European Food Safety Authority

ZOONOSES MONITORING

LATVIA

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

TRENDS AND SOURCES OF ZOONOSES AND ZOONOTIC AGENTS IN HUMANS, FOODSTUFFS, ANIMALS AND FEEDINGSTUFFS

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

IN 2013

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: Latvia

Reporting Year: 2013

Laboratory name	Description	Contribution
Food and Veterinary Service (FVS)	The FVS is a state administrative institution subordinated to the Ministry of Agriculture. The FVS ensures unified state surveillance and control over the whole food chain including feed, animals and food. FVS surveys and controls the import of food products, the import, export and and transit of products under veterinary surveillance and other products and goods at all control points of the EU borders, in free zones, free depots and custom depots also.	The FVS coordinates the work of the national working group on zoonoses and provides veterinary and food surveillance data.
Scientific Institute of Food Safety, Animal Health and Environment „BIOR" (former - National Diagnostic centre of FVS)	From 1st of January 2010 the National Diagnostic Centre of Food and Veterinary Service has consolidated with the Latvian Fish Resources Agency and acquired a new status and designation: Institute of Food Safety, Animal Health and Environment „BIOR". The BIOR ensures all required planned and operational laboratory testing in the frame of state food and veterinary surveillance. Additionally, BIOR represents the National Reference Laboratory according to animal health tasks.	All laboratory investigations related to the surveillance of the food chain and animal health.

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Laboratory name	Description	Contribution
The Centre for Disease Prevention and Control (CDPC) of Latvia.	The Centre for Disease Prevention and Control (CDPC) of Latvia was established on 1st April 2012 by Cabinet of Ministers of Latvia. Centre is supervised by Ministry of Health. CDPC of Latvia is Institution aimed at strengthening Latvia's public health system, preventing diseases, including infectious and rare diseases.	Data on foodborne outbreaks and human cases of zoonotic infections.

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 Latvia during the year 2013 .

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

Agricultural Data Centre (ADC)
ADC is a state agency under the supervision of the Ministry of Agriculture that performs collection, processing and analysis of zootechnical, veterinary and agricultural data in the Latvia and develop a uniform register of animals and herds (cattle, pigs, sheep, goats etc.) and a pedigree information system according to international standards.

Dates the figures relate to and the content of the figures

Data on commercial poultry - average population during the year.

Definitions used for different types of animals, herds, flocks and holdings as well as the types covered by the information

Animals - cattle, pigs, sheep, goats, horses, rabbits, swamp beaver, fur animals, poultry, bee gardens, fishponds, hatcheries of aquatic animals, wild animals and birds, which are kept in a holding.

Herd - an agricultural animal or group of animals belonging to one owner.

Holding - shall mean separate confined area in which animals are kept regularly or temporary.

Poultry - shall mean fowl, turkeys, guinea fowl, ducks, geese, quails, pigeons, pheasants, partridges, ratites and etc. birds reared or kept in captivity for breeding, the production of meat or eggs for consumption, or for re-stocking supplies of game.

Day-old chicks - poultry less than 72 hours old, not yet fed; except muscovy ducks (Cairina moschata) or their crosses may be fed and ratites (Ratitae) less than 5 days old, not yet fed.

Commercial poultry - poultry 72 hours old or more, reared for the production and sale for trade or to companies of meat and/or eggs for consumption, or for restocking supplies of game.

Poultry flock - all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit. In housed poultry this will include all birds sharing the same airspace.

Geographical distribution and size distribution of the herds, flocks and holdings

Animals and herds are distributed almost evenly over the whole territory of Latvia.
Concerning commercial poultry population, there are two districts, where the holdings with biggest numbers of birds are located, both in the centre/southern centre of Latvia.

Table Susceptible animal populations

* Only if different than current reporting year

		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*
Cattle (bovine animals)	- Unknown	30897		86888		415277		30897	
Ducks	- Unknown	1				481		1	
Gallus gallus (fowl)	laying hens	44				3110434		10	
	broilers	70		16619083		1668340		3	
	- Unknown [1)]	140		16619083		4977708		13	
	parent breeding flocks for broiler production line	26				198934		1	
Goats	- Unknown	2855		95		13860		2855	
Pigs	- Unknown	2890		417556		305554		2890	
Sheep	- Unknown	4360		13902		99412		4360	
Solipeds, domestic	horses	4892		294		10844		4892	
Ostriches	farmed	3				88		3	
Quails	- Unknown	23				4418		23	

Comments:

Table Susceptible animal populations

Comments:

[1)] One integrated (mixed) holing with breeding poultry of Gallus gallus and commercial poultry of Gallus gallus

2. INFORMATION ON SPECIFIC ZOONOSES 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 prevalence of Salmonella in animals and food of animal origin has been monitored over a long period of time. From 1967 until the end of 2003, 51836 Salmonella isolates were obtained from animal samples. Most isolates originated from poultry (57,6%) and from pigs (29,0%). In cattle and fur animals, Salmonella was isolated in lower numbers, 8,6% and 2,7%, respectively. Goats (0,05%), horses (0,01%) and other animals (2,0%) were also investigated.

The main serotypes found in poultry in the same period of time (1967-2003) were S. Gallinarum-pullorum (87,1%), S. Enteritidis (9,6% of isolates) and S. Typhimurium (2,8%). In pigs, besides S. Choleraesuis (94,0%), mainly S. Typhimurium was found (0,8%), while in cattle S. Enteritidis (57,9%) and S. Dublin (35,4%) were the most prominent serotypes. In fur animals, four different serotypes were isolated: S. Choleraesuis (29,9%), S. Dublin (23,5%), S. Enteritidis (22,5%) and S. Typhimurium (20,6%).

