - Streptomycin	32	1	0																					1			
Aminoglycosides - Gentamicin	2	1	0													1											
Aminoglycosides - Neomycin	4	1	0																	1							
Penicillins - Ampicillin	8	1	0															1									
Cephalosporins - Cefotaxim	0.5	1	0									1															
Aminoglycosides - Apramycin	16	1	0																			1					
Aminoglycosides - Spectinomycin	64	1	0																								
Cephalosporins - Ceftiofur	2	1	0															1									
Polymyxins - Colistin	2	1	0															1									
Sulphonamides - Sulfamethoxazol	256	1	0																								

Table Antimicrobial susceptibility testing of *S. Senftenberg* in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

S. Senftenberg	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024

**Table Antimicrobial susceptibility testing of S. Typhimurium - DT 15a in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 15a	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16
Amphenicols - Chloramphenicol	16	1	0																			1					
Amphenicols - Florfenicol	16	1	0																			1					
Tetracyclines - Tetracycline	8	1	0																	1							
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																			
Quinolones - Nalidixic acid	16	1	0																			1					
Trimethoprim	2	1	0															1									
Aminoglycosides - Streptomycin	32	1	0																							1	
Aminoglycosides - Gentamicin	2	1	0															1									
Aminoglycosides - Neomycin	4	1	0																	1							
Penicillins - Ampicillin	8	1	0															1									
Cephalosporins - Cefotaxim	0.5	1	0									1															
Aminoglycosides - Apramycin	16	1	0																			1					
Aminoglycosides - Spectinomycin	64	1	0																								
Cephalosporins - Ceftiofur	2	1	0															1									
Polymyxins - Colistin	2	1	0															1									
Sulphonamides - Sulfamethoxazol	256	1	0																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 15a in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]

DT 15a	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin				1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024



Table Antimicrobial susceptibility testing of S. Typhimurium - DT 41 in Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 41   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory			Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																									
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	2	0																			2						
Amphenicols - Florfenicol	16	2	0																	2								
Tetracyclines - Tetracycline	8	2	0																	2								
Fluoroquinolones - Ciprofloxacin	0.06	2	0					2																				
Quinolones - Nalidixic acid	16	2	0																			2						
Trimethoprim	2	2	0															2										
Aminoglycosides - Streptomycin	32	2	0																							2		
Aminoglycosides - Gentamicin	2	2	0													1		1										
Aminoglycosides - Neomycin	4	2	0																	2								
Penicillins - Ampicillin	8	2	0															2										
Cephalosporins - Cefotaxim	0.5	2	0									2																
Aminoglycosides - Apramycin	16	2	0																			2						
Aminoglycosides - Spectinomycin	64	2	0																									
Cephalosporins - Ceftiofur	2	2	0													2												
Polymyxins - Colistin	2	2	0															1		1								
Sulphonamides - Sulfamethoxazol	256	2	0																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 41 in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 41	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		1		1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				2														64	1024

**Table Antimicrobial susceptibility testing of *S. Enteritidis* - PT 8 in *Gallus gallus* (fowl) - laying hens - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

PT 8	Gallus gallus (fowl) - laying hens - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	3	0																			3					
Amphenicols - Florfenicol	16	3	0																			3					
Tetracyclines - Tetracycline	8	3	0																	3							
Fluoroquinolones - Ciprofloxacin	0.06	3	0					3																			
Quinolones - Nalidixic acid	16	3	0																			3					
Trimethoprim	2	3	0															3									
Aminoglycosides - Streptomycin	32	3	0																					3			
Aminoglycosides - Gentamicin	2	3	0													2		1									
Aminoglycosides - Neomycin	4	3	0																	3							
Penicillins - Ampicillin	8	3	0																	3							
Cephalosporins - Cefotaxim	0.5	3	0									3															
Aminoglycosides - Apramycin	16	3	0																			3					
Aminoglycosides - Spectinomycin	64	3	0																								
Cephalosporins - Ceftiofur	2	3	0															3									
Polymyxins - Colistin	2	3	0															3									
Sulphonamides - Sulfamethoxazol	256	3	0																								

Table Antimicrobial susceptibility testing of *S. Enteritidis* - PT 8 in *Gallus gallus* (fowl) - laying hens - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

PT 8	Gallus gallus (fowl) - laying hens - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																				
	Isolates out of a monitoring program (yes/no)																				
		Number of isolates available in the laboratory																			
			Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																			2	64	
Amphenicols - Florfenicol																			2	64	
Tetracyclines - Tetracycline																			2	32	
Fluoroquinolones - Ciprofloxacin																			0.016	4	
Quinolones - Nalidixic acid																			4	64	
Trimethoprim																			1	32	
Aminoglycosides - Streptomycin																			8	128	
Aminoglycosides - Gentamicin																			0.5	16	
Aminoglycosides - Neomycin																			2	32	
Penicillins - Ampicillin																			1	32	
Cephalosporins - Cefotaxim																			0.12	4	
Aminoglycosides - Apramycin																			4	32	
Aminoglycosides - Spectinomycin		3																	16	256	
Cephalosporins - Ceftiofur																			0.5	8	
Polymyxins - Colistin																			1	16	
Sulphonamides - Sulfamethoxazol				3															64	1024	

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 104b in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 104b	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Cut-off value	N	n	≤0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	2	0																			1		1				
Amphenicols - Florfenicol	16	2	0																			2						
Tetracyclines - Tetracycline	8	2	2																									
Fluoroquinolones - Ciprofloxacin	0.06	2	0					2																				
Quinolones - Nalidixic acid	16	2	0																			1		1				
Trimethoprim	2	2	0															2										
Aminoglycosides - Streptomycin	32	2	1																								1	
Aminoglycosides - Gentamicin	2	2	1													1												
Aminoglycosides - Neomycin	4	2	1																	1								1
Penicillins - Ampicillin	8	2	2																									
Cephalosporins - Cefotaxim	0.5	2	0									2																
Aminoglycosides - Apramycin	16	2	1																			1						
Aminoglycosides - Spectinomycin	64	2	0																									
Cephalosporins - Ceftiofur	2	2	0													1		1										
Polymyxins - Colistin	2	2	0															2										
Sulphonamides - Sulfamethoxazol	256	2	1																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 104b in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 104b	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																			
	Isolates out of a monitoring program (yes/no)																			
	Number of isolates available in the laboratory																			
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64	
Amphenicols - Florfenicol																		2	64	
Tetracyclines - Tetracycline			2															2	32	
Fluoroquinolones - Ciprofloxacin																		0.016	4	
Quinolones - Nalidixic acid																		4	64	
Trimethoprim																		1	32	
Aminoglycosides - Streptomycin							1											8	128	
Aminoglycosides - Gentamicin	1																	0.5	16	
Aminoglycosides - Neomycin																		2	32	
Penicillins - Ampicillin			2															1	32	
Cephalosporins - Cefotaxim																		0.12	4	
Aminoglycosides - Apramycin			1															4	32	
Aminoglycosides - Spectinomycin		1		1														16	256	
Cephalosporins - Ceftiofur																		0.5	8	
Polymyxins - Colistin																		1	16	
Sulphonamides - Sulfamethoxazol				1									1					64	1024	

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT RDNC in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT RDNC	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Antimicrobials:																												
Amphenicols - Chloramphenicol	16	1	0																					1				
Amphenicols - Florfenicol	16	1	0																					1				
Tetracyclines - Tetracycline	8	1	0																		1							
Fluoroquinolones - Ciprofloxacin	0.06	1	0							1																		
Quinolones - Nalidixic acid	16	1	0																					1				
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	0																							1		
Aminoglycosides - Gentamicin	2	1	0															1										
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	0																		1							
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																					1				
Aminoglycosides - Spectinomycin	64	1	0																									
Cephalosporins - Ceftiofur	2	1	0															1										
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	0																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT RDNC in Cattle (bovine animals) - at farm - animal sample - Clinical investigations - quantitative data [ Dilution method ]

DT RDNC	Cattle (bovine animals) - at farm - animal sample - Clinical investigations																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin				1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1														64	1024



**Table Antimicrobial susceptibility testing of *S. Indiana* in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Indiana	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	7	0																			5		2			
Amphenicols - Florfenicol	16	7	0																			7					
Tetracyclines - Tetracycline	8	7	0																	7							
Fluoroquinolones - Ciprofloxacin	0.06	7	0			3		4																			
Quinolones - Nalidixic acid	16	7	0																			7					
Trimethoprim	2	7	0															7									
Aminoglycosides - Streptomycin	32	7	1																							5	
Aminoglycosides - Gentamicin	2	7	0													7											
Aminoglycosides - Neomycin	4	7	0																	7							
Penicillins - Ampicillin	8	7	0															6		1							
Cephalosporins - Cefotaxim	0.5	7	0									7															
Aminoglycosides - Apramycin	16	7	0																			7					
Aminoglycosides - Spectinomycin	64	7	0																								
Cephalosporins - Ceftiofur	2	7	0													6		1									
Polymyxins - Colistin	2	7	0															7									
Sulphonamides - Sulfamethoxazol	256	7	0																								

Table Antimicrobial susceptibility testing of *S. Indiana* in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

S. Indiana	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																			
	Isolates out of a monitoring program (yes/no)																			
	Number of isolates available in the laboratory																			
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
	Amphenicols - Chloramphenicol																		2	64
	Amphenicols - Florfenicol																		2	64
	Tetracyclines - Tetracycline																		2	32
	Fluoroquinolones - Ciprofloxacin																		0.016	4
	Quinolones - Nalidixic acid																		4	64
	Trimethoprim																		1	32
	Aminoglycosides - Streptomycin		1		1														8	128
	Aminoglycosides - Gentamicin																		0.5	16
	Aminoglycosides - Neomycin																		2	32
	Penicillins - Ampicillin																		1	32
	Cephalosporins - Cefotaxim																		0.12	4
	Aminoglycosides - Apramycin																		4	32
	Aminoglycosides - Spectinomycin		6		1														16	256
	Cephalosporins - Ceftiofur																		0.5	8
	Polymyxins - Colistin																		1	16
	Sulphonamides - Sulfamethoxazol				7														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 193 in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 193	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	2	0																			1		1			
Amphenicols - Florfenicol	16	2	0																			2					
Tetracyclines - Tetracycline	8	2	2																								
Fluoroquinolones - Ciprofloxacin	0.06	2	0					2																			
Quinolones - Nalidixic acid	16	2	0																			2					
Trimethoprim	2	2	0															2									
Aminoglycosides - Streptomycin	32	2	2																								
Aminoglycosides - Gentamicin	2	2	0															2									
Aminoglycosides - Neomycin	4	2	0																	2							
Penicillins - Ampicillin	8	2	2																								
Cephalosporins - Cefotaxim	0.5	2	0									2															
Aminoglycosides - Apramycin	16	2	0																			1		1			
Aminoglycosides - Spectinomycin	64	2	0																								
Cephalosporins - Ceftiofur	2	2	0															2									
Polymyxins - Colistin	2	2	0															2									
Sulphonamides - Sulfamethoxazol	256	2	2																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 193 in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 193	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																			
	Isolates out of a monitoring program (yes/no)																			
	Number of isolates available in the laboratory																			
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64	
Amphenicols - Florfenicol																		2	64	
Tetracyclines - Tetracycline			2															2	32	
Fluoroquinolones - Ciprofloxacin																		0.016	4	
Quinolones - Nalidixic acid																		4	64	
Trimethoprim																		1	32	
Aminoglycosides - Streptomycin							2											8	128	
Aminoglycosides - Gentamicin																		0.5	16	
Aminoglycosides - Neomycin																		2	32	
Penicillins - Ampicillin			2															1	32	
Cephalosporins - Cefotaxim																		0.12	4	
Aminoglycosides - Apramycin																		4	32	
Aminoglycosides - Spectinomycin		1		1														16	256	
Cephalosporins - Ceftiofur																		0.5	8	
Polymyxins - Colistin																		1	16	
Sulphonamides - Sulfamethoxazol													2					64	1024	

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - Not typeable in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

Not typeable	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	6	1																			3		2			
Amphenicols - Florfenicol	16	6	1																			5					
Tetracyclines - Tetracycline	8	6	3																	3							
Fluoroquinolones - Ciprofloxacin	0.06	6	0					6																			
Quinolones - Nalidixic acid	16	6	0																			6					
Trimethoprim	2	6	2															4									
Aminoglycosides - Streptomycin	32	6	4																							2	
Aminoglycosides - Gentamicin	2	6	2													2		2								1	
Aminoglycosides - Neomycin	4	6	0																	3		3					
Penicillins - Ampicillin	8	6	3															1		2							
Cephalosporins - Cefotaxim	0.5	6	0									5		1													
Aminoglycosides - Apramycin	16	6	2																			4					
Aminoglycosides - Spectinomycin	64	6	3																								
Cephalosporins - Ceftiofur	2	6	0													3		2		1							
Polymyxins - Colistin	2	6	0															6									
Sulphonamides - Sulfamethoxazol	256	6	4																								

**Table Antimicrobial susceptibility testing of S. Typhimurium - Not typeable in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

<b>Not typeable</b>  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
<b>Antimicrobials:</b>	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol					1													2	64
Amphenicols - Florfenicol					1													2	64
Tetracyclines - Tetracycline			3															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			2															1	32
Aminoglycosides - Streptomycin						1	3											8	128
Aminoglycosides - Gentamicin	1																	0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			3															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin			2															4	32
Aminoglycosides - Spectinomycin		2		1		1		1	1									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				2									4					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 20a in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 20a	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	1	0																			1						
Amphenicols - Florfenicol	16	1	0																			1						
Tetracyclines - Tetracycline	8	1	1																									
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																			1						
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	1																									
Aminoglycosides - Gentamicin	2	1	0															1										
Aminoglycosides - Neomycin	4	1	0																			1						
Penicillins - Ampicillin	8	1	1																									
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																					1				
Aminoglycosides - Spectinomycin	64	1	0																									
Cephalosporins - Ceftiofur	2	1	0															1										
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	1																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 20a in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

DT 20a	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin							1											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin				1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol													1					64	1024



**Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 311 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

U 311	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	5	0																			3		2			
Amphenicols - Florfenicol	16	5	0																			3		2			
Tetracyclines - Tetracycline	8	5	5																								
Fluoroquinolones - Ciprofloxacin	0.06	5	0					3		2																	
Quinolones - Nalidixic acid	16	5	0																			2		3			
Trimethoprim	2	5	0															5									
Aminoglycosides - Streptomycin	32	5	5																								
Aminoglycosides - Gentamicin	2	5	0													3		2									
Aminoglycosides - Neomycin	4	5	0																	5							
Penicillins - Ampicillin	8	5	4															1									
Cephalosporins - Cefotaxim	0.5	5	0									5															
Aminoglycosides - Apramycin	16	5	0																			5					
Aminoglycosides - Spectinomycin	64	5	0																								
Cephalosporins - Ceftiofur	2	5	0													1		2		2							
Polymyxins - Colistin	2	5	0															5									
Sulphonamides - Sulfamethoxazol	256	5	5																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 311 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

U 311	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			5															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin							5											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			4															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		4		1														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol													5					64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 312 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

U 312	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	2	0																			2					
Amphenicols - Florfenicol	16	2	0																			2					
Tetracyclines - Tetracycline	8	2	0																	2							
Fluoroquinolones - Ciprofloxacin	0.06	2	0					2																			
Quinolones - Nalidixic acid	16	2	0																			2					
Trimethoprim	2	2	0															2									
Aminoglycosides - Streptomycin	32	2	0																							2	
Aminoglycosides - Gentamicin	2	2	0													2											
Aminoglycosides - Neomycin	4	2	0																	2							
Penicillins - Ampicillin	8	2	0															1		1							
Cephalosporins - Cefotaxim	0.5	2	0									2															
Aminoglycosides - Apramycin	16	2	0																			1		1			
Aminoglycosides - Spectinomycin	64	2	0																								
Cephalosporins - Ceftiofur	2	2	0													2											
Polymyxins - Colistin	2	2	0															2									
Sulphonamides - Sulfamethoxazol	256	2	0																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 312 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

U 312	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline																		2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin																		8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin																		1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		2																16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				2														64	1024

**Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 323 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

U 323	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	4	0																			4					
Amphenicols - Florfenicol	16	4	0																			4					
Tetracyclines - Tetracycline	8	4	2																	2							
Fluoroquinolones - Ciprofloxacin	0.06	4	0					4																			
Quinolones - Nalidixic acid	16	4	0																			1		3			
Trimethoprim	2	4	0															4									
Aminoglycosides - Streptomycin	32	4	3																								
Aminoglycosides - Gentamicin	2	4	1													1		1		1						1	
Aminoglycosides - Neomycin	4	4	2																	2							
Penicillins - Ampicillin	8	4	4																								
Cephalosporins - Cefotaxim	0.5	4	0									4															
Aminoglycosides - Apramycin	16	4	1																			2		1			
Aminoglycosides - Spectinomycin	64	4	1																								
Cephalosporins - Ceftiofur	2	4	0													2		2									
Polymyxins - Colistin	2	4	0															4									
Sulphonamides - Sulfamethoxazol	256	4	3																								

Table Antimicrobial susceptibility testing of *S. Typhimurium* - U 323 in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

U 323  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			2															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim																		1	32
Aminoglycosides - Streptomycin		1					3											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin			2															2	32
Penicillins - Ampicillin			4															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin			1															4	32
Aminoglycosides - Spectinomycin		2		1					1									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				1									3					64	1024

Table Antimicrobial susceptibility testing of S. Typhimurium in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Typhimurium  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory			Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																									
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	9	1																			4		4				
Amphenicols - Florfenicol	16	9	0																			8		1				
Tetracyclines - Tetracycline	8	9	7																	2								
Fluoroquinolones - Ciprofloxacin	0.06	9	0					8		1																		
Quinolones - Nalidixic acid	16	9	0																			4		5				
Trimethoprim	2	9	1															8										
Aminoglycosides - Streptomycin	32	9	7																							1		
Aminoglycosides - Gentamicin	2	9	0													5		4										
Aminoglycosides - Neomycin	4	9	0																	9								
Penicillins - Ampicillin	8	9	7															1		1								
Cephalosporins - Cefotaxim	0.5	9	0									8		1														
Aminoglycosides - Apramycin	16	9	0																			8		1				
Aminoglycosides - Spectinomycin	64	9	1																									
Cephalosporins - Ceftiofur	2	9	0													3		4		2								
Polymyxins - Colistin	2	9	0															9										
Sulphonamides - Sulfamethoxazol	256	9	7																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* in Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling - quantitative data [ Dilution method ]

S. Typhimurium	Pigs - mixed herds - at farm - Surveillance - official controls - suspect sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol					1													2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			7															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			1															1	32
Aminoglycosides - Streptomycin		1					7											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			7															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		4		4					1									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				2									7					64	1024



**Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 104 in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

DT 104  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory			Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																									
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	1	0																			1						
Amphenicols - Florfenicol	16	1	0																			1						
Tetracyclines - Tetracycline	8	1	0																	1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0					1																				
Quinolones - Nalidixic acid	16	1	0																			1						
Trimethoprim	2	1	0															1										
Aminoglycosides - Streptomycin	32	1	0																							1		
Aminoglycosides - Gentamicin	2	1	0															1										
Aminoglycosides - Neomycin	4	1	0																	1								
Penicillins - Ampicillin	8	1	0																			1						
Cephalosporins - Cefotaxim	0.5	1	0									1																
Aminoglycosides - Apramycin	16	1	0																			1						
Aminoglycosides - Spectinomycin	64	1	0																									
Cephalosporins - Ceftiofur	2	1	0															1										
Polymyxins - Colistin	2	1	0															1										
Sulphonamides - Sulfamethoxazol	256	1	0																									

Table Antimicrobial susceptibility testing of *S. Typhimurium* - DT 104 in *Gallus gallus* (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling - quantitative data [ Dilution method ]

DT 104	Gallus gallus (fowl) - broilers - at farm - animal sample - faeces - Control and eradication programmes - official and industry sampling - objective sampling																			
	Isolates out of a monitoring program (yes/no)																			
	Number of isolates available in the laboratory																			
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64	
Amphenicols - Florfenicol																		2	64	
Tetracyclines - Tetracycline																		2	32	
Fluoroquinolones - Ciprofloxacin																		0.016	4	
Quinolones - Nalidixic acid																		4	64	
Trimethoprim																		1	32	
Aminoglycosides - Streptomycin																		8	128	
Aminoglycosides - Gentamicin																		0.5	16	
Aminoglycosides - Neomycin																		2	32	
Penicillins - Ampicillin																		1	32	
Cephalosporins - Cefotaxim																		0.12	4	
Aminoglycosides - Apramycin																		4	32	
Aminoglycosides - Spectinomycin		1																16	256	
Cephalosporins - Ceftiofur																		0.5	8	
Polymyxins - Colistin																		1	16	
Sulphonamides - Sulfamethoxazol				1														64	1024	

Table Cut-off values for antibiotic resistance testing of Salmonella in Animals

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.06	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulphonamides	Sulphonamides		256	
Aminoglycosides	Streptomycin		32	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.5	
Penicillins	Ampicillin		4	

Table Cut-off values for antibiotic resistance testing of Salmonella in Feed

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.06	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulphonamides	Sulphonamides		256	
Aminoglycosides	Streptomycin		32	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.5	
Penicillins	Ampicillin		4	

Table Cut-off values for antibiotic resistance testing of Salmonella in Food

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.06	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulphonamides	Sulphonamides		256	
Aminoglycosides	Streptomycin		32	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.5	
Penicillins	Ampicillin		4	

## 2.2 CAMPYLOBACTERIOSIS

### 2.2.1 General evaluation of the national situation

#### A. Thermophilic Campylobacter general evaluation

##### History of the disease and/or infection in the country

Since 1999, campylobacteriosis has been the single leading cause of bacterial gastrointestinal disease in Denmark. The incidence of Campylobacter in humans has a distinct seasonal distribution, with a summer peak in June-September. Consumption and handling of poultry and poultry products is believed to be the primary source of human campylobacteriosis in Denmark, though other sources also exist.