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

S. Enteritidis is the most prevalent serotype isolated from poultry and also from poultry meat. Accordingly, also human cases of S. Enteritidis-caused illness prevail during the last years. The increase in the number of human salmonellosis cases is predominantly reported during the summer months.

2.1.2 Salmonella in foodstuffs

A. Salmonella spp. in broiler meat and products thereof

Monitoring system

Sampling strategy

At meat processing plant

Inspectors of the Food and Veterinary Service are taking the samples. One sample consists of 5 units. Every unit is packed and stored separately, and also laboratory testing is performed on each unit. For laboratory testing, 25g of each unit are taken for further investigations.

At retail

Inspectors of the Food and Veterinary Service are taking the samples. One sample consists of 5 units. Every unit is packed and stored separately, and also laboratory testing is performed on each unit. For laboratory testing, 25g of each unit are taken for further investigations.

Frequency of the sampling

At meat processing plant

Sampling distributed evenly throughout the year

At retail

Sampling distributed evenly throughout the year

Methods of sampling (description of sampling techniques)

At meat processing plant

Method according to regulation 2073/2005.

At retail

Method according to regulation 2073/2005.

Definition of positive finding

At slaughterhouse and cutting plant

At meat processing plant

None of the units is allowed to contain Salmonella spp. The sample is considered positive, if one or more of the units are positive.

At retail

None of the units is allowed to contain Salmonella spp. The sample is considered positive, if one or more of the units are positive.

Diagnostic/analytical methods used

At meat processing plant

LVS EN ISO 6579:2003

At retail

LVS EN ISO 6579:2003

Control program/mechanisms

The control program/strategies in place

National control programme on Salmonella, based on the Regulation (EC) No 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified foodborne zoonotic agents.

Measures in case of the positive findings or single cases

The inspector immediately has to perform an inspection at the slaughterhouse, processing plant or at the store. He decides what to do with the rest of the batch, if there are still products left, and collects all necessary documents to clarify the origin of the product. The inspector also decides on the actions that have to be taken in the company, like asking for HACCP system improvements etc. Disinfection has to be carried out at all places where the infected product had contact with.

B. Salmonella spp. in pig meat and products thereof

Monitoring system

Sampling strategy

At slaughterhouse and cutting plant

At meat processing plant

Inspectors of the Food and Veterinary Service are taking the samples. One sample consists of 5 units. Every unit is packed and stored separately, and also laboratory testing is performed on each unit. For laboratory testing, 10/25g of each unit are taken for further investigations.

At retail

Inspectors of the Food and Veterinary Service are taking the samples. One sample consists of 5 units. Every unit is packed and stored separately, and also laboratory testing is performed on each unit. For laboratory testing, 10/25g of each unit are taken for further investigations.

Frequency of the sampling

At meat processing plant

Sampling distributed evenly throughout the year

At retail

Sampling distributed evenly throughout the year

Type of specimen taken

At slaughterhouse and cutting plant

Surface of carcass

At retail

Minced meat, meat preparations

Methods of sampling (description of sampling techniques)

At meat processing plant

Method according to regulation 2073/2005

At retail

Method according to regulation 2073/2005.

Definition of positive finding

At meat processing plant

None of the units is allowed to contain Salmonella spp. The sample is considered positive, if one or more of the units are positive.

At retail

None of the units is allowed to contain Salmonella spp. The sample is considered positive, if one or more of the units are positive.

Diagnostic/analytical methods used

At meat processing plant

LVS EN ISO 6579:2003

At retail

LVS EN ISO 6579:2003

Control program/mechanisms

The control program/strategies in place

National control programme on Salmonella, based on the Regulation (EC) No 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified foodborne zoonotic agents.

Measures in case of the positive findings or single cases

The inspector immediatly has to perform an inspection at the processing plant or at the store. He decides what to do with the rest of the batch, if there are still products left, and collects all necessary documents to clarify the origin of the product. The inspector also decides on the actions that have to be taken in the company, like asking for HACCP system improvements etc. Disinfection has to be carried out at all places where the infected product had contact with.

C. Salmonella spp. in bovine meat and products thereof

Monitoring system

Sampling strategy

At retail

One sample consists of 5 sample units. For laboratory testing 10/25 g of each unit are taken for further investigations.

Frequency of the sampling

At retail

Sampling distributed evenly throughout the year

Type of specimen taken

At retail

Other: meat preparations/meat products

Methods of sampling (description of sampling techniques)

At retail

According to regulation 2073/2005.

Definition of positive finding

At retail

None of the units is allowed to contain Salmonella spp. The sample is considered positive, if one or more of the units are positive.

Diagnostic/analytical methods used

At retail

Other: LVS EN ISO 6579 : 2003.

D. Salmonella spp. in eggs and egg products

Monitoring system

Sampling strategy

Inspectors of the Food and Veterinary Service are taking samples of raw liquid eggs at production plant. One sample consists of 5 units. Every unit is packed and stored separately, and also laboratory testing is performed on each unit. For laboratory testing, 25g of each unit are taken for further investigations.

Frequency of the sampling

Raw material for egg products (at production plant)

Sampling distributed evenly throughout the year

Type of specimen taken

Raw material for egg products (at production plant)

Mixture of yolk and white

Methods of sampling (description of sampling techniques)

Raw material for egg products (at production plant)

Method according to Regulation No 2073/2005

Definition of positive finding

Raw material for egg products (at production plant)

None of the units is allowed to contain Salmonella spp. The sample is considered positive, if one or more of the units are positive.

Diagnostic/analytical methods used

Raw material for egg products (at production plant)

Bacteriological method: ISO 6579:2002

Control program/mechanisms

The control program/strategies in place

National control programme on Salmonella, based on the Regulation (EC) No 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified foodborne zoonotic agents.

Measures in case of the positive findings

The inspector immediately has to perform an inspection at the production plant or at the store. He decides what to do with the rest of the batch, if there are still products left, and collects all necessary documents to clarify the origin of the product. The inspector also decides on the actions that have to be taken in the company, like asking for HACCP system improvements etc. Disinfection has to be carried out at all places where the infected product had contact with.

Table Salmonella in poultry meat and products thereof

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Meat from broilers (Gallus gallus) - carcase - Slaughterhouse - Surveillance		Objective sampling	Official sampling	food sample > neck skin	Domestic	Single	25g	100	0		
Meat from broilers (Gallus gallus) - fresh - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	150	4		1
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - Processing plant - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	125	0		
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	200	0		
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - Processing plant - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	80	0		
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	120	0		
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	50	0		
Meat from turkey - fresh - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	50	1		
Meat from broilers (Gallus gallus) - carcase - chilled			HACCP and own checks	food sample > meat	Unknown	Single	25g	116	0		
Meat from broilers (Gallus gallus) - fresh - Slaughterhouse			HACCP and own checks	food sample > carcase swabs	Domestic	Single	100cm2	3	0		

Table Salmonella in poultry meat and products thereof

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Meat from broilers (Gallus gallus) - fresh - skinned			HACCP and own checks	food sample > meat	Unknown	Single	25g	1	0		
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked			HACCP and own checks	food sample > meat	Unknown	Single	25g	22	0		
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat			HACCP and own checks	food sample > meat	Unknown	Single	25g	88	0		
Meat from broilers (Gallus gallus) - mechanically separated meat (MSM)			HACCP and own checks	food sample > meat	Domestic	Single	25g	168	0		
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked			HACCP and own checks	food sample > meat	Unknown	Single	25g	32	0		
Meat from broilers (Gallus gallus) - offal - liver - chilled			HACCP and own checks	food sample > meat	Unknown	Single	25g	1	1		
Meat from poultry, unspecified - minced meat - intended to be eaten cooked - frozen			HACCP and own checks	food sample	Unknown	Single	25g	40	0		
Meat from turkey - fresh - with skin			HACCP and own checks	food sample > meat	Unknown	Single	25g	4	0		
Meat from turkey - meat products - cooked, ready-to -eat			HACCP and own checks	food sample	Unknown	Single	25g	6	0		
Meat from turkey - minced meat - intended to be eaten cooked - chilled			HACCP and own checks	food sample > meat	Unknown	Single	25g	1	0		

Table Salmonella in poultry meat and products thereof

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Bardo	S. Montevideo	S. Nigeria	S. Stanley	S. Uppsala
Meat from broilers (Gallus gallus) - carcase - Slaughterhouse - Surveillance							
Meat from broilers (Gallus gallus) - fresh - Retail - Surveillance			1			1	1
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - Processing plant - Surveillance							
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - Retail - Surveillance							
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - Processing plant - Surveillance							
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - Retail - Surveillance							
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - Retail - Surveillance							
Meat from turkey - fresh - Retail - Surveillance					1		
Meat from broilers (Gallus gallus) - carcase - chilled							
Meat from broilers (Gallus gallus) - fresh - Slaughterhouse							
Meat from broilers (Gallus gallus) - fresh - skinned							

Table Salmonella in poultry meat and products thereof

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Bardo	S. Montevideo	S. Nigeria	S. Stanley	S. Uppsala
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked							
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat							
Meat from broilers (Gallus gallus) - mechanically separated meat (MSM)							
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked							
Meat from broilers (Gallus gallus) - offal - liver - chilled				1			
Meat from poultry, unspecified - minced meat - intended to be eaten cooked - frozen							
Meat from turkey - fresh - with skin							
Meat from turkey - meat products - cooked, ready-to -eat							
Meat from turkey - minced meat - intended to be eaten cooked - chilled							

Table Salmonella in milk and dairy products

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Cheeses made from cows' milk - curd			HACCP and own checks	food sample	Unknown	Single	25g	57	0		
Cheeses made from cows' milk - curd - Retail		Objective sampling	Official sampling	food sample		Single	25g	100	0		
Cheeses made from cows' milk - fresh			HACCP and own checks	food sample	Unknown	Single	25g	10	0		
Cheeses made from cows' milk - fresh - made from pasteurised milk - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	50	0		
Cheeses made from cows' milk - hard			HACCP and own checks	food sample	Unknown	Single	25g	83	0		
Cheeses made from goats' milk			HACCP and own checks	food sample	Domestic	Single	25g	1	0		
Cheeses, made from unspecified milk or other animal milk - spreadable			HACCP and own checks	food sample	Unknown	Single	25g	11	0		
Cheeses, made from unspecified milk or other animal milk - unspecified			HACCP and own checks	food sample	Unknown	Single	25g	30	0		
Dairy products (excluding cheeses) - butter			HACCP and own checks	food sample	Unknown	Single	25g	24	0		
Dairy products (excluding cheeses) - cream		Objective sampling	Official sampling	food sample		Single	25g	50	0		
Dairy products (excluding cheeses) - dairy desserts			HACCP and own checks	food sample	Unknown	Single	25g	31	0		
Dairy products (excluding cheeses) - fermented dairy products - fermented cream			HACCP and own checks	food sample	Unknown	Single	25g	46	0		
Dairy products (excluding cheeses) - fermented dairy products - fermented milk			HACCP and own checks	food sample	Unknown	Single	25ml	11	0		
Dairy products (excluding cheeses) - ice-cream			HACCP and own checks	food sample	Unknown	Single		15	0		