##### National evaluation of the recent situation, the trends and sources of infection

Campylobacteriosis has been the leading cause of bacterial gastrointestinal disease in Denmark since 1999, where it surpassed salmonellosis. The number of infections rose dramatically (by a factor of four) from 1991 to 2001 after which a decreasing trend can be observed. However, the number of infections in 2007 constituted an increase of 19% compared to the number of infections the year before and was the highest recorded in 5 years.

The epidemiology of Campylobacter is not understood in the same detail as for salmonella. As in other Western countries consumption and handling of poultry and poultry products is believed to be the primary source of human campylobacteriosis in Denmark, though several other sources also exist. A case-control study of sporadic infections performed in 2000-01 found the main risk factor for infection to be consumption of non-frozen chicken.

##### Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

Consumption and handling of poultry and poultry products is believed to be the primary source of human campylobacteriosis in Denmark, though other sources also exist.

##### Recent actions taken to control the zoonoses

In 2010, surveillance for Campylobacter in broiler flocks became mandatory, replacing the voluntary intervention strategy aimed at reducing the number of Campylobacter positive broiler flocks implemented in 2003. All broiler flocks are still sampled for Campylobacter, however the sampling has changed to boot swabs in the stable 7-10 days before slaughter from cloacal swabs at the slaughterhouse prior to slaughter. The samples are analysed using a PCR detection method.

## 2.2.2 Campylobacter in foodstuffs

### A. Thermophilic Campylobacter in Broiler meat and products thereof

#### Monitoring system

##### Sampling strategy

###### At meat processing plant

Monitoring for zoonotic pathogens in foodstuffs is coordinated both at the regional and at the central level of administration. Each Regional Veterinary and Food Control Authority (RVFCA) is responsible for the control carried out in its own region, and the Danish Veterinary and Food Administration (DVFA) is responsible for the regulation, control strategy and the surveillance at the overall national level.

###### At retail

Monitoring for zoonotic pathogens in foodstuffs is coordinated both at the regional and at the central level of administration. Each Regional Veterinary and Food Control Authority (RVFCA) is responsible for the control carried out in its own region, and the Danish Veterinary and Food Administration (DVFA) is responsible for the regulation, control strategy and the surveillance at the overall national level.

#### Frequency of the sampling

##### At slaughterhouse and cutting plant

Every flock

##### At meat processing plant

Depend on the survey

##### At retail

Depend on the survey

#### Type of specimen taken

##### At slaughterhouse and cutting plant

Meat samples

##### At meat processing plant

Meat samples

##### At retail

Meat samples

#### Methods of sampling (description of sampling techniques)

##### At meat processing plant

Depend on the survey

##### At retail

Depend on the survey

#### Definition of positive finding

##### At meat processing plant

Depend on the survey. Samples are considered positive when Campylobacter has been detected either by using the PCR method or bacteriological methods.

At retail

Depend on the survey. Samples are considered positive when *Campylobacter* has been detected either by using the PCR method or bacteriological methods.

Diagnostic/analytical methods used

At meat processing plant

Depend on the survey

At retail

Depend on the survey

Notification system in place

*Campylobacteriosis* is not notifiable in broilers.

Results of the investigation

Sampling of chilled broiler meat at slaughter are from the two major slaughterhouses in Denmark, representing 98% of the total production

Results from a survey on chilled broiler meat at retail are not yearly mean estimates. The high prevalent period (2. Quarter) is underrepresented in 2010

Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

Consumption and handling of poultry and poultry products is believed to be the primary source of human *campylobacteriosis* in Denmark, though other sources also exist.



Table Campylobacter in poultry meat

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Campylobacter	C. coli	C. jejuni	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Meat from broilers (Gallus gallus) - fresh - Monitoring - industry sampling - objective sampling	-	---	-	0	0					0
Meat from broilers (Gallus gallus) - fresh - chilled - at retail - domestic production - Monitoring - official sampling - objective sampling <sup>1)</sup>	Food-DTU	Single	10g or 15g	767	354					354
Meat from broilers (Gallus gallus) - fresh - chilled - at slaughterhouse - animal sample - meat - Monitoring - industry sampling - objective sampling	Food-DTU	Single	10 or 15g	1777	122					122
Meat from broilers (Gallus gallus) - fresh - frozen - at retail - domestic production - Monitoring - official sampling - objective sampling	Food-DTU	Single	10g or 15g	477	175					175

## Comments:

<sup>1)</sup> The numbers are not yearly mean estimates. The high prevalent period (2. quarter) is underrepresented in 2010

The following amendments were made:

Date of Modification	Row name	Column name	Old value	New value
2011-12-13	Meat from broilers (Gallus gallus) - fresh - Monitoring - industry sampling - objective sampling	Thermophilic Campylobacter spp., unspecified	122	0
	Meat from broilers (Gallus gallus) - fresh - Monitoring - industry sampling - objective sampling	Total units positive for Campylobacter	122	0
	Meat from broilers (Gallus gallus) - fresh - Monitoring - industry sampling - objective sampling	Units tested	1177	0
	Meat from broilers (Gallus gallus) - fresh - Monitoring - industry sampling - objective sampling	Sampling unit	Single	---
	Meat from broilers (Gallus gallus) - fresh - Monitoring - industry sampling - objective sampling	Source of information	Food-DTU	-
	Meat from broilers (Gallus gallus) - fresh - Monitoring - industry sampling - objective sampling	Sample weight	10g or 15g	-
	Meat from broilers (Gallus gallus) - fresh - chilled - at slaughterhouse - animal sample - meat - Monitoring - industry sampling - objective sampling	Thermophilic Campylobacter spp., unspecified		122
	Meat from broilers (Gallus gallus) - fresh - chilled - at slaughterhouse - animal sample - meat - Monitoring - industry sampling - objective sampling	Total units positive for Campylobacter		122
	Meat from broilers (Gallus gallus) - fresh - chilled - at slaughterhouse - animal sample - meat - Monitoring - industry sampling - objective sampling	Units tested		1777
	Meat from broilers (Gallus gallus) - fresh - chilled - at slaughterhouse - animal sample - meat - Monitoring - industry sampling - objective sampling	Sample weight		10 or 15g

Date of Modification	Row name	Column name	Old value	New value
2011-12-13	Meat from broilers (Gallus gallus) - fresh - chilled - at slaughterhouse - animal sample - meat - Monitoring - industry sampling - objective sampling	Sampling unit		Single
	Meat from broilers (Gallus gallus) - fresh - chilled - at slaughterhouse - animal sample - meat - Monitoring - industry sampling - objective sampling	Source of information		Food-DTU

## 2.2.3 Campylobacter in animals

### A. Thermophilic Campylobacter in Gallus gallus

#### Monitoring system

##### Sampling strategy

In 2010, surveillance of Campylobacter in broiler flocks became mandatory, and the sampling was changed from cloacal swabs at slaughter to boot swabs in the stable 7-10 days before slaughter. The voluntary intervention strategy aimed at reducing the number of Campylobacter positive broiler flocks implemented in 2003 was continued in 2009. All broiler flocks are sampled for Campylobacter at the slaughterhouse prior to slaughter, and the samples are analysed using a PCR detection method.

##### Frequency of the sampling

Before slaughter at farm

Every flock is sampled

##### Type of specimen taken

Before slaughter at farm

Socks/ boot swabs

##### Methods of sampling (description of sampling techniques)

Before slaughter at farm

1 pair of boot swabs is collected from each flock/batch 7-10 days before slaughter.

##### Case definition

Before slaughter at farm

Samples are considered positive when Campylobacter has been detected using the PCR method.

#### Other preventive measures than vaccination in place

Generally, Campylobacter-negative flocks are allocated to the production of fresh products and Campylobacter-positive flocks for frozen product production, although not completely consistent.

#### Control program/mechanisms

##### The control program/strategies in place

January 1st 2010, Order no 1462/12/2009 came into force

##### Recent actions taken to control the zoonoses

In 2010, a mandatory surveillance came into action aimed at reducing the number of Campylobacter positive broiler flocks in Denmark.

A voluntary intervention strategy aimed at reducing the number of Campylobacter positive broiler flocks was implemented in 2003

#### Measures in case of the positive findings or single cases

None

#### Notification system in place

Campylobacteriosis is not notifiable in poultry

### Results of the investigation

In 2010, there were 16.5% *Campylobacter* positive flocks. This number cannot be compared to data from previous years, because of the change in sampling

### National evaluation of the recent situation, the trends and sources of infection

Since 2001, there has been a 25% reduction in the number of human campylobacteriosis cases. This decrease coincide with a reduction in the flock prevalence from 43% to 26% after the implementation of the voluntary intervention programme in broilers. It is likely that the practice of allocating *Campylobacter*-negative flocks to the production of fresh products and *Campylobacter*-positive flocks for frozen product production, although not completely consistent, contributed to the reduction in human cases.

### Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

Consumption and handling of poultry and poultry products is believed to be the primary source of human campylobacteriosis in Denmark, though other sources also exist.

### Additional information

The PCR-method used in surveillance of *Campylobacter* in broilers does not differentiate between species of *Campylobacter*.

Table Campylobacter in animals

	Source of information	Sampling unit	Units tested	Total units positive for Campylobacter	C. coli	C. jejuni	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Dogs - pet animals - Clinical investigations	Vet-DTU	Animal	1	0					
Gallus gallus (fowl) - broilers - before slaughter - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling - census	DAFC	Flock	3132	518					518

## 2.2.4 Antimicrobial resistance in Campylobacter isolates

### A. Antimicrobial resistance in Campylobacter jejuni and coli in cattle

#### Sampling strategy used in monitoring

##### Frequency of the sampling

Samples from healthy pigs, cattle and broilers are collected at slaughter for the DANMAP programme by meat inspection staff or company personnel and sent for examination to the National Food Institute DTU. The slaughter plants included in the DANMAP programme accounted for majority of the total number of animals slaughtered in Denmark. Each sample represents one herd. The number of pig- and cattle samples taken at the slaughter plant is proportional to the number of animals slaughtered at each plant per year and samples are collected once a month from January through November.

##### Type of specimen taken

Rectum samples.

##### Procedures for the selection of isolates for antimicrobial testing

One isolate per herd were susceptibility tested.

##### Methods used for collecting data

All isolated were tested at the laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Only reported to EFSA if 15 isolates or more.

#### Laboratory used for detection for resistance

##### Antimicrobials included in monitoring

See tables

##### Cut-off values used in testing

See tables

#### Preventive measures in place

None

#### Control program/mechanisms

##### Recent actions taken to control the zoonoses

None

#### Measures in case of the positive findings or single cases

None

#### Results of the investigation

See tables

## B. Antimicrobial resistance in *Campylobacter jejuni* and *coli* in foodstuff derived from cattle

### Sampling strategy used in monitoring

#### Frequency of the sampling

The food isolates originated from food samples collected at wholesale and retail outlets by the Regional Veterinary and Food Control Authorities (RFCA) in all regions of Denmark during the course of routine inspection carried out by the authorities or on specific request from the Danish Veterinary and Food Administration (DVFA) for the DANMAP programme. *Campylobacter* was only collected from poultry meat because of a low isolation rate for beef and pork.



### C. Antimicrobial resistance in *Campylobacter jejuni* and *coli* in foodstuff derived from pigs

#### Sampling strategy used in monitoring

##### Frequency of the sampling

The food isolates originated from food samples collected at wholesale and retail outlets by the Regional Veterinary and Food Control Authorities (RFCA) in all regions of Denmark during the course of routine inspection carried out by the authorities or on specific request from the Danish Veterinary and Food Administration (DVFA) for the DANMAP programme. *Campylobacter* was only collected from poultry meat because of a low isolation rate for beef and pork.

## D. Antimicrobial resistance in *Campylobacter jejuni* and *coli* in foodstuff derived from poultry

### Sampling strategy used in monitoring

#### Frequency of the sampling

The food isolates originated from food samples collected at wholesale and retail outlets by the Regional Veterinary and Food Control Authorities (RFCA) in all regions of Denmark during the course of routine inspection carried out by the authorities or on specific request from the Danish Veterinary and Food Administration (DVFA) for the DANMAP programme. Samples collected evenly through out the year.

#### Type of specimen taken

Meat samples.

#### Procedures for the selection of isolates for antimicrobial testing

One isolate per meat sample were susceptibility tested.

#### Methods used for collecting data

All isolated were tested at the laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Only reported to EFSA if 15 isolates or more.

### Laboratory used for detection for resistance

#### Antimicrobials included in monitoring

See tables

#### Cut-off values used in testing

See tables

### Preventive measures in place

None

### Control program/mechanisms

#### Recent actions taken to control the zoonoses

None

### Measures in case of the positive findings or single cases

None

### Results of the investigation

See tables

## E. Antimicrobial resistance in *Campylobacter jejuni* and *coli* in pigs

### Sampling strategy used in monitoring

#### Frequency of the sampling

Samples from healthy pigs, cattle and broilers are collected at slaughter for the DANMAP programme by meat inspection staff or company personnel and sent for examination to the National Food Institute DTU. The slaughter plants included in the DANMAP programme accounted for majority of the total number of animals slaughtered in Denmark. Each sample represents one herd. The number of pig- and cattle samples taken at the slaughter plant is proportional to the number of animals slaughtered at each plant per year and samples are collected once a month from January through November.

#### Type of specimen taken

Ceacum samples.

#### Procedures for the selection of isolates for antimicrobial testing

One isolate per herd were susceptibility tested.

#### Methods used for collecting data

All isolated were tested at the laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Only reported to EFSA if 15 isolates or more.

### Laboratory used for detection for resistance

#### Antimicrobials included in monitoring

See tables

#### Cut-off values used in testing

See tables

### Preventive measures in place

None

### Control program/mechanisms

#### Recent actions taken to control the zoonoses

None

### Measures in case of the positive findings or single cases

None

### Results of the investigation

See tables

## F. Antimicrobial resistance in Campylobacter jejuni and coli in poultry

### Sampling strategy used in monitoring

#### Frequency of the sampling

Samples from healthy pigs, cattle and broilers are collected at slaughter for the DANMAP programme by meat inspection staff or company personnel and sent for examination to the National Food Institute DTU. The broiler slaughter plants included in the surveillance programme account for the majority of the total production of broilers in Denmark. Each sample represents one holding, not the individual broiler flock. For broilers, cloacal swab samples are collected weekly throughout the year representing all broiler flocks in Denmark (approximately 400 samples per year).

#### Type of specimen taken

Cloacal swabs.

#### Procedures for the selection of isolates for antimicrobial testing

One isolate per farm were susceptibility tested.

#### Methods used for collecting data

All isolated were tested at the laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Only reported to EFSA if 15 isolates or more.

### Laboratory used for detection for resistance

#### Antimicrobials included in monitoring

See tables

#### Cut-off values used in testing

See tables

### Preventive measures in place

None

### Control program/mechanisms

#### Recent actions taken to control the zoonoses

None

### Measures in case of the positive findings or single cases

None

### Results of the investigation

See tables

**Table Antimicrobial susceptibility testing of *C. jejuni* in Cattle (bovine animals) - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

C. jejuni	Cattle (bovine animals) - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	≤0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	98	0																	75		22		1				
Tetracyclines - Tetracycline	2	98	6											58		32		1		1								
Fluoroquinolones - Ciprofloxacin	1	98	20							10		58		9		1							20					
Quinolones - Nalidixic acid	16	98	20																	5		58		13		2		
Aminoglycosides - Streptomycin	2	98	1															96		1								
Aminoglycosides - Gentamicin	1	98	0									42		47		9												
Macrolides - Erythromycin	4	98	0													33		47		17		1						

C. jejuni	Cattle (bovine animals) - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	32
Tetracyclines - Tetracycline	6																	0.25	16
Fluoroquinolones - Ciprofloxacin																		0.06	4
Quinolones - Nalidixic acid					20													2	64
Aminoglycosides - Streptomycin	1																	1	16
Aminoglycosides - Gentamicin																		0.12	16

Table Antimicrobial susceptibility testing of *C. jejuni* in Cattle (bovine animals) - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

C. jejuni   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Cattle (bovine animals) - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Antimicrobials:																			
Macrolides - Erythromycin																		0.5	32

**Table Antimicrobial susceptibility testing of *C. coli* in Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

C. coli	Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	103	0																	21		61		19		2		
Tetracyclines - Tetracycline	2	103	12											54		25		10		2		3		1		1		
Fluoroquinolones - Ciprofloxacin	1	103	8							29		45		21									8					
Quinolones - Nalidixic acid	32	103	8																	8		37		34		16		
Aminoglycosides - Streptomycin	4	103	65															29		9						4		
Aminoglycosides - Gentamicin	2	103	0									10		60		33												
Macrolides - Erythromycin	16	103	16													24		25		27		11						

C. coli	Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	32
Tetracyclines - Tetracycline	7																	0.25	16
Fluoroquinolones - Ciprofloxacin																		0.06	4
Quinolones - Nalidixic acid				2	6													2	64
Aminoglycosides - Streptomycin	61																	1	16
Aminoglycosides - Gentamicin																		0.12	16

Table Antimicrobial susceptibility testing of *C. coli* in Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

<b>C. coli</b>  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																		
Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Macrolides - Erythromycin			16															0.5	32



**Table Antimicrobial susceptibility testing of *C. jejuni* in *Gallus gallus* (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

C. jejuni	Gallus gallus (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	41	0																	24		15		2				
Tetracyclines - Tetracycline	2	41	7											25		7		2								1		
Fluoroquinolones - Ciprofloxacin	1	41	8							5		19		8		1							8					
Quinolones - Nalidixic acid	16	41	7																	3		22		7		2		
Aminoglycosides - Streptomycin	2	41	1															40										
Aminoglycosides - Gentamicin	1	41	0									19		19		2		1										
Macrolides - Erythromycin	4	41	0													19		11		8		3						

C. jejuni   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Gallus gallus (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Antimicrobials:																		2	32
Amphenicols - Chloramphenicol																		2	32
Tetracyclines - Tetracycline	6																	0.25	16
Fluoroquinolones - Ciprofloxacin																		0.06	4
Quinolones - Nalidixic acid					7													2	64
Aminoglycosides - Streptomycin	1																	1	16
Aminoglycosides - Gentamicin																		0.12	16

Table Antimicrobial susceptibility testing of *C. jejuni* in *Gallus gallus* (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

C. jejuni	Gallus gallus (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Macrolides - Erythromycin																		0.5	32

**Table Antimicrobial susceptibility testing of *C. jejuni* in Meat from broilers (*Gallus gallus*) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

C. jejuni	Meat from broilers (Gallus gallus) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	52	0																	38		11		3				
Tetracyclines - Tetracycline	2	52	6											31		12		1		2								
Fluoroquinolones - Ciprofloxacin	1	52	9							2		33		6		1		1		1			8					
Quinolones - Nalidixic acid	16	52	7																	7		30		7		1		
Aminoglycosides - Streptomycin	2	52	1															51										
Aminoglycosides - Gentamicin	1	52	0									25		26		1												
Macrolides - Erythromycin	4	52	1													18		18		13		2		1				

C. jejuni	Meat from broilers (Gallus gallus) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	32
Tetracyclines - Tetracycline	6																	0.25	16
Fluoroquinolones - Ciprofloxacin																		0.06	4
Quinolones - Nalidixic acid		1			6													2	64
Aminoglycosides - Streptomycin	1																	1	16
Aminoglycosides - Gentamicin																		0.12	16

Table Antimicrobial susceptibility testing of *C. jejuni* in Meat from broilers (*Gallus gallus*) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

<b>C. jejuni</b>  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Meat from broilers ( <i>Gallus gallus</i> ) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																		
Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Macrolides - Erythromycin																		0.5	32

**Table Antimicrobial susceptibility testing of *C. coli* in Meat from broilers (*Gallus gallus*) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

C. coli	Meat from broilers (Gallus gallus) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	20	0																	9		8		3				
Tetracyclines - Tetracycline	2	20	7											9		3		1										
Fluoroquinolones - Ciprofloxacin	1	20	0							1		12		5		2												
Quinolones - Nalidixic acid	32	20	0																	2		14		3				
Aminoglycosides - Streptomycin	4	20	4															14		2								
Aminoglycosides - Gentamicin	2	20	0									10		7		3												
Macrolides - Erythromycin	16	20	0													8		10		2								

C. coli	Meat from broilers (Gallus gallus) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	32
Tetracyclines - Tetracycline	7																	0.25	16
Fluoroquinolones - Ciprofloxacin																		0.06	4
Quinolones - Nalidixic acid		1																2	64
Aminoglycosides - Streptomycin	4																	1	16
Aminoglycosides - Gentamicin																		0.12	16

Table Antimicrobial susceptibility testing of *C. coli* in Meat from broilers (*Gallus gallus*) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

<b>C. coli</b>  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Meat from broilers ( <i>Gallus gallus</i> ) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																		
Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Macrolides - Erythromycin																		0.5	32

Table Cut-off values used for antimicrobial susceptibility testing of *C. coli* in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		2	
Fluoroquinolones	Ciprofloxacin		1	
Aminoglycosides	Gentamicin		2	
	Streptomycin		4	
Macrolides	Erythromycin		16	

Table Cut-off values used for antimicrobial susceptibility testing of *C. coli* in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		2	
Fluoroquinolones	Ciprofloxacin		1	
Aminoglycosides	Gentamicin		2	
	Streptomycin		4	
Macrolides	Erythromycin		16	



Table Cut-off values used for antimicrobial susceptibility testing of *C. coli* in Food

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		2	
Fluoroquinolones	Ciprofloxacin		1	
Aminoglycosides	Gentamicin		2	
	Streptomycin		4	
Macrolides	Erythromycin		16	

Table Cut-off values used for antimicrobial susceptibility testing of *C. jejuni* in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		2	
Fluoroquinolones	Ciprofloxacin		1	
Aminoglycosides	Gentamicin		1	
	Streptomycin		2	
Macrolides	Erythromycin		4	

Table Cut-off values used for antimicrobial susceptibility testing of *C. jejuni* in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		2	
Fluoroquinolones	Ciprofloxacin		1	
Aminoglycosides	Gentamicin		1	
	Streptomycin		2	
Macrolides	Erythromycin		4	

Table Cut-off values used for antimicrobial susceptibility testing of *C. jejuni* in Food

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		2	
Fluoroquinolones	Ciprofloxacin		1	
Aminoglycosides	Gentamicin		1	
	Streptomycin		2	
Macrolides	Erythromycin		4	

## 2.3 LISTERIOSIS

### 2.3.1 General evaluation of the national situation

#### A. Listeriosis general evaluation

##### History of the disease and/or infection in the country

Listeriosis is not a common disease in humans in Denmark, however the incidence has been increasing during recent years

##### National evaluation of the recent situation, the trends and sources of infection

In 2010, there were 62 cases in Denmark corresponding to an incidence of 1.1 cases per 100.000 inhabitants.

##### Recent actions taken to control the zoonoses

From January 2006 a new EU Regulation on microbiological criteria for foodstuffs<sup>1</sup> came into force. In this Regulation harmonised criteria for *Listeria monocytogenes* are introduced. The new EU criteria distinguish between products supporting growth of *Listeria* and products not supporting growth and cover all ready-to-eat foods

##### Additional information

There is great concern in Denmark about the increasing incidence

## 2.3.2 Listeria in foodstuffs

Table Listeria monocytogenes in milk and dairy products

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for L. monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g	Units tested with enumeration method	> detection limit but ≤ 100 cfu/g	L. monocytogenes > 100 cfu/g
Dairy products (excluding cheeses) - butter - at processing plant	DVFA	Batch	25G	30	0	17	0	13	0	0
Dairy products (excluding cheeses) - cream - at processing plant	DVFA	Batch	25g	4	0	4	0			
Milk, cows' - pasteurised milk - at processing plant	DVFA	Batch	25g	33	0	23	0	10	0	0
Cheeses, made from unspecified milk or other animal milk - hard - at processing plant - domestic production	DVFA	Batch	25 g OR 1g	24	0	11	0	13	0	0
Cheeses, made from unspecified milk or other animal milk - soft and semi-soft - at processing plant - domestic production	DVFA	Batch	25g OR 1g	59	0	30	0	29	0	0
Cheeses, made from unspecified milk or other animal milk - unspecified - at processing plant - domestic production	DVFA	Batch	25g OR 1 g	47	0	30	0	17	0	0
Dairy products (excluding cheeses) - buttermilk - at processing plant - domestic production	DVFA	Batch	25g	19	0	9	0	10	0	0
Dairy products (excluding cheeses) - chocolate milk - at processing plant - domestic production	DVFA	Batch	25 g or 1g	6	0	4	0	2	0	0
Dairy products (excluding cheeses) - ice-cream - at processing plant - domestic production	DVFA	Batch	25	19	0	8	0	11	0	0

Table Listeria monocytogenes in milk and dairy products

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for L. monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g	Units tested with enumeration method	> detection limit but ≤ 100 cfu/g	L. monocytogenes > 100 cfu/g
Dairy products (excluding cheeses) - milk powder and whey powder - at processing plant - domestic production	DVFA	Batch	1g	100	0			100	0	0
Infant formula - at processing plant - domestic production	DVFA	Batch	25g	3	0	3	0			

Table *Listeria monocytogenes* in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for <i>L. monocytogenes</i>	Units tested with detection method	<i>Listeria monocytogenes</i> presence in x g	Units tested with enumeration method	> detection limit but ≤ 100 cfu/g	<i>L. monocytogenes</i> > 100 cfu/g
Meat from bovine animals - meat products - cooked, ready-to-eat - at processing plant	DVFA	Batch	25g or 1g	19	1	6	1	13	0	0
Meat from pig - meat products - cooked, ready-to-eat - at processing plant	DVFA	Batch	25 g or 1g	154	2	44	2	110	0	0
Meat from pig - meat products - cooked, ready-to-eat - at retail	DVFA	Single	25g OR 1g	116	2	40	2	76	0	0
Crustaceans - shrimps - at processing plant - domestic production	DVFA	Batch	25g OR 1g	31	4	22	4	9	0	0
Fish - smoked - cold-smoked - at processing plant - domestic production	DVFA	Batch	25g or 1g	110	14	45	10	65	0	4
Fish - smoked - cold-smoked - at retail <sup>1)</sup>	DVFA	Batch	25g	4	2	4	2			
Fish - smoked - cold-smoked - at retail - domestic production	DVFA	Single	25g or 1g	45	7	13	1	32	0	6
Fish - smoked - hot-smoked - at processing plant - domestic production	DVFA	Batch	25g OR 1g	24	0	11	0	13	0	0
Fish - unspecified - at processing plant - domestic production	DVFA	Batch	25g or 1g	8	0	2	0	6	0	0
Fish - unspecified - at retail - domestic production	DVFA	Single	1g	4	0			4	0	0
Fishery products, unspecified - cooked - at processing plant - domestic production	DVFA	Batch	1g	2	0			2	0	0
Fishery products, unspecified - cooked - at retail - domestic production	DVFA	Single	25g or 1g	6	0	3	0	3	0	0



Table *Listeria monocytogenes* in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for <i>L. monocytogenes</i>	Units tested with detection method	<i>Listeria monocytogenes</i> presence in x g	Units tested with enumeration method	> detection limit but ≤ 100 cfu/g	<i>L. monocytogenes</i> > 100 cfu/g
Fruits - precut - ready-to-eat - at processing plant - domestic production	DVFA	Batch	1g	2	0			2	0	0
Meat from bovine animals - meat products - fermented sausages - at processing plant - domestic production	DVFA	Batch	25g	4	0	4	0			
Meat from broilers ( <i>Gallus gallus</i> ) - meat products - cooked, ready-to-eat - at retail - domestic production	DVFA	Single	25g	3	0	3	0			
Meat from broilers ( <i>Gallus gallus</i> ) - meat products - cooked, ready-to-eat - chilled - at processing plant - domestic production	DVFA	Batch	1g	2	0			2	0	0
Meat from pig - meat products - at processing plant - domestic production (bacon)	DVFA	Batch	25g	2	0	2	0			
Meat from pig - meat products - cooked, ready-to-eat - at processing plant - domestic production	DVFA	Single	1g	25	0			25	0	0
Meat from pig - meat products - fermented sausages - at processing plant - domestic production	DVFA	Batch	1g	36	1			36	1	0
Meat from pig - meat products - fermented sausages - at retail - domestic production	DVFA	Batch	1g	16	1			16	1	0
Meat from pig - meat products - pate - at processing plant - domestic production	DVFA	Batch	25 OR 1g	14	0	8	0	6	0	0
Other processed food products and prepared dishes - pasta/rice salad - at retail - domestic production	DVFA	Single	25g OR 1g	26	0	13	0	13	0	0

Table *Listeria monocytogenes* in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for <i>L. monocytogenes</i>	Units tested with detection method	<i>Listeria monocytogenes</i> presence in x g	Units tested with enumeration method	> detection limit but ≤ 100 cfu/g	<i>L. monocytogenes</i> > 100 cfu/g
Other processed food products and prepared dishes - unspecified - ready-to-eat foods - at processing plant - domestic production	DVFA	Batch	25g OR 1g	26	0	16	0	10	0	0
Other processed food products and prepared dishes - unspecified - ready-to-eat foods - at retail - domestic production	DVFA	Single	25g OR 1g	320	4	99	4	221	0	0
Sauce and dressings - mayonnaise - at processing plant - domestic production	DVFA	Batch	1g	23	0			23	0	0
Vegetables - at processing plant - domestic production	DVFA	Batch	25 or 1g	18	0	8	0	10	0	0
Vegetables - at processing plant - domestic production (Frozen)	DVFA	Batch	25g or 1g	6	0	3	0	3	0	0
Vegetables - pre-cut - ready-to-eat - at processing plant - domestic production	DVFA	Batch	1g	7	0			7	0	0

## Comments:

<sup>1)</sup> domestic production

## 2.4 E. COLI INFECTIONS

### 2.4.1 General evaluation of the national situation

#### A. Verotoxigenic Escherichia coli infections general evaluation

##### National evaluation of the recent situation, the trends and sources of infection

Since the beginning of the surveillance in 1997 the incidence has increased; an increase which is primarily assumed to reflect improved diagnostics and increased awareness. However, Denmark does not have a centrally coordinated standard testing method for VTEC and the incidence through the past 10 years has been 3 to 10 times higher in counties using a diagnostic approach involving molecular detection methods.

##### Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

Cattle is known to harbour VTEC O157 and therefore there is a potential risk for contamination in the food chain, which require alertness at all steps from stable-to-table.

##### Recent actions taken to control the zoonoses

None

## 2.4.2 Escherichia coli, pathogenic in foodstuffs

Table VT E. coli in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC) - VTEC O157	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Meat from bovine animals - meat products - fermented sausages - at processing plant - domestic production - Survey <sup>1)</sup>	DTU-food	Batch		130	0			

### Comments:

<sup>1)</sup> Samples are analysed according to ISO 16654.

## 2.4.3 Escherichia coli, pathogenic in animals

### A. Verotoxigenic Escherichia coli in cattle (bovine animals)

#### Monitoring system

##### Sampling strategy

VTEC is not notifiable in animals.

The National Food Institute has monitored the occurrence of VTEC O157 in cattle since June 1997 through yearly examination of approximately 200 faecal samples from slaughter calves. The samples are collected at the slaughterhouses as part of the DANMAP programme. The samples (25 g) are investigated by overnight enrichment in buffered peptone water followed by immunomagnetic separation and seeding on to sorbitol MacConkey agar supplemented with cefixime and potassium tellurite. Isolates of *E. coli* O157 are investigated for genes encoding verocytotoxin by PCR analysis.

In 2010, VTEC O157 was detected in 1,9% (5/260) of the investigated samples. This prevalence is a little lower than findings in the previous years, where the observed prevalence has ranged from 2,8 to 10,3%

##### Frequency of the sampling

Animals at slaughter (herd based approach)

One animal per randomly selected herd

##### Type of specimen taken

Animals at slaughter (herd based approach)

Faeces

##### Methods of sampling (description of sampling techniques)

Animals at slaughter (herd based approach)

faecal samples are collected from slaughter calves at the slaughterhouses.

##### Case definition

Animals at slaughter (herd based approach)

An animal from which VTEC O157 is isolated

#### Control program/mechanisms

The control program/strategies in place

VTEC is not notifiable in animals.

Recent actions taken to control the zoonoses

None

#### Measures in case of the positive findings or single cases

None

#### Results of the investigation

In 2010, VTEC O157 was detected in 1,9% (5/260) of the investigated samples. This prevalence is a little lower than findings in the previous years, where the observed prevalence has ranged from 2,8 to 10,3% with an average prevalence of 5,7%

Relevance of the findings in animals to findings in foodstuffs and to human cases (as a

source of infection)

Cattle is known to harbour VTEC O157 and therefore there is a potential risk for contamination in the food chain, which require alertness at all steps from stable-to-table.

Table VT E. coli in animals

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC) - VTEC O157	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Cattle (bovine animals) - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling	DTU-food	Animal	25	260	5	5		

## 2.5 TUBERCULOSIS, MYCOBACTERIAL DISEASES

### 2.5.1 General evaluation of the national situation

#### A. Tuberculosis general evaluation

##### History of the disease and/or infection in the country

Eradication of bovine tuberculosis in Denmark started already in 1893. In 1953 the eradication programme was changed to a surveillance programme - since at that time only very few outbreaks were reported annually. Since 1980 Denmark has been declared officially free from bovine tuberculosis by EFTA surveillance Authority (EAS), and the disease has not been diagnosed in cattle since 1988.

Deer farming began in Denmark in the early 1980 and until then bovine tuberculosis had never been diagnosed from deer. The farmed deer was primarily imported animals and in 1988 an outbreak was reported and during 1988-89 another 12 farms was diagnosed with bovine tuberculosis. In 1989 a control programme was initiated and in 1991, 1993 and 1994 tuberculosis was diagnosed from on farm each year. Since 1994 tuberculosis has not been reported from deer in Denmark.

The disease is notifiable and at suspicion the herd is put under official supervision and the herd examined using tuberculin testing. In case of a positive diagnose are all herds, that have received animals from the infected herd put under official supervision and tested using the tuberculin test.

##### National evaluation of the recent situation, the trends and sources of infection

Denmark has been officially free from bovine tuberculosis since 1980 and the probability of contracting bovine tuberculosis from Danish animals or foodstuff is close to zero.

##### Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

There have been no findings of Mycobacteria in animals or foodstuff

##### Recent actions taken to control the zoonoses

None, the zoonosis is under control



## 2.5.2 Mycobacterium in animals

### A. Mycobacterium bovis in bovine animals

#### Status as officially free of bovine tuberculosis during the reporting year

The entire country free

Denmark has been declared officially tuberculosis free since 1980 by the EFTA Surveillance Authority (ESA).

#### Monitoring system

##### Sampling strategy

All slaughtered animals are subject to monitoring at the slaughterhouse by the meat inspectors for the presence of TB lesions.

At semen collection centres, bulls are subject to pre-entry and annual intradermal tuberculin testing.

##### Frequency of the sampling

All slaughtered animals are inspected at slaughter

Bulls at semen collection centres: upon entry and annually thereafter

##### Type of specimen taken

Meat inspection: Tubercles ect., Live bulls: Interdermal tuberculin test

##### Methods of sampling (description of sampling techniques)

Slaughtered animals: Meat inspectors at the slaughterhouse examine for lesions indicative for tuberculosis, collect tubercles ect.

Bulls at semen collection centres: Interdermal tuberculin testing.

##### Case definition

An animal is considered positive when M. bovis or M. tuberculosis has been bacteriologically verified.

##### Diagnostic/analytical methods used

At the slaughterhouse: visual monitoring of carcass for lesions followed by microbiological detection of the mycobacterium.

At semen collection centres: Interdermal tuberculin testing, followed by bacteriological verification.

#### Vaccination policy

No vaccination

#### Other preventive measures than vaccination in place

None

#### Control program/mechanisms

##### The control program/strategies in place

In Denmark the control programmes are based on the following legislation: EU 2004/320/EEC and Danish order no. 1417 of 11/12/2007

Animals at slaughter: Mandatory control programme.

##### Recent actions taken to control the zoonoses

None, as the disease is not present in Denmark

Suggestions to the Community for the actions to be taken

None

Measures in case of the positive findings or single cases

Denmark would as a minimum implement the measures as laid down in Council Decision 2004/320/EEC in case of positive findings or if suspicion of tuberculosis in bovine animals arise.

Notification system in place

Tuberculosis caused by *M. bovis* or *M. tuberculosis* of all species are notifiable. Cases are to be notified to the Veterinary Institute, DTU

Results of the investigation

496,494 animals was examined at the slaughterhouse and none were found positive.