Table Salmonella in milk and dairy products

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Dairy products (excluding cheeses) - milk powder and whey powder			HACCP and own checks	food sample	Unknown	Single	25ml	34	0		
Dairy products (excluding cheeses) - sour milk			HACCP and own checks	food sample	Unknown	Single	25ml	17	0		
Dairy products (excluding cheeses) - yoghurt			HACCP and own checks	food sample	Unknown	Single	25ml	70	0		
Dairy products (excluding cheeses) - yoghurt - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	50	0		
Milk, cows' - pasteurised milk			HACCP and own checks	food sample	Unknown	Single	25ml	44	0		
Milk, cows' - raw milk			HACCP and own checks	food sample	Unknown	Single	25ml	30	0		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Cheeses made from cows' milk - curd		
Cheeses made from cows' milk - curd - Retail		
Cheeses made from cows' milk - fresh		
Cheeses made from cows' milk - fresh - made from pasteurised milk - Retail - Surveillance		
Cheeses made from cows' milk - hard		
Cheeses made from goats' milk		
Cheeses, made from unspecified milk or other animal milk - spreadable		

Table Salmonella in milk and dairy products

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Cheeses, made from unspecified milk or other animal milk - unspecified		
Dairy products (excluding cheeses) - butter		
Dairy products (excluding cheeses) - cream		
Dairy products (excluding cheeses) - dairy desserts		
Dairy products (excluding cheeses) - fermented dairy products - fermented cream		
Dairy products (excluding cheeses) - fermented dairy products - fermented milk		
Dairy products (excluding cheeses) - ice-cream		
Dairy products (excluding cheeses) - milk powder and whey powder		
Dairy products (excluding cheeses) - sour milk		
Dairy products (excluding cheeses) - yoghurt		
Dairy products (excluding cheeses) - yoghurt - Retail - Surveillance		
Milk, cows' - pasteurised milk		
Milk, cows' - raw milk		

Table Salmonella in other food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Eggs - table eggs - Packing centre - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	40	0		
Eggs - table eggs - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	50	0		
Eggs - raw material (liquid egg) for egg products - Processing plant - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	30	0		
Fish - smoked - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	250	0		
Bakery products - bread			HACCP and own checks	food sample	Unknown	Single	25g	7	0		
Bakery products - cakes			HACCP and own checks	food sample	Domestic	Single	25g	33	0		
Beverages, alcoholic	beer		HACCP and own checks	food sample	Domestic	Single	25ml	22	0		
Beverages, non-alcoholic			HACCP and own checks	food sample	Domestic	Single	25ml	11	0		
Cereals and meals - flour/meal or finely ground powder			HACCP and own checks	food sample	Unknown	Single	25g	13	0		
Chocolate			HACCP and own checks	food sample	Unknown	Single	25g	18	0		
Cocoa and cocoa preparations, coffee and tea			HACCP and own checks	food sample	Unknown	Single	25g	2	0		
Crustaceans - unspecified			HACCP and own checks	food sample	Unknown	Single	25g	101	0		
Eggs - table eggs - whole			HACCP and own checks	food sample	Unknown	Single	25g	8	0		
Fish - cooked			HACCP and own checks	food sample	Domestic	Single	25g	4	0		
Fish - gravad /slightly salted - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	75	0		
Fish - marinated - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	75	0		

Table Salmonella in other food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Fish - raw - Processing plant			HACCP and own checks	food sample	Unknown	Single	25g	22	0		
Fish - raw - chilled			HACCP and own checks	food sample	Unknown	Single	25g	32	0		
Fish - raw - frozen			HACCP and own checks	food sample	Unknown	Single	25g	43	0		
Fish - smoked - cold-smoked			HACCP and own checks	food sample	Domestic	Single	25g	18	0		
Fish - smoked - hot-smoked			HACCP and own checks	food sample	Domestic	Single	25g	20	0		
Fishery products, unspecified - non-ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g	34	0		
Fishery products, unspecified - ready-to-eat	caviar		HACCP and own checks	food sample	Unknown	Single	25g	25	0		
Fishery products, unspecified - ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g	110	0		
Foodstuffs intended for special nutritional uses - ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g	17	0		
Fruits and vegetables - products			HACCP and own checks	food sample	Unknown	Single	25g	12	0		
Honey			HACCP and own checks	food sample	Unknown	Single	25g	4	0		
Juice - fruit juice			HACCP and own checks	food sample	Unknown	Single	25ml	19	0		
Juice - vegetable juice			HACCP and own checks	food sample	Unknown	Single	25ml	17	0		
Molluscan shellfish			HACCP and own checks	food sample	Unknown	Single	25g	2	0		
Other processed food products and prepared dishes - meat based dishes			HACCP and own checks	food sample	Domestic	Single	25g	32	0		
Other processed food products and prepared dishes - pizza and pizza-like dishes			HACCP and own checks	food sample	Unknown	Single	25g	8	0		