No bulls were found positive at the semen collection centres.

National evaluation of the recent situation, the trends and sources of infection

The last case of TB in cattle was diagnosed in 1988.

Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

There have been no findings of *M. bovis* in animals or foodstuffs.

## B. Mycobacterium bovis in farmed deer

### Monitoring system

#### Sampling strategy

All slaughtered animals are monitored by the meat inspectors at the slaughterhouse for the presence of lesions indicative for tuberculosis.

#### Frequency of the sampling

All slaughtered animals are inspected at slaughter.

#### Type of specimen taken

Tubercles ect.

#### Methods of sampling (description of sampling techniques)

At slaughter: Visual monitoring of carcass for lesions, collection of tubercles ect. for microbiological testing.

#### Case definition

An animal is considered positive when M. bovis or M. tuberculosis has been bacteriologically verified.

#### Diagnostic/analytical methods used

No positive results were reported in other routine tests in Denmark.

### Vaccination policy

No vaccination

### Other preventive measures than vaccination in place

None

### Control program/mechanisms

#### The control program/strategies in place

In 1989, a control programme for farmed deer was initiated according to the Danish Order no. 28 of 14/01/97

#### Recent actions taken to control the zoonoses

None, as the disease is not present in Denmark for the time being. Since 1994, Mycobacterium bovis has not been detected in deer

### Measures in case of the positive findings or single cases

Denmark would as a minimum implement the measures as laid down in Danish Order no. 306 of 3/5/2000 in case of positive findings or if suspicion of tuberculosis in bovine animals arise.

### Notification system in place

Tuberculosis caused by M. bovis or M. tuberculosis of all species are notifiable. Cases are to be notified to the Danish Veterinary and Food administration

### Results of the investigation

M. bovis was not identified in deer

### National evaluation of the recent situation, the trends and sources of infection

the last case of tuberculosis in deer was diagnosed in 1994.

### Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

There have been no findings of *M. bovis* in animals or foodstuffs.

Table Tuberculosis in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Mycobacterium	M. bovis	M. tuberculosis	Mycobacterium spp., unspecified
Cattle (bovine animals)	Vet-DTU	Animal	496494	0			
Pigs - fattening pigs - raised under controlled housing conditions	Vet-DTU	Animal	19793743	0			

Table Bovine tuberculosis in countries and regions that do not receive Community co-financing for eradication programmes

If present, the row "Total -1" refers to analogous data of the previous year.

Region	Total number of existing bovine		Officially free herds		Infected herds		Routine tuberculin testing		Number of tuberculin tests carried out before the introduction into the herds (Annex A(I)(2)(c) third indent (1) of Directive 64/432/EEC)	Number of animals with suspicious lesions of tuberculosis examined and submitted to histopathological and bacteriological	Number of animals detected positive in bacteriological examination
	Herds	Animals	Number of herds	%	Number of herds	%	Interval between routine tuberculin tests	Number of animals tested			
Danmark <sup>1)</sup>	20829	1631863	20829	100	0	0	others, please specify ____18	1550	0	0	0
Total : <sup>2)</sup>	20829	1631863	20829	100	0	0	N.A.	1550	0	0	0

## Comments:

<sup>1)</sup> Bulls at AI-stations are subjected to serological test for bovine brucellosis before entry to the AI-centers and once a year. Furthermore, some bovine animals are tested before export.

<sup>2)</sup> N.A.

## 2.6 BRUCELLOSIS

### 2.6.1 General evaluation of the national situation

#### A. Brucellosis general evaluation

##### History of the disease and/or infection in the country

Brucellosis has been eradicated in Denmark since 1959 and in 1979, Denmark was declared officially free from Brucellose.

The disease have not been diagnosed in cattle since 1962. However in pigs the disease are diagnosed every now and then, last time in 1999. It is assumed that the source of infection originates for infected hare populations found especially in the middle and eastern Jutland. Brucellose has never been observed in sheep and goats.

##### National evaluation of the recent situation, the trends and sources of infection

As bovine brucellose was eradicated in 1962, ovine and caprine brucellose has never been recorded and porcine brucelloses is very rare. The probability of contracting brucellose from Danish animals or animal products is close to zero.

##### Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

There have been no findings of Brucellose in animals or foodstuff

##### Recent actions taken to control the zoonoses

None, the zoonosis is under control

## 2.6.2 Brucella in animals

### A. Brucella abortus in bovine animals

#### Status as officially free of bovine brucellosis during the reporting year

##### The entire country free

Since 1979, Denmark has been declared officially Brucellosis free according to the EU directive 64/432/EC as amended and Commission Decision 2004/320/EC.

#### Monitoring system

##### Sampling strategy

Cattle are only tested serologically based on clinical indications. Abortion clusters in cattle are notifiable.  
Breeding bulls are tested serologically.  
Animals for import and export are tested serologically.

##### Frequency of the sampling

Bulls are subject to serological testing pre-entry to bovine semen collection centres, and annually thereafter  
Animals for import and export are tested serologically.

##### Type of specimen taken

Blood, fetuses, depending on strategy

##### Methods of sampling (description of sampling techniques)

In case of abortion: Bacteriological examination of abortion material and/or serological analysis of the animal.  
Breeding bulls: Blood samples.

##### Case definition

An animal showing significant antibody titre to Brucella spp. or an animal from which Brucella spp. has been isolated.  
The herd is the epidemiological unit

##### Diagnostic/analytical methods used

SAT (primarily), RBT, CFT and Elisa.

#### Vaccination policy

Vaccination of animals against Brucella spp. is prohibited in Denmark

#### Other preventive measures than vaccination in place

None

#### Control program/mechanisms

##### The control program/strategies in place

In case of abortion: Bacteriological examination of abortion material and/or serological analysis of the animal.  
Bulls are subject to serological testing pre-entry to bovine semen collection centres, and annually thereafter



In connection with clinical indications, for import and export, animals are tested serologically.

#### Recent actions taken to control the zoonoses

None, the disease is not present in Denmark.

#### Suggestions to the Community for the actions to be taken

None

#### Measures in case of the positive findings or single cases

Herds, that have received animals from a herd with a positive diagnose, will be put under official veterinary supervision and blood samples are send to the Veterinary Institute, DTU for testing.

In the positive herds, slaughtering of animals that might retrieve the disease will take place. Sanitary actions will be taken at the farm and, at the earliest, one month after the Regional Veterinary and Food Control Authorities have approved the disinfection of the premises new animals may be put into the stables

Fields and other areas where the infected animals have been must not be used for new animals for 1 year. This includes areas where manure from infected animals has been spread out.

#### Notification system in place

Brucellose spp. in all species has been notifiable since 1959

#### Results of the investigation

2197 animals tested in 2010, all of which were negative.

#### National evaluation of the recent situation, the trends and sources of infection

Bovine brucellose was eradicated in 1962, and since then no herds have been observed with clinical symptoms. The last single animal case was found in 1970.

#### Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

There have been no findings of Brucellose in animals or foodstuff.

#### Additional information

From January 1st 1980, the annual routine monitoring of tankmilk samples stopped, because Denmark was officially brucellose free according to EU directive 97/175/EEC.

## B. Brucella melitensis in goats

### Status as officially free of caprine brucellosis during the reporting year

The entire country free

Denmark is declared officially brucellosis since 1995.

### Monitoring system

#### Sampling strategy

Monitoring is performed by testing for Brucella antibodies in blood samples from sheep and goats, which are submitted as part of a voluntary control programme for lentivirus.

#### Type of specimen taken

Blood

#### Methods of sampling (description of sampling techniques)

In case of abortion: Bacteriological examination of abortion material and/or serological analysis of the animal.

Monitoring: Blood samples

#### Case definition

An animal showing significant antibody titre to Brucella spp. or an animal from which Brucella spp. has been isolated.

The herd is the epidemiological unit

#### Diagnostic/analytical methods used

RBT (primarily) and CFT.

### Vaccination policy

Vaccination of animals against Brucella spp. is prohibited in Denmark

### Other preventive measures than vaccination in place

None

### Control program/mechanisms

#### The control program/strategies in place

Monitoring for Brucella in goats are carried out as part of a voluntary control programme for lentivirus.

#### Recent actions taken to control the zoonoses

None, the disease is not present in Denmark

#### Suggestions to the Community for the actions to be taken

None

### Measures in case of the positive findings or single cases

Isolation of herds, that have received animals from the infected herd. Blood samples are sent to the National Veterinary Institute for testing. Slaughter of all susceptible animals within the infected herd and disinfection of the premises.

### Notification system in place

Brucellosis spp. in all species has been notifiable since 1959. Positive cases must be reported to the Danish Veterinary and Food Administration

### Results of the investigation

## Denmark - 2010 Report on trends and sources of zoonoses

In 2010, 2797 samples from sheep and goats were analysed, all were negative.

### National evaluation of the recent situation, the trends and sources of infection

Ovine brucellosis has never been recorded in Denmark

### Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

There have been no findings of Brucellosis in animals or foodstuff

## C. Brucella melitensis in sheep

### Status as officially free of ovine brucellosis during the reporting year

The entire country free

Denmark is declared officially brucellosis since 1995.

### Monitoring system

#### Sampling strategy

Monitoring is performed by testing for Brucella antibodies in blood samples from sheep and goats, which are submitted as part of a voluntary control programme for lentivirus.

#### Type of specimen taken

Blood

#### Methods of sampling (description of sampling techniques)

In case of abortion: Bacteriological examination of abortion material and/or serological analysis of the animal.

Monitoring: Blood samples

#### Case definition

An animal showing significant antibody titre to Brucella spp. or an animal from which Brucella spp. has been isolated.

The herd is the epidemiological unit

#### Diagnostic/analytical methods used

RBT (primarily) and CFT.

### Vaccination policy

Vaccination of animals against Brucella spp. is prohibited in Denmark

### Other preventive measures than vaccination in place

None

### Control program/mechanisms

#### The control program/strategies in place

Monitoring for Brucella in goats are carried out as part of a voluntary control programme for lentivirus.

#### Recent actions taken to control the zoonoses

None, the disease is not present in Denmark

#### Suggestions to the Community for the actions to be taken

None

### Measures in case of the positive findings or single cases

Isolation of herds, that have received animals from the infected herd. Blood samples are sent to the National Veterinary Institute for testing. Slaughter of all susceptible animals within the infected herd and disinfection of the premises.

### Notification system in place

Brucellosis spp. in all species has been notifiable since 1959. Positive cases must be reported to the Danish Veterinary and Food Administration

### Results of the investigation

In 2010, 2797 goat and sheep samples were examined and found negative.

### National evaluation of the recent situation, the trends and sources of infection

Caprine brucellosis has never been recorded in Denmark

### Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

There have been no findings of Brucellose in animals or foodstuff

Table Brucellosis in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Brucella	B. abortus	B. melitensis	B. suis	Brucella spp., unspecified
Cattle (bovine animals) - adult cattle over 2 years - at farm - animal sample - blood - Clinical investigations (Fertility problems)	Vet-DTU	Animal	36	0				
Cattle (bovine animals) - breeding bulls - at AI station - Control and eradication programmes - official sampling - census	Vet-DTU	Animal	1667	0				
Cattle (bovine animals) - unspecified - at farm - animal sample - blood - Control and eradication programmes - official sampling (Export)	Vet-DTU	Animal	478	0				
Hares - wild - Clinical investigations	Vet-DTU	Animal	1	0				
Pigs - at farm - animal sample - blood - Clinical investigations (Fertility problems)	Vet-DTU	Animal	105	0				
Pigs - breeding animals - raised under controlled housing conditions - boars - at AI station - Control and eradication programmes - official sampling - census	Vet-DTU	Animal	14743	0				
Pigs - mixed herds - unspecified - at farm - animal sample - blood - Control and eradication programmes - official sampling (Export)	Vet-DTU	Animal	10213	0				
Pigs - mixed herds - unspecified - at farm - animal sample - blood - Control and eradication programmes - official sampling (Import)	Vet-DTU	Animal	11	0				
Sheep and goats <sup>1)</sup>	DVFA	Animal	2797	0				

Comments:

Table Brucellosis in other animals

## Comments:

<sup>1)</sup> 367 flocks of ovine and caprine flocks tested

Table Ovine or Caprine Brucellosis in countries and regions that do not receive Community co-financing for eradication programme

If present, the row "Total -1" refers to analogous data of the previous year.

Region	Total number of existing		Officially free herds		Infected herds		Surveillance			Investigations of suspect cases				
	Herds	Animals	Number of herds	%	Number of herds	%	Number of herds tested	Number of animals tested	Number of infected herds	Number of animals tested with serological blood tests	Number of animals positive serologically	Number of animals examined microbiologically	Number of animals positive microbiologically	Number of suspended herds
Danmark	11596	187667	11596	100	0	0	367	2797	0	0	0	0	0	0
Total : <sup>1)</sup>	11596	187667	11596	100	0	0	367	2797	0	0	0	0	0	0

Comments:

<sup>1)</sup> N.A.



Table Bovine brucellosis in countries and regions that do not receive Community co-financing for eradication programme

If present, the row "Total -1" refers to analogous data of the previous year.

	Total number of existing bovine		Officially free herds		Infected herds		Surveillance						Investigations of suspect cases								
							Serological tests			Examination of bulk milk			Information about			Epidemiological investigation					
	Herds	Animals	Number of herds	%	Number of herds	%	Number of bovine herds tested	Number of animals tested	Number of infected herds	Number of bovine herds tested	Number of animals or pools tested	Number of infected herds	Number of notified abortions whatever cause	Number of isolations of Brucella infection	Number of abortions due to Brucella abortus	Number of animals tested with serological blood tests	Number of suspended herds	Number of positive animals		Number of animals examined microbiologically	Number of animals positive microbiologically
Region																		Sero logically	BST		
Danmark <sup>1)</sup>	20829	1631863	20829	100	0	0		2197	0	0	0	0	0	0	0	0	0	0	0	0	0
Total : <sup>2)</sup>	20829	1631863	20829	100	0	0	0	2197	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

- <sup>1)</sup> Bulls at AI-centers are subjected to serological tests for bovine brucellosis before entry to the AI-centers and once a year. Furthermore, some bovine animals are tested before export.
- <sup>2)</sup> N.A.

## 2.7 YERSINIOSIS

### 2.7.1 General evaluation of the national situation

#### A. Yersinia enterocolitica general evaluation

##### History of the disease and/or infection in the country

Infections with *Y. enterocolitica* have been steadily decreasing since 1985, where more than 1,500 human cases were reported.

##### National evaluation of the recent situation, the trends and sources of infection

Over the past five years, the annual number of human infections has been fairly stable around 250 cases per year. Overall, infections with *Y. enterocolitica* have been steadily decreasing since 1985, where more than 1,500 human cases were reported. This decline coincide with introduction of improved slaughtering routines at the slaughterhouses.

##### Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

The primary source of yersiniosis in Denmark is believed to be pork and pork products. From 1999-2004, caecal contents were sampled from randomly selected pig herds at slaughterhouses and tested for *Y. enterocolitica*. Between 10,4% and 17,0% of the herds was positive.

##### Recent actions taken to control the zoonoses

None

##### Additional information

There are no official monitoring programmes in regard to *Y. enterocolitica* in the animal production.

## 2.8 TRICHINELLOSIS

### 2.8.1 General evaluation of the national situation

#### A. Trichinellosis general evaluation

##### History of the disease and/or infection in the country

Since 1930, *Trichinella* spp. have not been observed in domesticated pigs and the last human cases caused by Danish produced meat was recorded in the 1930s. Prior the 1930, the infection was common, especially at rubbish tips where 10% of the free range pigs was infected. During 1900, large parts of the pig industry went through major changes from outdoor management to indoor management with little or no contact with potential infected material. In 1904, Copenhagen introduced monitoring for *Trichinella* of all pigs at rubbish tips and in 1906, Denmark introduced surveillance of all pigs for human consumption. In 2006, the EU directive 2075/2005 came into force.

In 2007, Denmark was assigned the status as a region where the risk of *Trichinella* in domestic swine is officially recognised as negligible (EU regulation 2075/2005)

##### National evaluation of the recent situation, the trends and sources of infection

A risk based monitoring programme for *Trichinella* in Danish slaughter pigs as well as in wildlife was established prior to the classification as a region with negligible risk. Changing the established practice of extensive testing does however necessitate the acceptance from third country trade partners, who have entered into trade arrangements based on this extensive testing of Danish slaughter pigs.

The fox population has been reduced due to a national outbreak of scabies, and the number of foxes available for testing has not reached the targeted number. Other animals such as badgers, stone martens, martens, otters and mink have been tested.

In 2008 the National Veterinary Institute found *Trichinella pseudospiralis* in 2 wild mink on the island of Bornholm. This species of *Trichinella* is not very contagious to pigs and causes moderate to severe disease in humans, and the infection has been seen in mink only. Relevant species of animals in Denmark naturally infected by the larvae are not likely to be eaten by humans. However it is possible that other wild animals are included in the life cycle of the parasite. On Bornholm there are no foxes or other wild living carnivores, but it is possible that the infection has been transmitted through birds of prey, crows or seagulls.

An intensified collection and examination of mink on Bornholm was carried out as well as examination of 50 rooks in 2008. No other findings of *Trichinella* was made and the intensified collection was discontinued in 2009

As the possibility of using a risk based approach rather than the traditional testing of millions of animals has not yet been implemented in Denmark, time has been used to refine procedures for the risk based monitoring programme, which will be implemented when trade concerns so permits.

##### Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

In 2010 as in previous years the Statens Serum Institut has detected no cases (persons with a positive

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an-tibody titre) of autochthonous trichinosis in humans.

## 2.8.2 Trichinellosis in humans

### A. Trichinellosis in humans

#### Description of the positive cases detected during the reporting year

In 2010, no cases of trichinellosis was reported.

#### National evaluation of the recent situation, the trends and sources of infection

Trichinella is not notifiable in humans, hence the true incidence is unknown. However, trichinella has not been recorded in domestic animals since 1930

## 2.8.3 Trichinella in animals

### A. Trichinella in horses

#### Monitoring system

##### Type of specimen taken

Meat sample

##### Methods of sampling (description of sampling techniques)

Digestion method (Directive 2075/2005)

##### Diagnostic/analytical methods used

Digestion method according to EU Regulation (EC) No 2075/2005

#### Sampling strategy

For categories of holdings officially recognised Trichinella-free

All horses are examined for Trichinella spp. at slaughter in accordance with EU Regulation (EC) No 2075/2005.

## B. Trichinella in pigs

### Officially recognised regions with negligible Trichinella risk

In July 2007 Denmark was officially recognised as a region with negligible Trichinella risk

### Monitoring system

#### Sampling strategy

##### General

All pigs slaughtered at Danish export approved slaughterhouses are examined for Trichinella spp. in accordance with EU Regulation 2075/2005. Further, it is compulsory to examine slaughtered wild boars.

##### For regions with negligible Trichinella risk

As a result of this status the future monitoring programme for Trichinella can be risk based which means that slaughter pigs reared under controlled housing conditions in integrated production does not have to be tested for Trichinella. All other categories of pigs and other species, domestic or game, that can become infected with Trichinella will be examined in accordance with the methods laid down in the Regulation No 2075/2005. Further, pork exported to 3. market countries will be tested for Trichinella unless the importing country accept the new monitoring programme.

In addition, a monitoring programme for Trichinella in wildlife will be initiated from 2008; and approximately 300 foxes and 50 other carnivores will be examined annually.

### Frequency of the sampling

#### General

All pigs are sampled at slaughter

##### For regions with negligible Trichinella risk

Slaughter pigs reared under controlled housing conditions in integrated production does not have to be tested for Trichinella.

All other categories of pigs and other species, domestic or game, that can become infected with Trichinella will be examined in accordance with the methods laid down in the Regulation No 2075/2005. Further, pork exported to 3. market countries will be tested for Trichinella unless the importing country accept the new monitoring programme.

In addition, a monitoring programme for Trichinella in wildlife will be initiated from 2008; and approximately 300 foxes and 50 other carnivores will be examined annually.

### Type of specimen taken

#### For regions with negligible Trichinella risk

Meat sample

### Methods of sampling (description of sampling techniques)

#### For regions with negligible Trichinella risk

Digestion method (Directive 2075/2005)

### Diagnostic/analytical methods used

#### For regions with negligible Trichinella risk

digestion method according to EU regulation 2075/2005





Table Trichinella in animals

	Source of information	Sampling unit	Units tested	Total units positive for Trichinella	T. spiralis	Trichinella spp., unspecified
Foxes	DFVA	Animal	270	0		
Pigs - fattening pigs - raised under controlled housing conditions <sup>1)</sup>	DFVA	Animal	21878220	0		
Solipeds, domestic - horses <sup>2)</sup>	DFVA	Animal	1431	0		
Wild boars - farmed <sup>3)</sup>	DFVA	Animal	1007	0		
Badgers - wild	DFVA	Animal	10	0		
Birds - wild	DFVA	Animal	30	0		
Marten - wild	DFVA	Animal	2	0		
Minks - wild	DFVA	Animal	25	0		
Otter (wild)	DFVA	Animal	1	0		
Pigs - breeding animals - raised under controlled housing conditions - sows and boars - at slaughterhouse - animal sample - meat - Control and eradication programmes - industry sampling - census <sup>4)</sup>	DFVA	Animal	361038	0		
Raccoon dogs - wild	DFVA	Animal	12	0		
Wild animals (stoat)	DFVA	Animal	1	0		

## Comments:

<sup>1)</sup> 19793743 animals slaughtered. The difference is due to a data error. All animals have been tasted.

<sup>2)</sup> 1872 animals slaughtered. The difference is due to a data error. All animals have been tested.

### Table Trichinella in animals

#### Comments:

- <sup>3)</sup> 1384 animals slaughtered. The difference is due to a data error. All animals have been tested.
- <sup>4)</sup> 426082 animals slaughtered. The difference is due to a data error. All animals have been tested.

## 2.9 ECHINOCOCCOSIS

### 2.9.1 General evaluation of the national situation

#### A. Echinococcus spp. general evaluation

##### History of the disease and/or infection in the country

Surveillance and control of Echinococcus is carried out by the meat inspectors according to the Danish Act no. 432 of 09/06/2004. Mandatory meat inspection covers all known potential intermediate host species. All carcasses intended for human consumption are inspected for incidence of hydatid cysts.

Echinococcus granulosus infection in animals is notifiable, however it has never been detected in Denmark. Echinococcus multilocularis infection in animals is notifiable. It was detected in one wild fox in 2000. All foxes tested have been negative since then.

##### National evaluation of the recent situation, the trends and sources of infection

As Echinococcus have only been detected once in Denmark, the risk of acquiring echinococcus in Denmark must be considered very low.

##### Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

There have been no findings of Echinococcus spp. in animals or foodstuff

## 2.9.2 Echinococcus in animals

Table Echinococcus in animals

	Source of information	Sampling unit	Region	Units tested	Total units positive for Echinococcus	E. granulosus	E. multilocularis	Echinococcus spp., unspecified
Cattle (bovine animals) - at slaughterhouse - Control and eradication programmes ((visual examination by meat inspectors))	DFVA	Animal		496494	0			
Pigs - fattening pigs - raised under controlled housing conditions - at slaughterhouse - Control and eradication programmes (visual examination by meat inspectors)	DFVA	Animal		19793743	0			

## 2.10 TOXOPLASMOSIS

### 2.10.1 General evaluation of the national situation

#### A. Toxoplasmosis general evaluation

##### History of the disease and/or infection in the country

Toxoplasmosis is not a notifiable disease in Denmark. *Toxoplasma gondii* is endemic in Denmark with the domestic cat as the final host.

##### National evaluation of the recent situation, the trends and sources of infection

Toxoplasmosis is not a notifiable disease in Denmark. *Toxoplasma gondii* is endemic in Denmark with the domestic cat as the final host. From 1999-2006, newborn babies were screened for congenital toxoplasmosis. On average 15-20 newborns were diagnosed each year. This surveillance stopped in 2007

##### Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

The main source of infection is believed to be cysts in the muscles and organs from toxoplasmosis infected animals, especially pig, lam and game, and to a lesser extent beef and chicken.

During pregnancy the following risk factors have been outlined:

Eating of raw or undercooked meat

Bad hand- and kitchen hygiene

Eating of unwashed raw vegetables and fruit

Cleaning the cat litter box

Unpasteurized milk

##### Recent actions taken to control the zoonoses

None

## 2.11 RABIES

### 2.11.1 General evaluation of the national situation

#### A. Rabies general evaluation

##### History of the disease and/or infection in the country

Rabies is notifiable for humans and all animals species in Denmark.

##### National evaluation of the recent situation, the trends and sources of infection

The classic sylvatic rabies virus, namely lyssa virus type 1, has never been reported in Denmark, nor has it been reported from closely surrounding areas for a many years. It is, however, endemic in Greenland, where arctic foxes transmit the disease to sledge dogs and other animals.

Since 1985, the European bat lyssa virus (EBL) has been observed almost every year in the Danish bat population. Latest in 2009.

##### Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

An increased interest in the potential risk of exposure of cats to EBL from bats was raised during 2005. It is known that cats can be experimentally and fatally infected with EBL but EBL has never been detected in cats submitted for diagnosis in Denmark. In summary, the risk of exposure of humans from cats is considered very low.

##### Recent actions taken to control the zoonoses

None

## 2.11.2 Lyssavirus (rabies) in animals

Table Rabies in animals

	Source of information	Sampling unit	Region	Units tested	Total units positive for Lyssavirus (rabies)	Lyssavirus, unspecified	Classical rabies virus (genotype 1)	European Bat Lyssavirus - unspecified
Bats - wild	Vet-DTU	Animal		10	0			
Foxes - wild	Vet-DTU	Animal		1	0			
Goats	Vet-DTU	Animal		1	0			
Sheep	Vet-DTU	Animal		1	0			
Cats - pet animals	Vet-DTU	Animal		1	0			
Zoo animals, all - at zoo <sup>1)</sup>	Vet-DTU	Animal		1	0			

### Comments:

<sup>1)</sup> Flying fox

### Footnote:

All samples are analysed based on suspicion of disease.

## 2.12 STAPHYLOCOCCUS INFECTION

### 2.12.1 General evaluation of the national situation

## 2.13 Q-FEVER

### 2.13.1 General evaluation of the national situation

### 2.13.2 Coxiella (Q-fever) in animals

#### A. C. burnetii in animal - Cattle (bovine animals) - at farm - animal sample - blood - Clinical investigations - suspect sampling

##### Monitoring system

##### Sampling strategy

Official sampling based on suspicious, eg abortion

##### Type of specimen taken

milk, blood and tissue samples

##### Methods of sampling (description of sampling techniques)

Milk samples, blood samples, tissue samples of afterbirth

##### Diagnostic/analytical methods used

Antibodies - ELISA (Cattle, sheep/goats, other)

CFT (Pig)

FISH (placenta or foetal tissue)

##### Results of the investigation

2010 - Diagnostic analysis

Blood samples N= 62, pos=18 (Samples from 29 herds)

Tank milk samples N=88, pos=66 (Samples from 87 herds)

##### National evaluation of the recent situation, the trends and sources of infection

Since 1989, blood samples from cattle, mainly for export markets, have been tested for antibodies against *C. burnetii* at the National Veterinary Institute. Between 0% and 4 % of the examined animals were positive from 1989-2003

From 2007, tank milk samples were used of diagnostic testing as a supplement for the bloodsamples.



Table Coxiella burnetii (Q fever) in animals

	Source of information	Sampling unit	Units tested	Total units positive for Coxiella (Q-fever)	C. burnetii
Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Monitoring - official sampling <sup>1)</sup>	-	---	0	0	0
Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Surveillance - official controls - suspect sampling <sup>2)</sup>	Vet-DTU	Animal	62	18	18
Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Monitoring - official sampling - objective sampling <sup>3)</sup>	-	---	0	0	0
Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Surveillance - official controls - suspect sampling <sup>4)</sup>	Vet-DTU	Herd	88	66	66
Sheep and goats - at farm - animal sample - blood - Monitoring - official sampling - selective sampling (Samples taken in connection with export)	Vet-DTU	Animal	112	0	

**Comments:**<sup>1)</sup> \_<sup>2)</sup> \_<sup>3)</sup> \_<sup>4)</sup> 88 tank bulkmilk samples

The following amendments were made:

Date of Modification	Row name	Column name	Old value	New value
2011-12-13	Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Monitoring - official sampling	C. burnetii	18	0
	Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Surveillance - official controls - suspect sampling	Comment		-
	Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Monitoring - official sampling	Comment	62 serum samples	-
	Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Surveillance - official controls - suspect sampling	Source of information		Vet-DTU
	Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Monitoring - official sampling	Source of information	Vet-DTU	-
	Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Surveillance - official controls - suspect sampling	Total units positive for Coxiella (Q-fever)		18
	Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Surveillance - official controls - suspect sampling	Sampling unit		Animal
	Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Surveillance - official controls - suspect sampling	C. burnetii		18
	Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Monitoring - official sampling	Sampling unit	Animal	---
	Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Monitoring - official sampling	Total units positive for Coxiella (Q-fever)	18	0
	Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Surveillance - official controls - suspect sampling	Units tested		62
	Cattle (bovine animals) - dairy cows - at farm - animal sample - blood - Monitoring - official sampling	Units tested	62	0
	Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Surveillance - official controls - suspect sampling	Source of information		Vet-DTU

Date of Modification	Row name	Column name	Old value	New value
2011-12-13	Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Surveillance - official controls - suspect sampling	C. burnetii		66
	Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Monitoring - official sampling - objective sampling	C. burnetii	66	0
	Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Monitoring - official sampling - objective sampling	Total units positive for Coxiella (Q-fever)	66	0
	Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Surveillance - official controls - suspect sampling	Sampling unit		Herd
	Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Surveillance - official controls - suspect sampling	Comment		88 tank bulkmilk samples
	Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Monitoring - official sampling - objective sampling	Units tested	88	0
	Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Monitoring - official sampling - objective sampling	Source of information	Vet-DTU	-
	Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Surveillance - official controls - suspect sampling	Total units positive for Coxiella (Q-fever)		66
	Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Surveillance - official controls - suspect sampling	Units tested		88
	Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Monitoring - official sampling - objective sampling	Comment	88 tank bulkmilk samples	-
	Cattle (bovine animals) - dairy cows - at farm - animal sample - milk - Monitoring - official sampling - objective sampling	Sampling unit	Herd	---

### 3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE

### 3.1 ESCHERICHIA COLI, NON-PATHOGENIC

#### 3.1.1 General evaluation of the national situation

##### A. Escherichia coli general evaluation

##### History of the disease and/or infection in the country

E coli is not a notifiable disease in Denmark. Monitoring of zoonotic pathogens in foodstuffs is coordinated both at the regional and at the central level of administration. Each Regional Veterinary and Food Control Authority (RVFCA) is responsible for the control carried out in its own region, and the Danish Veterinary and Food Administration (DVFA) is responsible for the regulation, control strategy and the surveillance at the overall national level. Every year specific monitoring projects are conducted. Findings related to E coli are not reported to the central databases at the NFI.

The DANMAP programme monitors resistance in Escherichia coli from cattle, pigs, broiler, beef, pork and broiler meat.

##### Recent actions taken to control the zoonoses

No changes

### 3.1.2 Antimicrobial resistance in *Escherichia coli*, non-pathogenic

#### A. Antimicrobial resistance of *E.coli* in food

##### Sampling strategy used in monitoring

###### Frequency of the sampling

The food isolates originated from food samples collected at wholesale and retail outlets by the Regional Veterinary and Food Control Authorities (RFCA) in all regions of Denmark during the course of routine inspection carried out by the authorities or on specific request from the Danish Veterinary and Food Administration (DVFA) for the DANMAP programme. Samples collected evenly through out the year.

###### Type of specimen taken

Meat samples.

###### Procedures for the selection of isolates for antimicrobial testing

One isolate per meat sample were susceptibility tested.

###### Methods used for collecting data

All isolated were tested at the laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Only reported to EFSA if 15 isolates or more.

##### Laboratory used for detection for resistance

###### Antimicrobials included in monitoring

See tables

###### Cut-off values used in testing

See tables

##### Preventive measures in place

None

##### Control program/mechanisms

###### The control program/strategies in place

None

###### Recent actions taken to control the zoonoses

None

##### Measures in case of the positive findings or single cases

None

##### Notification system in place

*E. coli* is not a notifiable disease in Denmark.

##### Results of the investigation

See tables

## B. Antimicrobial resistance of E.coli in animal

### Sampling strategy used in monitoring

#### Frequency of the sampling

Samples from healthy pigs, cattle and broilers are collected at slaughter for the DANMAP programme by meat inspection staff or company personnel and sent for examination to the National Food Institute DTU. The slaughter plants included in the DANMAP programme accounted for majority of the total number of animals slaughtered in Denmark. Each sample represents one herd.

The number of pig and cattle samples taken at the slaughter plant is proportional to the number of animals slaughtered at each plant per year and samples are collected once a month from January through November.

For broilers, cloacal swab samples are collected weekly throughout the year representing all broiler flocks in Denmark (approximately 400 samples per year).

#### Type of specimen taken

Pigs: Ceacum samples, Cattle: Rectum samples, Broilers: Cloacal swabs.

#### Methods of sampling (description of sampling techniques)

#### Procedures for the selection of isolates for antimicrobial testing

One isolate per farm were susceptibility tested.

#### Methods used for collecting data

All isolated were tested at the laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Only reported to EFSA if 15 isolates or more.

### Laboratory used for detection for resistance

#### Antimicrobials included in monitoring

See tables

#### Cut-off values used in testing

See tables

### Preventive measures in place

None

### Control program/mechanisms

#### The control program/strategies in place

None

#### Recent actions taken to control the zoonoses

None

### Measures in case of the positive findings or single cases

None

Notification system in place

E. coli is not a notifiable disease in Denmark.

Results of the investigation

See tables



**Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Meat from bovine animals - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E.coli, non-pathogenic, unspecified	Meat from bovine animals - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	32	0																	2		9		21			
Amphenicols - Florfenicol	16	32	0																	2		7		23			
Tetracyclines - Tetracycline	8	32	1																	29		2					
Fluoroquinolones - Ciprofloxacin	0.03	32	0			20		12																			
Quinolones - Nalidixic acid	16	32	0																			32					
Trimethoprim	2	32	1															31									
Aminoglycosides - Streptomycin	16	32	1																					26		5	
Aminoglycosides - Gentamicin	2	32	0													8		23		1							
Aminoglycosides - Neomycin	8	32	0																	31		1					
Penicillins - Ampicillin	8	32	1																	5		23		3			
Cephalosporins - Cefotaxim	0.25	32	0									32															
Aminoglycosides - Apramycin	16	32	0																			15		17			
Aminoglycosides - Spectinomycin	64	32	0																							25	
Cephalosporins - Ceftiofur	1	32	0													32											
Polymyxins - Colistin	2	32	0															32									
Sulphonamides - Sulfamethoxazol	256	32	2																								

**Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Meat from bovine animals - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]**

<b>E.coli, non-pathogenic, unspecified</b>  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Meat from bovine animals - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline			1															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			1															1	32
Aminoglycosides - Streptomycin						1												8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin																		2	32
Penicillins - Ampicillin			1															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		5		2														16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				30									2					64	1024

Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Meat from broilers (Gallus gallus) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E.coli, non-pathogenic, unspecified	Meat from broilers (Gallus gallus) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	158	1																	4		85		67		1		
Amphenicols - Florfenicol	16	158	0																	4		83		69		2		
Tetracyclines - Tetracycline	8	158	21																	136		1						
Fluoroquinolones - Ciprofloxacin	0.03	158	6			105		47				2		4														
Quinolones - Nalidixic acid	16	158	6																			152						
Trimethoprim	2	158	7															151										
Aminoglycosides - Streptomycin	16	158	24																					107		27		
Aminoglycosides - Gentamicin	2	158	0													39		105		14								
Aminoglycosides - Neomycin	8	158	1																	126		31						
Penicillins - Ampicillin	8	158	26															14		67		50		1				
Cephalosporins - Cefotaxim	0.25	158	1									157											1					
Aminoglycosides - Apramycin	16	158	0																			67		85		6		
Aminoglycosides - Spectinomycin	64	158	6																							127		
Cephalosporins - Ceftiofur	1	158	1													157								1				
Polymyxins - Colistin	2	158	0															158										
Sulphonamides - Sulfamethoxazol	256	158	24																									

**Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Meat from broilers (Gallus gallus) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]**

E.coli, non-pathogenic, unspecified  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Meat from broilers (Gallus gallus) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																		
Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol		1																2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline		1	20															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid				2	4													4	64
Trimethoprim			7															1	32
Aminoglycosides - Streptomycin				8		5	11											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin			1															2	32
Penicillins - Ampicillin			26															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		18		7		1		3	2									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				134								1	23					64	1024

**Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Meat from pig - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E.coli, non-pathogenic, unspecified	Meat from pig - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	68	2																	5		24		34		3	
Amphenicols - Florfenicol	16	68	0																	6		19		42		1	
Tetracyclines - Tetracycline	8	68	16																	51		1					
Fluoroquinolones - Ciprofloxacin	0.03	68	1			43		24		1																	
Quinolones - Nalidixic acid	16	68	1																			67					
Trimethoprim	2	68	11															57									
Aminoglycosides - Streptomycin	16	68	26																					36		6	
Aminoglycosides - Gentamicin	2	68	1													22		40		5				1			
Aminoglycosides - Neomycin	8	68	2																	55		8		3			
Penicillins - Ampicillin	8	68	16															4		22		21		5			
Cephalosporins - Cefotaxim	0.25	68	1									66		1						1							
Aminoglycosides - Apramycin	16	68	1																			34		29		4	
Aminoglycosides - Spectinomycin	64	68	13																							41	
Cephalosporins - Ceftiofur	1	68	1													66		1				1					
Polymyxins - Colistin	2	68	0															68									
Sulphonamides - Sulfamethoxazol	256	68	13																								

Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Meat from pig - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

E.coli, non-pathogenic, unspecified	Meat from pig - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol		2																2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline		1	15															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid				1														4	64
Trimethoprim			11															1	32
Aminoglycosides - Streptomycin		3		6		11	6											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin			2															2	32
Penicillins - Ampicillin			16															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin			1															4	32
Aminoglycosides - Spectinomycin		12		2		1		8	4									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				55								1	12					64	1024

Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Gallus gallus (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E.coli, non-pathogenic, unspecified	Gallus gallus (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	16	118	3																	5		57		53				
Amphenicols - Florfenicol	16	118	1																	6		51		59		1		
Tetracyclines - Tetracycline	8	118	18																	99		1						
Fluoroquinolones - Ciprofloxacin	0.03	118	10			53		55				2		7		1												
Quinolones - Nalidixic acid	16	118	10																			108						
Trimethoprim	2	118	9															109										
Aminoglycosides - Streptomycin	16	118	17																					72		29		
Aminoglycosides - Gentamicin	2	118	0													14		89		15								
Aminoglycosides - Neomycin	8	118	1																	84		33						
Penicillins - Ampicillin	8	118	25															5		34		51		3				
Cephalosporins - Cefotaxim	0.25	118	0									113		5														
Aminoglycosides - Apramycin	16	118	1																			35		78		4		
Aminoglycosides - Spectinomycin	64	118	6																							81		
Cephalosporins - Ceftiofur	1	118	0													111		7										
Polymyxins - Colistin	2	118	0															118										
Sulphonamides - Sulfamethoxazol	256	118	24																									

**Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Gallus gallus (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

E.coli, non-pathogenic, unspecified	Gallus gallus (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol		1		2														2	64
Amphenicols - Florfenicol					1													2	64
Tetracyclines - Tetracycline			18															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid		2		4	4													4	64
Trimethoprim			9															1	32
Aminoglycosides - Streptomycin		3		3		4	7											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin			1															2	32
Penicillins - Ampicillin		1	24															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin		1																4	32
Aminoglycosides - Spectinomycin		29		2				2	4									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				93		1							24					64	1024





Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E.coli, non-pathogenic, unspecified	Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																											
	Isolates out of a monitoring program (yes/no)																											
	Number of isolates available in the laboratory																											
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	16	160	7																	3		70		79		1		
Amphenicols - Florfenicol	16	160	0																	2		60		93		5		
Tetracyclines - Tetracycline	8	160	59																	93		7		1		2		
Fluoroquinolones - Ciprofloxacin	0.03	160	0			114		46																				
Quinolones - Nalidixic acid	16	160	0																			160						
Trimethoprim	2	160	34															125		1								
Aminoglycosides - Streptomycin	16	160	75																					72		13		
Aminoglycosides - Gentamicin	2	160	1													48		103		8				1				
Aminoglycosides - Neomycin	8	160	12																	132		16						
Penicillins - Ampicillin	8	160	37															6		45		68		4				
Cephalosporins - Cefotaxim	0.25	160	2									156		2						1			1					
Aminoglycosides - Apramycin	16	160	1																			84		70		5		
Aminoglycosides - Spectinomycin	64	160	40																							77		
Cephalosporins - Ceftiofur	1	160	2													158				1					1			
Polymyxins - Colistin	2	160	1															158		1				1				
Sulphonamides - Sulfamethoxazol	256	160	51																									

Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

E.coli, non-pathogenic, unspecified  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																		
Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol		5			2													2	64
Amphenicols - Florfenicol																		2	64
Tetracyclines - Tetracycline		1	56															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			34															1	32
Aminoglycosides - Streptomycin		8		12		17	38											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin			12															2	32
Penicillins - Ampicillin			37															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin			1															4	32
Aminoglycosides - Spectinomycin		26		17		5		22	13									16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				109									51					64	1024

**Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Cattle (bovine animals) - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E.coli, non-pathogenic, unspecified	Cattle (bovine animals) - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16
Amphenicols - Chloramphenicol	16	106	1																			37		68			
Amphenicols - Florfenicol	16	106	1																			35		69		1	
Tetracyclines - Tetracycline	8	106	10																	79		17					
Fluoroquinolones - Ciprofloxacin	0.03	106	0			67		39																			
Quinolones - Nalidixic acid	16	106	0																			106					
Trimethoprim	2	106	1															105									
Aminoglycosides - Streptomycin	16	106	6																					87		13	
Aminoglycosides - Gentamicin	2	106	0													55		48		3							
Aminoglycosides - Neomycin	8	106	1																	103		2					
Penicillins - Ampicillin	8	106	4															7		30		59		6			
Cephalosporins - Cefotaxim	0.25	106	0									106															
Aminoglycosides - Apramycin	16	106	0																			67		38		1	
Aminoglycosides - Spectinomycin	64	106	2																							90	
Cephalosporins - Ceftiofur	1	106	0													105		1									
Polymyxins - Colistin	2	106	0															106									
Sulphonamides - Sulfamethoxazol	256	106	5																								

Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Cattle (bovine animals) - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

E.coli, non-pathogenic, unspecified  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Cattle (bovine animals) - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol					1													2	64
Amphenicols - Florfenicol					1													2	64
Tetracyclines - Tetracycline		1	9															2	32
Fluoroquinolones - Ciprofloxacin																		0.016	4
Quinolones - Nalidixic acid																		4	64
Trimethoprim			1															1	32
Aminoglycosides - Streptomycin				2		3	1											8	128
Aminoglycosides - Gentamicin																		0.5	16
Aminoglycosides - Neomycin			1															2	32
Penicillins - Ampicillin			4															1	32
Cephalosporins - Cefotaxim																		0.12	4
Aminoglycosides - Apramycin																		4	32
Aminoglycosides - Spectinomycin		10		4		1		1										16	256
Cephalosporins - Ceftiofur																		0.5	8
Polymyxins - Colistin																		1	16
Sulphonamides - Sulfamethoxazol				101									5					64	1024

Table Cut-off values used for antimicrobial susceptibility testing of *Escherichia coli*, non-pathogenic in Animals

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.03	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulphonamides	Sulphonamides		256	
Aminoglycosides	Streptomycin		16	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.25	
Penicillins	Ampicillin		8	

Table Cut-off values used for antimicrobial susceptibility testing of *Escherichia coli*, non-pathogenic in Feed

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.03	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulphonamides	Sulphonamides		256	
Aminoglycosides	Streptomycin		16	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.25	
Penicillins	Ampicillin		8	

Table Cut-off values used for antimicrobial susceptibility testing of *Escherichia coli*, non-pathogenic in Food

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.03	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulphonamides	Sulphonamides		256	
Aminoglycosides	Streptomycin		16	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.25	
Penicillins	Ampicillin		8	



## 3.2 ENTEROCOCCUS, NON-PATHOGENIC

### 3.2.1 General evaluation of the national situation

### 3.2.2 Antimicrobial resistance in Enterococcus, non-pathogenic isolates

#### A. Antimicrobial resistance of E. faecalis in Food

##### Sampling strategy used in monitoring

###### Frequency of the sampling

The food isolates originated from food samples collected at wholesale and retail outlets by the Regional Veterinary and Food Control Authorities (RFCA) in all regions of Denmark during the course of routine inspection carried out by the authorities or on specific request from the Danish Veterinary and Food Administration (DVFA) for the DANMAP programme. Samples collected evenly through out the year.

###### Type of specimen taken

Meat samples.

###### Procedures for the selection of isolates for antimicrobial testing

One isolate per meat sample were susceptibility tested.

###### Methods used for collecting data

All isolated were tested at the laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Only reported to EFSA if 15 isolates or more.

##### Laboratory used for detection for resistance

###### Antimicrobials included in monitoring

See tables

###### Cut-off values used in testing

See tables

##### Preventive measures in place

None

##### Control program/mechanisms

###### The control program/strategies in place

None

##### Measures in case of the positive findings or single cases

None

##### Notification system in place

E. faecalis is not a notifiable disease in Denmark.

##### Results of the investigation

See tables



## B. Antimicrobial resistance of E. faecium in Food

### Sampling strategy used in monitoring

#### Frequency of the sampling

The food isolates originated from food samples collected at wholesale and retail outlets by the Regional Veterinary and Food Control Authorities (RFCA) in all regions of Denmark during the course of routine inspection carried out by the authorities or on specific request from the Danish Veterinary and Food Administration (DVFA) for the DANMAP programme. Samples collected evenly through out the year.

#### Type of specimen taken

Meat samples.

#### Procedures for the selection of isolates for antimicrobial testing

One isolate per meat sample were susceptibility tested.

#### Methods used for collecting data

All isolated were tested at the laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Only reported to EFSA if 15 isolates or more.

### Laboratory used for detection for resistance

#### Antimicrobials included in monitoring

See tables

#### Cut-off values used in testing

See tables

### Preventive measures in place

None

### Control program/mechanisms

#### The control program/strategies in place

None

### Measures in case of the positive findings or single cases

None

### Notification system in place

E. faecium is not a notifiable disease in Denmark.

### Results of the investigation

See tables

## C. Antimicrobial resistance of E. faecalis in Animals

### Sampling strategy used in monitoring

#### Frequency of the sampling

Samples from healthy pigs and broilers are collected at slaughter for the DANMAP programme by meat inspection staff or company personnel and sent for examination to the National Food Institute DTU.

The slaughter plants included in the DANMAP programme accounted for majority of the total number of animals slaughtered in Denmark. Each sample represents one herd. The number of pig samples taken at the slaughter plant is proportional to the number of animals slaughtered at each plant per year and samples are collected once a month from January through November.

For broilers, cloacal swab samples are collected weekly throughout the year representing all broiler flocks in Denmark (approximately 400 samples per year).

#### Type of specimen taken

Pigs: Cecum samples, Broilers: Cloacal swabs.

#### Procedures for the selection of isolates for antimicrobial testing

One isolate per farm were susceptibility tested.

#### Methods used for collecting data

All isolated were tested at the laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Only reported to EFSA if 15 isolates or more.

### Laboratory used for detection for resistance

#### Antimicrobials included in monitoring

See tables

#### Cut-off values used in testing

See tables

### Preventive measures in place

None

### Control program/mechanisms

#### The control program/strategies in place

None

#### Recent actions taken to control the zoonoses

None

### Measures in case of the positive findings or single cases

None.

### Notification system in place

E. faecalis is not a notifiable disease in Denmark.

### Results of the investigation

See tables



## D. Antimicrobial resistance of E. faecium in Animals

### Sampling strategy used in monitoring

#### Frequency of the sampling

Samples from healthy pigs and broilers are collected at slaughter for the DANMAP programme by meat inspection staff or company personnel and sent for examination to the National Food Institute DTU.

The slaughter plants included in the DANMAP programme accounted for majority of the total number of animals slaughtered in Denmark. Each sample represents one herd. The number of pig samples taken at the slaughter plant is proportional to the number of animals slaughtered at each plant per year and samples are collected once a month from January through November.

For broilers, cloacal swab samples are collected weekly throughout the year representing all broiler flocks in Denmark (approximately 400 samples per year).

#### Type of specimen taken

Pigs: Cecum samples, Broilers: Cloacal swabs.

#### Procedures for the selection of isolates for antimicrobial testing

One isolate per farm were susceptibility tested.

#### Methods used for collecting data

All isolated were tested at the laboratory at the National Food Institute, Technical University of Denmark (DTU-FOOD). Only reported to EFSA if 15 isolates or more.

### Laboratory used for detection for resistance

#### Antimicrobials included in monitoring

See tables

#### Cut-off values used in testing

See tables

### Preventive measures in place

None

### Control program/mechanisms

#### The control program/strategies in place

None

#### Recent actions taken to control the zoonoses

None

### Measures in case of the positive findings or single cases

None

### Notification system in place

E. faecium is not a notifiable disease in Denmark.

### Results of the investigation

See tables



Table Antimicrobial susceptibility testing of E. faecalis in Meat from bovine animals - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E. faecalis	Meat from bovine animals - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	32	27	0																	1		20		6			
Tetracyclines - Tetracycline	4	27	6															21									
Fluoroquinolones - Ciprofloxacin	8	27	0													6		18		3							
Aminoglycosides - Streptomycin	512	27	1																								
Aminoglycosides - Gentamicin	32	27	0																							26	
Aminoglycosides - Kanamycin	1024	27	1																								
Penicillins - Ampicillin	4	27	0																	26		1					
Glycopeptides (Cyclic peptides, Polypeptides) - Teicoplanin	2	27	0											27													
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin	4	27	0															20		6		1					
Glycylcyclines - Tigecycline	0.25	27	0			1		5		13		7		1													
Ionophores - Salinomycin	4	27	0																	27							
Macrolides - Erythromycin	4	27	0													18		7		2							
Oxazolidines - Linezolid	4	27	0															4		23							
Penicillins - Penicillin	16	27	0																	20		7					



Table Antimicrobial susceptibility testing of *E. faecalis* in Meat from bovine animals - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

<b>E. faecalis</b>  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Meat from bovine animals - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64
Tetracyclines - Tetracycline		3	3															1	32
Fluoroquinolones - Ciprofloxacin																		0.5	256
Aminoglycosides - Streptomycin				4		21		1							1			64	2048
Aminoglycosides - Gentamicin		1																16	1024
Aminoglycosides - Kanamycin						26									1			128	2048
Penicillins - Ampicillin																		2	32
Glycopeptides (Cyclic peptides, Polypeptides) - Teicoplanin																		0.25	32
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin																		1	32
Glycylcyclines - Tigecycline																		0.016	1
Ionophores - Salinomycin																		2	16
Macrolides - Erythromycin																		0.5	32
Oxazolidines - Linezolid																		0.5	8
Penicillins - Penicillin																		2	32

Table Antimicrobial susceptibility testing of *E. faecalis* in Meat from broilers (*Gallus gallus*) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E. faecalis   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory			Meat from broilers (Gallus gallus) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																									
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	32	59	1																			30		28				
Tetracyclines - Tetracycline	4	59	27															31		1								
Fluoroquinolones - Ciprofloxacin	8	59	0													16		43										
Aminoglycosides - Streptomycin	512	59	5																									
Aminoglycosides - Gentamicin	32	59	0																							53		
Aminoglycosides - Kanamycin	1024	59	0																									
Penicillins - Ampicillin	4	59	1																	57		1						
Glycopeptides (Cyclic peptides, Polypeptides) - Teicoplanin	2	59	0											59														
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin	4	59	0															29		22		8						
Glycylcyclines - Tigecycline	0.25	59	0					4		28		21		6														
Ionophores - Salinomycin	4	59	1																	53		5		1				
Macrolides - Erythromycin	4	59	10													23		21		4		1				4		
Oxazolidines - Linezolid	4	59	0															10		49								
Penicillins - Penicillin	16	59	1																	45		12		1				

Table Antimicrobial susceptibility testing of *E. faecalis* in Meat from broilers (*Gallus gallus*) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

<b>E. faecalis</b>  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Meat from broilers ( <i>Gallus gallus</i> ) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																		
Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol				1														2	64
Tetracyclines - Tetracycline		8	19															1	32
Fluoroquinolones - Ciprofloxacin																		0.5	256
Aminoglycosides - Streptomycin						45		9							5			64	2048
Aminoglycosides - Gentamicin		6																16	1024
Aminoglycosides - Kanamycin						59												128	2048
Penicillins - Ampicillin			1															2	32
Glycopeptides (Cyclic peptides, Polypeptides) - Teicoplanin																		0.25	32
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin																		1	32
Glycylcyclines - Tigecycline																		0.016	1
Ionophores - Salinomycin																		2	16
Macrolides - Erythromycin		1	5															0.5	32
Oxazolidines - Linezolid																		0.5	8
Penicillins - Penicillin			1															2	32

**Table Antimicrobial susceptibility testing of *E. faecium* in Meat from pig - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E. faecium	Meat from pig - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	32	29	0																	1		14		12		2	
Tetracyclines - Tetracycline	4	29	5															23		1							
Fluoroquinolones - Ciprofloxacin	16	29	0													12		13		2		2					
Aminoglycosides - Streptomycin	128	29	2																								
Aminoglycosides - Gentamicin	32	29	0																							29	
Aminoglycosides - Kanamycin	1024	29	1																								
Penicillins - Ampicillin	4	29	0																	26		3					
Glycopeptides (Cyclic peptides, Polypeptides) - Teicoplanin	2	29	0											11		18											
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin	4	29	0															28		1							
Glycylcyclines - Tigecycline	0.25	29	0					2		27																	
Ionophores - Salinomycin	4	29	0																	27		2					
Macrolides - Erythromycin	4	29	9													5		2		3		10		6		1	
Oxazolidinones - Linezolid	4	29	0													1				22		6					
Penicillins - Penicillin	16	29	1																	13		13				2	
Streptogramins - Quinupristin/Dalfopristin	4	29	0											1		3		3		22							

Table Antimicrobial susceptibility testing of *E. faecium* in Meat from pig - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

<b>E. faecium</b>  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Meat from pig - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Antimicrobials:																			
Amphenicols - Chloramphenicol																		2	64
Tetracyclines - Tetracycline			5															1	32
Fluoroquinolones - Ciprofloxacin																		0.5	256
Aminoglycosides - Streptomycin				25		2						1			1			64	2048
Aminoglycosides - Gentamicin																		16	1024
Aminoglycosides - Kanamycin						9		7		12					1			128	2048
Penicillins - Ampicillin																		2	32
Glycopeptides (Cyclic peptides, Polypeptides) - Teicoplanin																		0.25	32
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin																		1	32
Glycylcyclines - Tigecycline																		0.016	1
Ionophores - Salinomycin																		2	16
Macrolides - Erythromycin			2															0.5	32
Oxazolidines - Linezolid																		0.5	8
Penicillins - Penicillin		1																2	32
Streptogramins - Quinupristin/Dalfopristin																		0.25	16

Table Antimicrobial susceptibility testing of E. faecalis in Meat from pig - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E. faecalis				Meat from pig - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																											
				Isolates out of a monitoring program (yes/no)																											
				Number of isolates available in the laboratory																											
Antimicrobials:				Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol				32	84	1																			49		33				
Tetracyclines - Tetracycline				4	84	11																73									
Fluoroquinolones - Ciprofloxacin				8	84	0														18		57		9							
Aminoglycosides - Streptomycin				512	84	0																									
Aminoglycosides - Gentamicin				32	84	1																							81		
Aminoglycosides - Kanamycin				1024	84	2																									
Penicillins - Ampicillin				4	84	0																		82		2					
Glycopeptides (Cyclic peptides, Polypeptides) - Teicoplanin				2	84	0												84													
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin				4	84	0																36		41		7					
Glycylcyclines - Tigecycline				0.25	84	0			1		17		42		23		1														
Ionophores - Salinomycin				4	84	0																		84							
Macrolides - Erythromycin				4	84	1													52		22		9								
Oxazolidines - Linezolid				4	84	0																24		58		2					
Penicillins - Penicillin				16	84	0																		76		8					

Table Antimicrobial susceptibility testing of *E. faecalis* in Meat from pig - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

<b>E. faecalis</b>  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Meat from pig - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol		1		1														2	64
Tetracyclines - Tetracycline		1	10															1	32
Fluoroquinolones - Ciprofloxacin																		0.5	256
Aminoglycosides - Streptomycin				10		62		12										64	2048
Aminoglycosides - Gentamicin		2											1					16	1024
Aminoglycosides - Kanamycin						81		1							2			128	2048
Penicillins - Ampicillin																		2	32
Glycopeptides (Cyclic peptides, Polypeptides) - Teicoplanin																		0.25	32
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin																		1	32
Glycylcyclines - Tigecycline																		0.016	1
Ionophores - Salinomycin																		2	16
Macrolides - Erythromycin			1															0.5	32
Oxazolidinones - Linezolid																		0.5	8
Penicillins - Penicillin																		2	32

Table Antimicrobial susceptibility testing of E. faecium in Meat from bovine animals - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E. faecium			Meat from bovine animals - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																									
			Isolates out of a monitoring program (yes/no)																									
			Number of isolates available in the laboratory																									
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16		
Amphenicols - Chloramphenicol	32	20	0																			8		12				
Tetracyclines - Tetracycline	4	20	2															18										
Fluoroquinolones - Ciprofloxacin	16	20	0													3		6		5		6						
Aminoglycosides - Streptomycin	128	20	0																									
Aminoglycosides - Gentamicin	32	20	0																							20		
Aminoglycosides - Kanamycin	1024	20	0																									
Penicillins - Ampicillin	4	20	0																	20								
Glycopeptides (Cyclic peptides, Polypeptides) - Teicoplanin	2	20	0											9		11												
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin	4	20	0															18		1		1						
Glycylcyclines - Tigecycline	0.25	20	0							19		1																
Ionophores - Salinomycin	4	20	0																	19		1						
Macrolides - Erythromycin	4	20	1													4		2		10		3		1				
Oxazolidines - Linezolid	4	20	0															1		16		3						
Penicillins - Penicillin	16	20	0																	10		9		1				
Streptogramins - Quinupristin/Dalfopristin	4	20	0											1		10		1		8								