Table Salmonella in other food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Other processed food products and prepared dishes - sandwiches			HACCP and own checks	food sample	Unknown	Single	25g	15	0		
Other processed food products and prepared dishes - vegetable based dishes			HACCP and own checks	food sample	Unknown	Single	25g	11	0		
Ready-to-eat salads			HACCP and own checks	food sample	Unknown	Single	25g	39	0		
Seeds, dried - flour/meal or finely ground powder			HACCP and own checks	food sample	Unknown	Single	25g	26	0		
Seeds, sprouted - ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g	7	0		
Soups - ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25ml	5	0		
Spices and herbs - dried			HACCP and own checks	food sample	Unknown	Single	sweets	8	0		
Sweets			HACCP and own checks	food sample	Domestic	Single	25g	15	0		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Eggs - table eggs - Packing centre - Surveillance		
Eggs - table eggs - Retail - Surveillance		
Eggs - raw material (liquid egg) for egg products - Processing plant - Surveillance		
Fish - smoked - Retail - Surveillance		
Bakery products - bread		
Bakery products - cakes		

Table Salmonella in other food

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Beverages, alcoholic		
Beverages, non-alcoholic		
Cereals and meals - flour/meal or finely ground powder		
Chocolate		
Cocoa and cocoa preparations, coffee and tea		
Crustaceans - unspecified		
Eggs - table eggs - whole		
Fish - cooked		
Fish - gravad /slightly salted - Retail - Surveillance		
Fish - marinated - Retail - Surveillance		
Fish - raw - Processing plant		
Fish - raw - chilled		
Fish - raw - frozen		
Fish - smoked - cold-smoked		
Fish - smoked - hot-smoked		
Fishery products, unspecified - non-ready-to-eat		
Fishery products, unspecified - ready-to-eat		
Fishery products, unspecified - ready-to-eat		

Table Salmonella in other food

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Foodstuffs intended for special nutritional uses - ready-to-eat		
Fruits and vegetables - products		
Honey		
Juice - fruit juice		
Juice - vegetable juice		
Molluscan shellfish		
Other processed food products and prepared dishes - meat based dishes		
Other processed food products and prepared dishes - pizza and pizza-like dishes		
Other processed food products and prepared dishes - sandwiches		
Other processed food products and prepared dishes - vegetable based dishes		
Ready-to-eat salads		
Seeds, dried - flour/meal or finely ground powder		
Seeds, sprouted - ready-to-eat		
Soups - ready-to-eat		
Spices and herbs - dried		
Sweets		

Table Salmonella in other food

Table Salmonella in red meat and products thereof

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Meat from pig - carcase - Slaughterhouse - Surveillance		Objective sampling	Official sampling	food sample > carcase swabs	Domestic	Single		1550	4		
Meat from pig - minced meat - intended to be eaten cooked - Processing plant - Surveillance		Objective sampling	Official sampling	food sample		Single	10g	100	1		
Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	10g	120	2		
Meat from pig - meat preparation - intended to be eaten cooked - Processing plant - Surveillance		Objective sampling	Official sampling	food sample		Single	10g	150	1		
Meat from pig - meat preparation - intended to be eaten cooked - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	10g	175	1		
Meat from pig - meat products - cooked, ready-to-eat - Processing plant - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	100	0		
Meat from pig - meat products - cooked, ready-to-eat - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	125	1		
Meat from bovine animals - carcase - Slaughterhouse - Surveillance		Objective sampling	Official sampling	food sample > carcase swabs		Single		400	0		
Meat from bovine animals - minced meat - intended to be eaten cooked - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	10g	100	0		
Meat from bovine animals - meat products - cooked, ready-to-eat - Processing plant - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	100	0		
Meat from bovine animals - meat products - cooked, ready-to-eat - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	125	0		

Table Salmonella in red meat and products thereof

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Meat from sheep - carcase - Slaughterhouse - Surveillance		Objective sampling	Official sampling	food sample > carcase swabs		Single		50	0		
Meat from bovine animals - fresh - Slaughterhouse			HACCP and own checks	food sample > carcase swabs	Domestic	Single	400cm2	419	0		
Meat from bovine animals - fresh - chilled			HACCP and own checks	food sample > meat	Unknown	Single	25g	82	0		
Meat from bovine animals - meat preparation - intended to be eaten cooked - frozen			HACCP and own checks	food sample > meat	Unknown	Single	25g	2	0		
Meat from bovine animals - meat products - cooked, ready-to-eat			HACCP and own checks	food sample > meat	Unknown	Single	25g	1	0		
Meat from bovine animals - minced meat - intended to be eaten cooked			HACCP and own checks	food sample > meat	Unknown	Single	25g	24	0		
Meat from bovine animals - offal - chilled			HACCP and own checks	food sample > meat	Unknown	Single	25g	7	0		
Meat from horse - carcase - Slaughterhouse			HACCP and own checks	food sample > carcase swabs	Domestic	Single	400cm2	7	0		
Meat from horse - fresh - chilled			HACCP and own checks	food sample > meat	Domestic	Single	25g	1	0		
Meat from other animal species or not specified - meat preparation - intended to be eaten cooked - chilled			HACCP and own checks	food sample	Unknown	Single	25g	94	0		
Meat from pig - carcase - Slaughterhouse			HACCP and own checks	food sample > carcase swabs	Domestic	Single	400cm2	230	0		
Meat from pig - fresh - chilled			HACCP and own checks	food sample > meat	Unknown	Single	25g	55	0		
Meat from pig - meat preparation - intended to be eaten cooked			HACCP and own checks	food sample	Unknown	Single	25g	88	0		

Table Salmonella in red meat and products thereof

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Meat from pig - meat preparation - intended to be eaten cooked			HACCP and own checks	food sample > meat	Unknown	Single	25g	61	0		
Meat from pig - meat preparation - intended to be eaten cooked - frozen			HACCP and own checks	food sample	Unknown	Single	25g	51	0		
Meat from pig - meat products - cooked, ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g	43	0		
Meat from pig - minced meat - intended to be eaten cooked - chilled			HACCP and own checks	food sample > meat	Unknown	Single	25g	117	1		1
Meat from pig - offal - chilled			HACCP and own checks	food sample	Unknown	Single	25g	2	0		
Meat from rabbit - fresh - chilled			HACCP and own checks	food sample > meat	Domestic	Single	25g	1	0		
Meat from sheep - carcase			HACCP and own checks	food sample > carcase swabs	Domestic	Single	100/400cm2	15	0		
Meat from sheep - fresh - chilled			HACCP and own checks	food sample > meat	Domestic	Single	25g	24	0		
Meat from sheep - meat products - cooked, ready-to-eat			HACCP and own checks	food sample > meat	Domestic	Single	25g	1	0		
Meat, mixed meat - meat preparation - intended to be eaten cooked - chilled - Retail		Objective sampling	Official sampling	food sample		Single	10g	200	5		2
Meat, mixed meat - meat products - cooked, ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g	91	0		
Meat, mixed meat - meat products - fermented sausages			HACCP and own checks	food sample	Unknown	Single	25g	27	0		
Meat, mixed meat - meat products - fresh raw sausages			HACCP and own checks	food sample	Unknown	Single	25g	6	0		
Meat, mixed meat - meat products - pâté			HACCP and own checks	food sample	Unknown	Single	25g	17	0		

Table Salmonella in red meat and products thereof

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Meat, mixed meat - meat products - raw but intended to be eaten cooked			HACCP and own checks	food sample	Unknown	Single	25g	278	0		
Meat, mixed meat - minced meat - intended to be eaten cooked - chilled			HACCP and own checks	food sample > meat	Unknown	Single	25g	83	1		1
Meat, mixed meat - minced meat - intended to be eaten cooked - chilled - Retail		Objective sampling	Official sampling	food sample		Single	10g	200	5		2
Meat, red meat (meat from bovines, pigs, goats, sheep, horses, donkeys, bison and water buffalos) - offal - Slaughterhouse			HACCP and own checks	food sample	Unknown	Single	25g	4	0		
Other products of animal origin - gelatin and collagen			HACCP and own checks	food sample	Unknown	Single	25g	2	0		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Agona	S. Bovismorbificans	S. Derby	S. Essen	S. Infantis	S. Livingstone	S. Virchow
Meat from pig - carcase - Slaughterhouse - Surveillance					4				
Meat from pig - minced meat - intended to be eaten cooked - Processing plant - Surveillance					1				
Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance				1	1				
Meat from pig - meat preparation - intended to be eaten cooked - Processing plant - Surveillance			1						
Meat from pig - meat preparation - intended to be eaten cooked - Retail - Surveillance					1				

Table Salmonella in red meat and products thereof

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Agona	S. Bovismorbificans	S. Derby	S. Essen	S. Infantis	S. Livingstone	S. Virchow
Meat from pig - meat products - cooked, ready-to-eat - Processing plant - Surveillance									
Meat from pig - meat products - cooked, ready-to-eat - Retail - Surveillance					1				
Meat from bovine animals - carcase - Slaughterhouse - Surveillance									
Meat from bovine animals - minced meat - intended to be eaten cooked - Retail - Surveillance									
Meat from bovine animals - meat products - cooked, ready-to-eat - Processing plant - Surveillance									
Meat from bovine animals - meat products - cooked, ready-to-eat - Retail - Surveillance									
Meat from sheep - carcase - Slaughterhouse - Surveillance									
Meat from bovine animals - fresh - Slaughterhouse									
Meat from bovine animals - fresh - chilled									
Meat from bovine animals - meat preparation - intended to be eaten cooked - frozen									
Meat from bovine animals - meat products - cooked, ready-to-eat									
Meat from bovine animals - minced meat - intended to be eaten cooked									

Table Salmonella in red meat and products thereof

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Agona	S. Bovismorbificans	S. Derby	S. Essen	S. Infantis	S. Livingstone	S. Virchow
Meat from bovine animals - offal - chilled									
Meat from horse - carcase - Slaughterhouse									
Meat from horse - fresh - chilled									
Meat from other animal species or not specified - meat preparation - intended to be eaten cooked - chilled									
Meat from pig - carcase - Slaughterhouse									
Meat from pig - fresh - chilled									
Meat from pig - meat preparation - intended to be eaten cooked									
Meat from pig - meat preparation - intended to be eaten cooked									
Meat from pig - meat preparation - intended to be eaten cooked - frozen									
Meat from pig - meat products - cooked, ready-to-eat									
Meat from pig - minced meat - intended to be eaten cooked - chilled									
Meat from pig - offal - chilled									
Meat from rabbit - fresh - chilled									
Meat from sheep - carcase									
Meat from sheep - fresh - chilled									

Table Salmonella in red meat and products thereof

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Agona	S. Bovismorbificans	S. Derby	S. Essen	S. Infantis	S. Livingstone	S. Virchow
Meat from sheep - meat products - cooked, ready-to-eat									
Meat, mixed meat - meat preparation - intended to be eaten cooked - chilled - Retail					1	1			1
Meat, mixed meat - meat products - cooked, ready-to-eat									
Meat, mixed meat - meat products - fermented sausages									
Meat, mixed meat - meat products - fresh raw sausages									
Meat, mixed meat - meat products - pâté									
Meat, mixed meat - meat products - raw but intended to be eaten cooked									
Meat, mixed meat - minced meat - intended to be eaten cooked - chilled									
Meat, mixed meat - minced meat - intended to be eaten cooked - chilled - Retail					1		1	1	
Meat, red meat (meat from bovines, pigs, goats, sheep, horses, donkeys, bison and water buffalos) - offal - Slaughterhouse									
Other products of animal origin - gelatin and collagen									