Table Antimicrobial susceptibility testing of *E. faecium* in Meat from bovine animals - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

<b>E. faecium</b>  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Meat from bovine animals - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Antimicrobials:																			
Amphenicols - Chloramphenicol																		2	64
Tetracyclines - Tetracycline			2															1	32
Fluoroquinolones - Ciprofloxacin																		0.5	256
Aminoglycosides - Streptomycin				18		2												64	2048
Aminoglycosides - Gentamicin																		16	1024
Aminoglycosides - Kanamycin						10		7		1		2						128	2048
Penicillins - Ampicillin																		2	32
Glycopeptides (Cyclic peptides, Polypeptides) - Teicoplanin																		0.25	32
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin																		1	32
Glycylcyclines - Tigecycline																		0.016	1
Ionophores - Salinomycin																		2	16
Macrolides - Erythromycin																		0.5	32
Oxazolidines - Linezolid																		0.5	8
Penicillins - Penicillin																		2	32
Streptogramins - Quinupristin/Dalfopristin																		0.25	16

**Table Antimicrobial susceptibility testing of *E. faecium* in Meat from broilers (*Gallus gallus*) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E. faecium	Meat from broilers (Gallus gallus) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	32	145	0																	4		81		54		4	
Tetracyclines - Tetracycline	4	145	15															126		3		1				1	
Fluoroquinolones - Ciprofloxacin	16	145	0													8		78		32		23		3		1	
Aminoglycosides - Streptomycin	128	145	4																								
Aminoglycosides - Gentamicin	32	145	0																							143	
Aminoglycosides - Kanamycin	1024	145	2																								
Penicillins - Ampicillin	4	145	2																	135		8		2			
Glycopeptides (Cyclic peptides, Polypeptides) - Teicoplanin	2	145	1											133		10		1									
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin	4	145	1															92		46		6					
Glycylcyclines - Tigecycline	0.25	145	0					17		116		12															
Ionophores - Salinomycin	4	145	53																	16		76		53			
Macrolides - Erythromycin	4	145	31													29		22		27		36		6		10	
Oxazolidinones - Linezolid	4	145	0															9		119		17					
Penicillins - Penicillin	16	145	2																	90		35		13		5	
Streptogramins - Quinupristin/Dalfopristin	4	145	2											1		65		21		53		3		2			

Table Antimicrobial susceptibility testing of *E. faecium* in Meat from broilers (*Gallus gallus*) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling - quantitative data [ Dilution method ]

<b>E. faecium</b>  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Meat from broilers ( <i>Gallus gallus</i> ) - fresh - at retail - domestic production - Monitoring - official sampling - objective sampling																		
Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol		2																2	64
Tetracyclines - Tetracycline		3	11															1	32
Fluoroquinolones - Ciprofloxacin																		0.5	256
Aminoglycosides - Streptomycin				136		5								1	3			64	2048
Aminoglycosides - Gentamicin		2																16	1024
Aminoglycosides - Kanamycin						57		63		17		6			2			128	2048
Penicillins - Ampicillin																		2	32
Glycopeptides (Cyclic peptides, Polypeptides) - Teicoplanin			1															0.25	32
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin			1															1	32
Glycylcyclines - Tigecycline																		0.016	1
Ionophores - Salinomycin																		2	16
Macrolides - Erythromycin		5	10															0.5	32
Oxazolidines - Linezolid																		0.5	8
Penicillins - Penicillin		2																2	32
Streptogramins - Quinupristin/Dalfopristin																		0.25	16

**Table Antimicrobial susceptibility testing of *E. faecium* in Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E. faecium  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																										
Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	32	133	0																	4		65		62		2	
Tetracyclines - Tetracycline	4	133	68															64		1				1			
Aminoglycosides - Streptomycin	128	133	46																								
Aminoglycosides - Gentamicin	32	133	0																							130	
Aminoglycosides - Kanamycin	1024	133	31																								
Penicillins - Ampicillin	4	133	3																	69		61		3			
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin	4	133	1															122		8		2					
Glycylcyclines - Tigecycline	0.25	133	0					8		105		20															
Ionophores - Salinomycin	4	133	0																	132		1					
Macrolides - Erythromycin	4	133	36													16		8		46		27		3			
Orthosomycins - Avilamycin	16	133	0																			122		11			
Oxazolidines - Linezolid	4	133	0															17		102		14					
Penicillins - Penicillin	16	133	4																	35		27		8		59	
Streptogramins - Quinupristin/Dalfopristin	4	133	2											1		28		7		70		25		1		1	

Table Antimicrobial susceptibility testing of *E. faecium* in Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

E. faecium	Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																		
	Isolates out of a monitoring program (yes/no)																		
	Number of isolates available in the laboratory																		
	Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest
Amphenicols - Chloramphenicol																		2	64
Tetracyclines - Tetracycline		3	64															1	32
Aminoglycosides - Streptomycin				84		3		2		1		4		19	20			64	2048
Aminoglycosides - Gentamicin		3																16	1024
Aminoglycosides - Kanamycin						34		42		21		5			31			128	2048
Penicillins - Ampicillin																		2	32
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin			1															1	32
Glycylcyclines - Tigecycline																		0.016	2
Ionophores - Salinomycin																		2	16
Macrolides - Erythromycin			33															0.5	32
Orthosomycins - Avilamycin																		4	32
Oxazolidines - Linezolid																		0.5	8
Penicillins - Penicillin		4																2	32
Streptogramins - Quinupristin/Dalfopristin																		0.25	16

**Table Antimicrobial susceptibility testing of *E. faecium* in *Gallus gallus* (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E. faecium	Gallus gallus (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16
Amphenicols - Chloramphenicol	32	119	0																	1		38		79		1	
Tetracyclines - Tetracycline	4	119	7															111		1						1	
Aminoglycosides - Streptomycin	128	119	1																								
Aminoglycosides - Gentamicin	32	119	0																							113	
Aminoglycosides - Kanamycin	1024	119	0																								
Penicillins - Ampicillin	4	119	0																	106		13					
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin	4	119	0															72		45		2					
Glycylcyclines - Tigecycline	0.25	119	0					4		111		4															
Ionophores - Salinomycin	4	119	63																	5		51		63			
Macrolides - Erythromycin	4	119	31													14		22		16		36		3		8	
Orthosomycins - Avilamycin	16	119	0																			116		1		2	
Oxazolidines - Linezolid	4	119	0															4		100		15					
Penicillins - Penicillin	16	119	1																	67		22		16		13	
Streptogramins - Quinupristin/Dalfopristin	4	119	0											1		60		11		44		3					

Table Antimicrobial susceptibility testing of *E. faecium* in Gallus gallus (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

E. faecium   Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Gallus gallus (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling																		
Antimicrobials:	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Amphenicols - Chloramphenicol																		2	64
Tetracyclines - Tetracycline		1	5															1	32
Aminoglycosides - Streptomycin				116		2									1			64	2048
Aminoglycosides - Gentamicin		6																16	1024
Aminoglycosides - Kanamycin						43		49		24		3						128	2048
Penicillins - Ampicillin																		2	32
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin																		1	32
Glycylcyclines - Tigecycline																		0.016	2
Ionophores - Salinomycin																		2	16
Macrolides - Erythromycin		12	8															0.5	32
Orthosomycins - Avilamycin																		4	32
Oxazolidines - Linezolid																		0.5	8
Penicillins - Penicillin		1																2	32
Streptogramins - Quinupristin/Dalfopristin																		0.25	16

**Table Antimicrobial susceptibility testing of *E. faecalis* in Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E. faecalis	Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																										
	Isolates out of a monitoring program (yes/no)																										
	Number of isolates available in the laboratory																										
	Antimicrobials:	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16
Amphenicols - Chloramphenicol	32	157	25																			60		72			
Tetracyclines - Tetracycline	4	157	123															34								1	
Aminoglycosides - Streptomycin	512	157	44																								
Aminoglycosides - Gentamicin	32	157	18																							119	
Aminoglycosides - Kanamycin	1024	157	33																								
Penicillins - Ampicillin	4	157	0																	156		1					
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin	4	157	0															35		112		10					
Glycylcyclines - Tigecycline	0.25	157	0					13		74		61		9													
Ionophores - Salinomycin	4	157	0																	157							
Macrolides - Erythromycin	4	157	69												26		55		7								
Orthosomycins - Avilamycin	8	157	0																			157					
Oxazolidines - Linezolid	4	157	0													1		76		80							
Penicillins - Penicillin	16	157	0																	40		117					



**Table Antimicrobial susceptibility testing of *E. faecalis* in Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

<b>E. faecalis</b>  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Pigs - at slaughterhouse - animal sample - faeces - Monitoring - industry sampling - objective sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Antimicrobials:				9	16													2	64
Amphenicols - Chloramphenicol				9	16													2	64
Tetracyclines - Tetracycline		15	107															1	32
Aminoglycosides - Streptomycin				4		107		2				1		3	40			64	2048
Aminoglycosides - Gentamicin		20						2		4		4	8					16	1024
Aminoglycosides - Kanamycin						124									33			128	2048
Penicillins - Ampicillin																		2	32
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin																		1	32
Glycylcyclines - Tigecycline																		0.016	2
Ionophores - Salinomycin																		2	16
Macrolides - Erythromycin			69															0.5	32
Orthosomycins - Avilamycin																		4	32
Oxazolidines - Linezolid																		0.5	8
Penicillins - Penicillin																		2	32

**Table Antimicrobial susceptibility testing of *E. faecalis* in *Gallus gallus* (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]**

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E. faecalis  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory  Antimicrobials:	Gallus gallus (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling																										
	Cut-off value	N	n	<=0.008	>0.008	0.015	>0.016	0.03	>0.03	0.06	>0.06	0.12	>0.12	0.25	>0.25	0.5	>0.5	1	>1	2	>2	4	>4	8	>8	16	
Amphenicols - Chloramphenicol	32	112	0																		50		62				
Tetracyclines - Tetracycline	4	112	29															82		1							
Aminoglycosides - Streptomycin	512	112	4																								
Aminoglycosides - Gentamicin	32	112	1																							105	
Aminoglycosides - Kanamycin	1024	112	1																								
Penicillins - Ampicillin	4	112	0																	112							
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin	4	112	0															45		59		8					
Glycylcyclines - Tigecycline	0.25	112	0					3		32		77															
Ionophores - Salinomycin	4	112	0																	92		20					
Macrolides - Erythromycin	4	112	28													21		50		13				1		3	
Orthosomycins - Avilamycin	8	112	0																			112					
Oxazolidines - Linezolid	4	112	0															53		59							
Penicillins - Penicillin	16	112	0																	64		48					

Table Antimicrobial susceptibility testing of *E. faecalis* in Gallus gallus (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling - quantitative data [ Dilution method ]

E. faecalis  Isolates out of a monitoring program (yes/no)  Number of isolates available in the laboratory	Gallus gallus (fowl) - unspecified - at slaughterhouse - animal sample - mucosal swab (rectum-anal) - Monitoring - industry sampling - objective sampling																		
	>16	32	>32	64	>64	128	>128	256	>256	512	>512	1024	>1024	2048	>2048	4096	>4096	lowest	highest
Antimicrobials:																		2	64
Amphenicols - Chloramphenicol																		2	64
Tetracyclines - Tetracycline		18	11															1	32
Aminoglycosides - Streptomycin				3		103		2							4			64	2048
Aminoglycosides - Gentamicin		6											1					16	1024
Aminoglycosides - Kanamycin						111									1			128	2048
Penicillins - Ampicillin																		2	32
Glycopeptides (Cyclic peptides, Polypeptides) - Vancomycin																		1	32
Glycylcyclines - Tigecycline																		0.016	2
Ionophores - Salinomycin																		2	16
Macrolides - Erythromycin		4	20															0.5	32
Orthosomycins - Avilamycin																		4	32
Oxazolidines - Linezolid																		0.5	8
Penicillins - Penicillin																		2	32

Table Cut-off values for antibiotic resistance of *E. faecalis* in Animals

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Streptomycin		512	
	Gentamicin		32	
Amphenicols	Chloramphenicol		32	
Penicillins	Ampicillin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	
Oxazolidines	Linezolid		4	

Table Cut-off values for antibiotic resistance of *E. faecalis* in Feed

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Streptomycin		512	
	Gentamicin		32	
Amphenicols	Chloramphenicol		32	
Penicillins	Ampicillin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	
Oxazolidines	Linezolid		4	

Table Cut-off values for antibiotic resistance of *E. faecalis* in Food

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Streptomycin		512	
	Gentamicin		32	
Amphenicols	Chloramphenicol		32	
Penicillins	Ampicillin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	
Oxazolidines	Linezolid		4	

Table Cut-off values for antibiotic resistance of *E. faecium* in Animals

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Streptomycin		128	
	Gentamicin		32	
Amphenicols	Chloramphenicol		32	
Penicillins	Ampicillin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Streptogramins	Quinupristin/Dalfopristin		1	
Tetracyclines	Tetracycline		2	
Oxazolidines	Linezolid		4	

Table Cut-off values for antibiotic resistance of *E. faecium* in Feed

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Streptomycin		128	
	Gentamicin		32	
Amphenicols	Chloramphenicol		32	
Penicillins	Ampicillin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Streptogramins	Quinupristin/Dalfopristin		1	
Tetracyclines	Tetracycline		2	
Oxazolidines	Linezolid		4	



Table Cut-off values for antibiotic resistance of *E. faecium* in Food

Test Method Used		Standard methods used for testing		
			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Streptomycin		128	
	Gentamicin		32	
Amphenicols	Chloramphenicol		32	
Penicillins	Ampicillin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Streptogramins	Quinupristin/Dalfopristin		1	
Tetracyclines	Tetracycline		2	
Oxazolidinones	Linezolid		4	

## 4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS

## 4.1 ENTEROBACTER SAKAZAKII

### 4.1.1 General evaluation of the national situation

## 4.2 HISTAMINE

### 4.2.1 General evaluation of the national situation

## 4.3 STAPHYLOCOCCAL ENTEROTOXINS

### 4.3.1 General evaluation of the national situation

## 5. FOODBORNE

Foodborne outbreaks are incidences of two or more human cases of the same disease or infection where the cases are linked or are probably linked to the same food source. Situation, in which the observed human cases exceed the expected number of cases and where a same food source is suspected, is also indicative of a foodborne outbreak.

## A. Foodborne outbreaks

### System in place for identification, epidemiological investigations and reporting of foodborne outbreaks

In Denmark, local foodborne outbreaks are typically investigated by the Regional Veterinary and Food Control Authority in collaboration with the medical officer; often with the participation of the regional clinical microbiology laboratory. Larger outbreaks involving more than one region are typically investigated by Statens Serum Institut, the National Food Institute and the Danish Veterinary and Food Administration. These institutions may also aid in the investigation of local outbreaks. Representatives from these institutions meet regularly to discuss surveillance results, compare the reported occurrence of zoonotic agents in animals, food and feedstuffs with that in humans, and investigate major outbreaks. The formal responsibility of investigating food- or waterborne outbreaks is currently divided between three ministries based on the outbreak source: the Ministry for Interior and Health for infectious diseases; the Ministry of Food, Agriculture and Fisheries for food and animal related diseases; and the Ministry of the Environment (along with the municipalities) for water related diseases.

Outbreaks may be detected in various ways. Individuals who experience illness related to food intake in settings such as restaurants or work place canteens may report these incidents directly to the Regional Veterinary and Food Control Authorities. Physicians are obligated to report all suspected water- and foodborne infections to the regional medical officer, who then reports to Statens Serum Institut. Clusters of cases may be noted in the laboratory or identified at Statens Serum Institut through the laboratory surveillance system of gastrointestinal bacterial infections or through subtyping of bacterial isolates from patients.

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#### Danish Alert Unit for Food

To secure unambiguous and coordinated instructions concerning the handling of food crises it is necessary to gather an overall picture of the situation as well as to perform creative thinking to produce the best solutions. This is one of the main reasons for the establishment of The Danish Alert Unit for Food in 2006 at The Danish Veterinary and Food Administration.

The purpose with the establishment of the unit is furthermore to place the responsibility at one spot, establish one channel of commands and thus secure a coordinated, effective and quick handling of food crises nationally and internationally.

#### Tasks:

- ; Coordination of the work with food borne outbreaks both national and regional
- ; Withdrawals and recalls of products not in compliance with the food safety requirements
- ; Contingency plans for food and for civil preparedness in the Danish Veterinary and Food Administration
- ; Early warnings of the public in emergency situations
- ; Civil emergency response and early warnings
- ; The Alert Food hot line for acute queries outside normal opening hours
- ; The Unit is the Danish Contact Point of the Rapid Alert System for Food and Feed
- ; Chair in Central Crisis Management Group for food borne diseases.
- ; Education and practice in preparedness planning
- ; Cooperation with other authorities in crises

The unit mainly has competences concerning coordinating and procedural issues in food crises situations. The professional knowledge in each case is still situated in other offices in the Danish Veterinary and

Food Administration.

## Description of the types of outbreaks covered by the reporting:

Definition of Food borne outbreaks:

- 1) two or more human cases of the same disease or infection suspected of originating from the same source
- 2) a higher number of cases than expected (the endemic level) within an area in a limited period

Type of outbreaks:

Family outbreaks  
General outbreaks  
Hospital outbreaks

## National evaluation of the reported outbreaks in the country:

### Descriptions of single outbreaks of special interest

As in previous years, norovirus was the single most frequent disease agent in the registered outbreaks. Of the 77 reported foodborne outbreaks in 2010 with a total of 3029 cases, norovirus accounted for 47 with a total of 1266 registered cases. These outbreaks were often a result of contamination events associated with workplace lunch buffets, restaurants or private parties and as in previous years, many of these outbreaks followed gastrointestinal symptoms in persons preparing the food. Further, in 2010 a large number of norovirus outbreaks occurred with imported food products or food products produced in other EU countries. These were oysters mainly from France, raspberries from Serbia and two types of lettuce from Germany and France, respectively. In each instance, norovirus was detected in the foods by PCR methods. Romaine lettuce grown in Germany caused an outbreak in South Jutland and Lollo Bionda lettuce grown in France caused a series of outbreaks over a few days with norovirus and enterotoxigenic *E. coli*. In total, there were 20 registered outbreaks and one household outbreak associated with this one batch of Lollo Bionda lettuce. The lettuce was primarily used in sandwiches prepared by catering companies and this was part of the reason for the many registered outbreaks; a total of 405 cases were registered in the outbreaks. This one incident accounts for about a fourth of all registered outbreaks in 2010 and explains the increase in the number of reported outbreaks relative to the previous year.

One large outbreak occurred caused by *S. Typhimurium* U 323 of a specific MLVA type. The source of the outbreak was different types of pork products that were traced back to a specific slaughterhouse. The outbreak strain with matching MLVA type was found in the slaughterhouse on several occasions. Among the positive products was a spreadable pork sausage, which in a case-control investigation was shown to have caused a number of illnesses towards the end of the outbreak period. Despite good understanding of the source of the outbreak, it proved difficult to thoroughly clean the slaughterhouse and also to obtain valid information concerning distribution of meat from later stages of the production chain (cutting plant), and the outbreak ended up comprising a total of 172 registered cases over a period of six months.