2.1.3 Salmonella in animals

A. Salmonella spp. in Gallus Gallus - breeding flocks

Monitoring system

Sampling strategy

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

Testing is carried out according to the sampling requirements of the:
1)Regulation (EC) 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified food-borne zoonotic agents;
2)Commission Regulation (EU) No 200/2010 of 10 March 2010 implementing Regulation (EC) No 2160/2003 of the European Parliament and of the Council as regards a Union target for the reduction of the prevalence of Salmonella serotypes in adult breeding flocks of Gallus gallus

1. Samples in parent breeding flocks of Gallus gallus are taken:
1.1. for day-old chicks:
-rinses from the internal surfaces of the container in which the chicks have been transported to the establishment;
-materials from chicks that have died during transportation;
1.2. four-week old birds: pooled faecal samples;
1.3. birds two weeks before starting of the laying cycle: pooled faecal samples.
2. Samples in adult breeding flocks of Gallus gallus are taken every third week:
2.1. in free-access flocks:
-two pooled faecal samples from each building where birds are kept;
or
-five pairs of boots/"socks".
2.2. in cage breeding flocks, depending on how faeces are collected:
-two pooled faecal samples from dropping belts;
or
-twp pooled faecal samples from scrapers;
or
-two pooled faecal samples from deep pits.
2.3. These samples are also taken from breeding flocks of Gallus gallus with less than 250 birds.
2.4. The official samples mentioned in 2. are taken two times from adult breeding flocks of Gallus gallus by a FVS State veterinary inspector:
2.4.1. within four weeks following the start of laying cycle;
2.4.2. eight weeks before the end of the laying cycle;
2.4.3. at any time during the laying cycle, but not close to the samples mentioned in 2.4.1. and 2.4.2.
3. Sampling at the hatchery:
3.1. one composite sample of visibly soiled hatcher basket liners taken at random from five separate hatcher baskets or locations in the hatcher to reach a total sampling surface of at least 1 m2; if the hatching eggs from a breeding flock occupy more than one hatcher, then such a composite sample shall taken from each hatcher up to a maximum of five; or
3.2. one sample taken with one or several moistened fabric swab(s) of at least 900 cm2 surface area in total, taken immediately after the removal of the chickens from the whole surface area of the bottom of at least a total of five hatcher baskets, or from fluff from five places, including on the floor, in each hatcher up to a maximum of five with hatched eggs from the flock, ensuring that at least one sample per flock from

which eggs are derived, is taken; or
3.3. 10g of broken eggshells taken from a total of 25 separate hatcher baskets, namely 250g in the initial sample, in up to five hatchers with hatched eggs from the flock, crushed, mixed and sub-sampled to from a 25g subsample for testing.
3.4. every 16 weeks, the sampling provided in 3.1. or 3.2. or 3.3 must be replaced by official sampling.

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: four-week old birds and young birds two weeks before the start of the laying cycle

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

Every third week

Type of specimen taken

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

Rinses from the internal surfaces of the container and dead chickens

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

Pooled faecal samples or boots/"socks"

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

Boots/"socks"

Case definition

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

A positive case is a unit (flock, herd or individual animal) confirmed positive for Salmonella. In general, the flock is the epidemiological unit.

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

A positive case is a unit (flock, herd or individual animal) confirmed positive for Salmonella. In general, the flock is the epidemiological unit.

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

A positive case is a unit (flock, herd or individual animal) confirmed positive for Salmonella. In general, the flock is the epidemiological unit.

Diagnostic/analytical methods used

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

Bacteriological method: Amendment 1 of EN/ISO 6579-2002/Amd1:2007

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

Bacteriological method: Amendment 1 of EN/ISO 6579-2002/Amd1:2007

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

Bacteriological method: Amendment 1 of EN/ISO 6579-2002/Amd1:2007

Vaccination policy

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

Preventive vaccination against zoonotic salmonellosis agents is permitted using inactivated vaccines or live marked vaccines.

Other preventive measures than vaccination in place

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

-Bio-security measures are applied at the holdings.
-Antibiotics are not used as a specific method to control Salmonella except under clearly defined exceptional circumstances as laid down in Commission Regulation (EC) No 1177/2006 of 1 August 2006 implementing Regulation (EC) No 2160/2003 of the European Parliament and of the Council as regards requirements for the use of specific control methods in the framework of national programmes for the control of Salmonella in poultry.

Measures in case of the positive findings or single cases

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

-Official trade restrictions on the animals and the products thereof are applied to the infected flock.
-Live animals from the infected flock are not allowed to leave the holding except for slaughter.
-The positive flock is slaughtered at the end of the working day or on a separate line. The slaughterhouse is thoroughly cleaned and disinfected afterwards.
- Meat of the positive flock is heat treated according to the Community legislation on food hygiene.
-Hatching eggs are not allowed to leave the holding except for destruction or further processing at an establishment producing egg products.
-The premises of the infected flock are cleaned and disinfected. Restocking is allowed after an official enviromental sampling.
-If Salmonella spp. are detected in a breeding flock, all other flocks in the same holding are officially sampled at the earliest convenience.
-Official epidemiological investigations are carried out to clarify the origin of the Salmonella infection.