Another *S. Typhimurium* DT 120/DT 7 outbreak was detected as a clustering of a particular MLVA type in patients from the national surveillance system. Trawling interviews lead to the hypothesis of a particular sliced salami containing meat from pigs and deer. This was confirmed in a subsequent case-control investigation. The sausage was produced in Germany for a Danish supermarket chain, but the suspected batch of sausages was sold out before microbiological evidence could be obtained.

A large waterborne *Campylobacter* outbreak took place in May among approximately 20,000 recipients of water from the municipal waterworks in the city of Køge south of Copenhagen. A total of 61 cases of *Campylobacter jejuni* was laboratory confirmed and the majority of isolates found to belong to the same clone based on *flaA*-typing. In a questionnaire study performed among the inhabitants, a little more than 1,500 inhabitants could be included in the analysis and of these some 400 were cases. This study showed a dose-response relationship between intake of tap water and the risk of becoming ill. A boiling order was in place during the investigation. A very thorough technical investigation into the possible causes of the

contamination was conducted, however no likely explanation for the cause was found.

A *Listeria* outbreak took place in the autumn. It comprised nine cases of which five were pregnant women. The MLVA/PFGE pattern of the strain was among the most common in Denmark, but the outbreak investigation was initiated as a result of the unusually high number of pregnant cases. Based on case interviews, a hypothesis of smoked salmon was formed.

Finally, an unusual outbreak occurred in August when a number of participants in a Triathlon competition fell ill after competing in contaminated sea water outside of Copenhagen. The swimming leg of the competition was held on the morning following an unusually powerful rainfall that flooded the Copenhagen sewer system and lead to a sudden, transient microbial pollution of coastal waters. In a questionnaire investigation conducted among all participants (of which about half were foreign), close to 800 (about 60%) answered the questionnaire and of these 55% indicated to have had symptoms of acute gastroenteritis. There was an association between illness and the amount of sea water that the participants indicated to have accidentally swallowed. Some participants had stool samples examined after the competition and results thereof indicated an outbreak of mixed etiology including *Campylobacter* and enterotoxigenic *E. coli*.

Table Foodborne Outbreaks: summarised data

	Number of outbreaks	Human cases	Hospitalized	Deaths	Strong evidence Number of Outbreaks	Total number of outbreaks
Salmonella - S. Typhimurium	2	27	0	0	4	6
Salmonella - S. Enteritidis	0	unknown	unknown	unknown	2	2
Salmonella - Other serovars	3	21	3	0	2	5
Campylobacter	1	2	1	0	4	5
Listeria - Listeria monocytogenes	1	9	0	0	0	1
Listeria - Other Listeria	0	unknown	unknown	unknown	0	0
Yersinia	0	unknown	unknown	unknown	0	0
Escherichia coli, pathogenic -	1	3	0	0	0	1
Bacillus - B. cereus	0	unknown	unknown	unknown	2	2
Bacillus - Other Bacillus	0	unknown	unknown	unknown	0	0
Staphylococcal enterotoxins	0	unknown	unknown	unknown	0	0
Clostridium - Cl. botulinum	0	unknown	unknown	unknown	0	0
Clostridium - Cl. perfringens	0	unknown	unknown	unknown	2	2
Clostridium - Other Clostridia	0	unknown	unknown	unknown	0	0
Other Bacterial agents - Brucella	0	unknown	unknown	unknown	0	0



	Number of outbreaks	Human cases	Hospitalized	Deaths	Strong evidence Number of Outbreaks	Total number of outbreaks
Other Bacterial agents - Shigella	0	unknown	unknown	unknown	0	0
Other Bacterial agents - Other Bacterial	0	unknown	unknown	unknown	3	3
Parasites - Trichinella	0	unknown	unknown	unknown	0	0
Parasites - Giardia	0	unknown	unknown	unknown	0	0
Parasites - Cryptosporidium	0	unknown	unknown	unknown	0	0
Parasites - Anisakis	0	unknown	unknown	unknown	0	0
Parasites - Other Parasites	0	unknown	unknown	unknown	0	0
Viruses - Norovirus	19	674	0	0	29	48
Viruses - Hepatitis viruses	0	unknown	unknown	unknown	0	0
Viruses - Other Viruses	0	unknown	unknown	unknown	0	0
Other agents - Histamine	1	7	0	0	2	3
Other agents - Marine biotoxins	0	unknown	unknown	unknown	0	0
Other agents - Other Agents	0	unknown	unknown	unknown	0	0
Unknown agent	0	unknown	unknown	unknown	0	0

Table Foodborne Outbreaks: detailed data for Bacillus

Please use CTRL for multiple selection fields

**B. cereus**

Value

FBO Code	FUD1022
Number of outbreaks	1
Number of human cases	112
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Herbs and spices
More food vehicle information	Contaminated white pepper used in stew
Nature of evidence	Analytical epidemiological evidence;Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Detection of indistinguishable causative agent in humans
Outbreak type	General
Setting	Canteen or workplace catering
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Storage time/temperature abuse
Mixed Outbreaks (Other Agent)	
Additional information	

## B. cereus

Value

FBO Code	FUD989
Number of outbreaks	1
Number of human cases	5
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Bovine meat and products thereof
More food vehicle information	Lasagne
Nature of evidence	Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Detection of indistinguishable causative agent in humans
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Other contributory factor
Mixed Outbreaks (Other Agent)	
Additional information	

Table Foodborne Outbreaks: detailed data for Campylobacter

Please use CTRL for multiple selection fields

C. jejuni - C. jejuni subsp. jejuni

Value

FBO Code	FUD1006
Number of outbreaks	1
Number of human cases	37
Number of hospitalisations	1
Number of deaths	0
Food vehicle	Broiler meat (Gallus gallus) and products thereof
More food vehicle information	
Nature of evidence	Analytical epidemiological evidence;Descriptive epidemiological evidence
Outbreak type	General
Setting	Canteen or workplace catering
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Cross-contamination
Mixed Outbreaks (Other Agent)	
Additional information	

## C. jejuni - C. jejuni subsp. jejuni

Value

FBO Code	FUD1007
Number of outbreaks	1
Number of human cases	9
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Broiler meat (Gallus gallus) and products thereof
More food vehicle information	
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Cross-contamination
Mixed Outbreaks (Other Agent)	
Additional information	

## Campylobacter spp., unspecified

Value

FBO Code	FUD1001
Number of outbreaks	1
Number of human cases	400
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Tap water, including well water
More food vehicle information	
Nature of evidence	Analytical epidemiological evidence;Descriptive epidemiological evidence
Outbreak type	General
Setting	Other setting
Place of origin of problem	Water distribution system
Origin of food vehicle	Unknown
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	

## Campylobacter spp., unspecified

Value

FBO Code	FUD1015
Number of outbreaks	1
Number of human cases	400
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Tap water, including well water
More food vehicle information	EFSA asked to change from "other food" to "tap water". The outbreak was not due to drinking water but seawater swallowed during swimming at triathlon event
Nature of evidence	Analytical epidemiological evidence;Descriptive epidemiological evidence
Outbreak type	General
Setting	Other setting
Place of origin of problem	Water source
Origin of food vehicle	Unknown
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC, Giardia
Additional information	Seawater swallowed during swimming at triathlon event

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The following amendments were made:

Date of Modification	Row name	Column name	Old value
2011-12-13	Campylobacter spp., unspecified	Food vehicle	Other foods
	Campylobacter spp., unspecified	More food vehicle information	Seawater swallowed during swimming at triathlon event

Date of Modification	New value
2011-12-13	Tap water, including well water
	EFSA asked to change from "other food" to "tap water". The outbreak was not due to drinking water but seawater swallowed during swimming at triathlon event



Table Foodborne Outbreaks: detailed data for Clostridium

Please use CTRL for multiple selection fields

**C. perfringens**

Value

FBO Code	FUD1033
Number of outbreaks	1
Number of human cases	20
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Bovine meat and products thereof
More food vehicle information	
Nature of evidence	Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Symptoms and onset of illness pathognomonic to causative agent
Outbreak type	General
Setting	Other setting
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Other contributory factor
Mixed Outbreaks (Other Agent)	
Additional information	

## C. perfringens

Value

FBO Code	FUD1014
Number of outbreaks	1
Number of human cases	87
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Bovine meat and products thereof
More food vehicle information	Chili con carne
Nature of evidence	Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Symptoms and onset of illness pathognomonic to causative agent
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Other contributory factor
Mixed Outbreaks (Other Agent)	
Additional information	

Table Foodborne Outbreaks: detailed data for Other Bacterial agents

Please use CTRL for multiple selection fields

## Other

Value

FBO Code	FUD1011
Number of outbreaks	1
Number of human cases	150
Number of hospitalisations	1
Number of deaths	0
Food vehicle	Mixed or buffet meals
More food vehicle information	Outbreak with Staphylococcus aureus. Sandwich containing meat from poultry which had been peeled by hand.
Nature of evidence	Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Detection of indistinguishable causative agent in humans
Outbreak type	General
Setting	Other setting
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Infected food handler;Other contributory factor
Mixed Outbreaks (Other Agent)	
Additional information	Outbreak with Staphylococcus aureus. Sandwich containing meat from poultry which had been peeled by hand.

## Other

Value

FBO Code	FUD1025
Number of outbreaks	1
Number of human cases	16
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Outbreak due to lectin toxin in white dried beans, which had not been sufficient macerated.
Nature of evidence	Analytical epidemiological evidence;Descriptive epidemiological evidence
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Other contributory factor
Mixed Outbreaks (Other Agent)	
Additional information	Outbreak due to lectin toxin in white dried beans, which had not been sufficient macerated.

## Other

Value

FBO Code	FUD1005
Number of outbreaks	1
Number of human cases	105
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Outbreak due to lectin toxin in dried beans, which had not been sufficient macerated. Used in chili con carne
Nature of evidence	Analytical epidemiological evidence
Outbreak type	General
Setting	Canteen or workplace catering
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Other contributory factor
Mixed Outbreaks (Other Agent)	
Additional information	Outbreak due to lectin toxin in dried beans, which had not been sufficient macerated. Used in chili con carne

Table Foodborne Outbreaks: detailed data for Other agents

Please use CTRL for multiple selection fields

## Histamine

Value

FBO Code	FUD1028
Number of outbreaks	1
Number of human cases	36
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Fish and fish products
More food vehicle information	Macherel
Nature of evidence	Analytical epidemiological evidence;Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Symptoms and onset of illness pathognomonic to causative agent
Outbreak type	General
Setting	School, kindergarten
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Storage time/temperature abuse
Mixed Outbreaks (Other Agent)	
Additional information	

## Histamine

Value

FBO Code	FUD1034
Number of outbreaks	1
Number of human cases	2
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Fish and fish products
More food vehicle information	Tuna
Nature of evidence	Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Symptoms and onset of illness pathognomonic to causative agent
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Other contributory factor
Mixed Outbreaks (Other Agent)	
Additional information	

Table Foodborne Outbreaks: detailed data for Salmonella

Please use CTRL for multiple selection fields

**S. Infantis**

Value

FBO Code	FUD1039
Number of outbreaks	1
Number of human cases	87
Number of hospitalisations	3
Number of deaths	0
Food vehicle	Other or mixed red meat and products thereof
More food vehicle information	Mixed meal containing poultry eggs and pork
Nature of evidence	Analytical epidemiological evidence
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Cross-contamination
Mixed Outbreaks (Other Agent)	
Additional information	



## S. Typhimurium - DT 41

Value

FBO Code	FUD1044
Number of outbreaks	1
Number of human cases	9
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Mixed or buffet meals
More food vehicle information	Travel associated outbreak to Egypt
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	Unknown
Setting	Unknown
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	Travel associated outbreak to Egypt

## S. Enteritidis

Value

FBO Code	FUD977
Number of outbreaks	1
Number of human cases	7
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Mixed or buffet meals
More food vehicle information	Travel associated outbreak to Egypt
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Unknown
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	Travel associated outbreak to Egypt

## S. Enteritidis

Value

FBO Code	FUD1038
Number of outbreaks	1
Number of human cases	5
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Mixed or buffet meals
More food vehicle information	Travel associated outbreak to the Canaries
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Unknown
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	Travel associated outbreak, to the Canaries

## S. Virchow

Value

FBO Code	FUD994
Number of outbreaks	1
Number of human cases	3
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Broiler meat (Gallus gallus) and products thereof
More food vehicle information	EII, which also was served at dinner was cross contaminated from poultry
Nature of evidence	Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Detection of indistinguishable causative agent in humans
Outbreak type	General
Setting	Household / domestic kitchen
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Cross-contamination
Mixed Outbreaks (Other Agent)	
Additional information	

## S. Typhimurium - DT 120

Value

FBO Code	FUD996
Number of outbreaks	1
Number of human cases	20
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Other or mixed red meat and products thereof
More food vehicle information	Salami made in Germany; made of meat from pork and deer
Nature of evidence	Analytical epidemiological evidence;Descriptive epidemiological evidence
Outbreak type	General
Setting	Unknown
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	S. Typhimurium DT 7
Additional information	

## S. Typhimurium - Other

Value

FBO Code	FUD979
Number of outbreaks	1
Number of human cases	172
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Pig meat and products thereof
More food vehicle information	S. Typhimurium U323
Nature of evidence	Analytical epidemiological evidence;Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Detection of indistinguishable causative agent in humans
Outbreak type	General
Setting	Unknown
Place of origin of problem	Slaughterhouse
Origin of food vehicle	Domestic market
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	

## S. Typhimurium - DT 10

Value

FBO Code	FUD1027
Number of outbreaks	1
Number of human cases	7
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Mixed or buffet meals
More food vehicle information	Travel associated outbreak. Eaten in the same restaurant in Bulgaria
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	Travel associated outbreak, eaten at the same restaurant in Bulgaria

## Denmark - 2010 Report on trends and sources of zoonoses

The following amendments were made:

Date of Modification	Row name	Column name	Old value
2012-02-27	S. Typhimurium - DT 120	Food vehicle	Pig meat and products thereof

Date of Modification	New value
2012-02-27	Other or mixed red meat and products thereof



Table Foodborne Outbreaks: detailed data for Viruses

Please use CTRL for multiple selection fields

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD952
Number of outbreaks	1
Number of human cases	4
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Detection of causative agent in food vehicle or its component - Detection of indistinguishable causative agent in humans
Outbreak type	General
Setting	Canteen or workplace catering
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD1020
Number of outbreaks	1
Number of human cases	30
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Fruit, berries and juices and other products thereof
More food vehicle information	Raspberries (frozen) importet from Serbia
Nature of evidence	Analytical epidemiological evidence;Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Detection of indistinguishable causative agent in humans
Outbreak type	General
Setting	Canteen or workplace catering
Place of origin of problem	Unknown
Origin of food vehicle	Imported from outside EU
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	Part of several outbreaks due to frozen raspberries from Serbia

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD983
Number of outbreaks	1
Number of human cases	4
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	Household / domestic kitchen
Setting	Household / domestic kitchen
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD982
Number of outbreaks	1
Number of human cases	3
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	School, kindergarten
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD971
Number of outbreaks	1
Number of human cases	3
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Symptoms and onset of illness pathognomonic to causative agent
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD970
Number of outbreaks	1
Number of human cases	2
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Symptoms and onset of illness pathognomonic to causative agent
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD963
Number of outbreaks	1
Number of human cases	26
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD1026
Number of outbreaks	1
Number of human cases	4
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Fish and fish products
More food vehicle information	Sushi
Nature of evidence	Analytical epidemiological evidence
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	



## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD956
Number of outbreaks	1
Number of human cases	26
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Analytical epidemiological evidence;Detection of causative agent in food vehicle or its component - Symptoms and onset of illness pathognomonic to causative agent
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD1008
Number of outbreaks	1
Number of human cases	14
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Romaine lettuce importet from Germany
Nature of evidence	Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Detection of indistinguishable causative agent in humans
Outbreak type	General
Setting	Canteen or workplace catering
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD986
Number of outbreaks	1
Number of human cases	28
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Analytical epidemiological evidence;Descriptive epidemiological evidence
Outbreak type	General
Setting	Canteen or workplace catering
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD959
Number of outbreaks	1
Number of human cases	11
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD953
Number of outbreaks	1
Number of human cases	62
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Other setting
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD961
Number of outbreaks	1
Number of human cases	35
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD1043
Number of outbreaks	1
Number of human cases	42
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Mixed or buffet meals
More food vehicle information	
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Other contributory factor
Mixed Outbreaks (Other Agent)	
Additional information	

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD955
Number of outbreaks	1
Number of human cases	13
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Analytical epidemiological evidence;Detection of causative agent in food vehicle or its component - Symptoms and onset of illness pathognomonic to causative agent
Outbreak type	General
Setting	Other setting
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France



## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD958
Number of outbreaks	1
Number of human cases	10
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Analytical epidemiological evidence;Detection of causative agent in food vehicle or its component - Symptoms and onset of illness pathognomonic to causative agent
Outbreak type	General
Setting	Other setting
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD984
Number of outbreaks	1
Number of human cases	16
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	School, kindergarten
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD981
Number of outbreaks	1
Number of human cases	6
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Other setting
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD985
Number of outbreaks	1
Number of human cases	5
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Analytical epidemiological evidence;Descriptive epidemiological evidence
Outbreak type	General
Setting	Canteen or workplace catering
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD1030
Number of outbreaks	1
Number of human cases	60
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Fruit, berries and juices and other products thereof
More food vehicle information	Raspberries (frozen)
Nature of evidence	Analytical epidemiological evidence
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Imported from outside EU
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	Part of several outbreaks due to frozen raspberries

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD957
Number of outbreaks	1
Number of human cases	50
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence;Detection of causative agent in food vehicle or its component - Symptoms and onset of illness pathognomonic to causative agent
Outbreak type	General
Setting	Canteen or workplace catering
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD972
Number of outbreaks	1
Number of human cases	3
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Analytical epidemiological evidence;Detection of causative agent in food vehicle or its component - Symptoms and onset of illness pathognomonic to causative agent
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD960
Number of outbreaks	1
Number of human cases	21
Number of hospitalisations	1
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Other setting
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France



## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD964
Number of outbreaks	1
Number of human cases	6
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD973
Number of outbreaks	1
Number of human cases	27
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Crustaceans, shellfish, molluscs and products thereof
More food vehicle information	Oyster. Norovirus outbreaks linked to oyster consumption in the United Kingdom, Norway, France, Sweden and Denmark
Nature of evidence	Descriptive epidemiological evidence; Detection of causative agent in food vehicle or its component - Detection of indistinguishable causative agent in humans
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	Norovirus outbreaks linked to oyster consumption in the United Kingdom, Norway, France, Sweden and Denmark. Published: Eurosurveillance; 25 March 2010

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD968
Number of outbreaks	1
Number of human cases	75
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Vegetables and juices and other products thereof
More food vehicle information	Lollo Bionda lettuce imported from France
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Residential institution (nursing home, prison, boarding school)
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	ETEC
Additional information	Part of 21 outbreaks in Denmark due to Lollo Bionda lettuce importet from France

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD992
Number of outbreaks	1
Number of human cases	5
Number of hospitalisations	1
Number of deaths	0
Food vehicle	Fruit, berries and juices and other products thereof
More food vehicle information	Raspberries
Nature of evidence	Descriptive epidemiological evidence
Outbreak type	General
Setting	Other setting
Place of origin of problem	Unknown
Origin of food vehicle	Imported from outside EU
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	

## Calicivirus - norovirus (Norwalk-like virus)

Value

FBO Code	FUD1023
Number of outbreaks	1
Number of human cases	5
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Fish and fish products
More food vehicle information	Sushi
Nature of evidence	Analytical epidemiological evidence;Detection of causative agent in food vehicle or its component - Symptoms and onset of illness pathognomonic to causative agent
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Infected food handler
Mixed Outbreaks (Other Agent)	
Additional information	