B. Salmonella spp. in Gallus Gallus - broiler flocks

Monitoring system

Sampling strategy

Broiler flocks

Testing is carried out according to the sampling requirements of the:
1)Regulation (EC)2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified food-borne zoonotic agents;
2)Commission Regulation (EU) No 200/2012 of 8 March 2012 concerning a Union target for the reduction of Salmonella enteritidis and Salmonella typhimurium in flocks of broilers, as provided for in Regulation (EC) No 2160/2003 of the European Parliament and of the Council;
3)Regulation of Cabinet of Ministers No 741, 6 November, 2007 “Order of eradication of salmonella and other food-borne zoonotic agents in poultry flocks which are direct suppliers of small quantities to final consumer”.

Every flock is sampled within three weeks prior to slaughter.

Frequency of the sampling

Broiler flocks: Before slaughter at farm

Every flock is sampled

Type of specimen taken

Broiler flocks: Before slaughter at farm

Socks/boot swabs

Case definition

Broiler flocks: Before slaughter at farm

A positive case is a unit (flock, herd or individual animal) confirmed positive for Salmonella. In general, the flock is the epidemiological unit.

Diagnostic/analytical methods used

Broiler flocks: Before slaughter at farm

Bacteriological method: Amendment 1 of EN/ISO 6579-2002/Amd1:2007

Other preventive measures than vaccination in place

Broiler flocks

Bio-security measures are applied at the holdings.

Measures in case of the positive findings or single cases

Broiler flocks: At slaughter (flock based approach)

-Live animals from infected flock are not allowed to leave the holding except for slaughter.
-The positive flock is slaughtered at the end of the working day or on a separate line. The slaughterhouse is thoroughly cleaned and disinfected afterwards.
-The premises of the infected flock are cleaned and disinfected.

Notification system in place

All Salmonella serotypes are notifiable in animals, foodstuffs, feed and humans.

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

Monitoring system

Sampling strategy

Laying hens flocks

Testing is carried out according to the sampling requirements of the:
1)Regulation (EC) No 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified food-borne zoonotic agents;
2)Commission Regulation (EU) No 517/2011 of 25 May 2011 implementing Regulation (EC) No 2160/2003 of the European Parliament and of the Council as regards a Union target for the reduction of the prevalence of certain Salmonella serotypes in laying hens of Gallus gallus and amending Regulation (EC) No 2160/2003 and Commission Regulation (EU) No 200/2010
3)Regulation of Cabinet of Ministers No 741, 6 November, 2007 “Order of eradication of salmonella and other food-borne zoonotic agents in poultry flocks which are direct suppliers of small quantities to final consumer”.

1.Samples of laying hen flocks are taken:
1.1. for day-old chicks:
-rinses from the internal surfaces of the container in which the chicks have been transported to the establishment;
-materials from chicks that have died during transportation;
1.2. pullets two weeks before the start of the laying cycle: pooled faecal samples.
2. Samples from adult laying hens are taken every fifteen weeks.
2.1.in cage flocks - two pooled faecal samples from each house where birds are kept;
2.2.in barn or free range flocks - two pairs of boot swabs or socks from each house where birds are kept;
3. The official samples mentioned in point 2 and dust sample are taken from adult laying hen flocks by FVS State veterinary inspector. If there is not sufficient dust, an additional sample of pooled faeces or an additional pair of boot swabs or socks shall be taken:
3.1.in one flock per year per holding;
3.2.at the age of 24+/-2 weeks in laying flocks housed in buildings where salmonella was detected in in the precending flock;
3.3.in any case of suspicion of Salmonella Enteritidis or Salmonella Typhimurium infection, as aresult of the epidemiological investigation of food-borne outbreaks in accordance with Article 8 of Directive 2003/99/EC of the European Parliament and of the Council;
3.4.in all other laying flocks on the holding in case Salmonella Enteritidis or Salmonella Typhimurium are detected in one laying flock on the holding;
3.5.in cases where the Food and veterinary service considers it appropriate;
3.6.a sampling carried out by State veterinary inspector may replace one sampling at the initiative of the operator.

Frequency of the sampling

Laying hens: Day-old chicks

Every flock is sampled

Laying hens: Rearing period

Pullets two weeks before the start of the laying cycle

Laying hens: Production period

Every 15 weeks

Type of specimen taken

Laying hens: Day-old chicks

Rinses from the internal surfaces of the container and dead chickens

Laying hens: Rearing period

Pooled faecal samples

Laying hens: Production period

Pooled faecal samples or boots/"socks"

Case definition

Laying hens: Day-old chicks

A positive case is a unit (flock, herd or individual animal) confirmed positive for Salmonella. In general, the flock is the epidemiological unit.

Laying hens: Rearing period

A positive case is a unit (flock, herd or individual animal) confirmed positive for Salmonella. In general, the flock is the epidemiological unit.

Laying hens: Production period

A positive case is a unit (flock, herd or individual animal) confirmed positive for Salmonella. In general, the flock is the epidemiological unit.

Laying hens: Before slaughter at farm

A positive case is a unit (flock, herd or individual animal) confirmed positive for Salmonella. In general, the flock is the epidemiological unit.

Diagnostic/analytical methods used

Laying hens: Day-old chicks

Bacteriological method: Amendment 1 of EN/ISO 6579-2002/Amd1:2007

Laying hens: Rearing period

Bacteriological method: Amendment 1 of EN/ISO 6579-2002/Amd1:2007

Laying hens: Production period

Bacteriological method: Amendment 1 of EN/ISO 6579-2002/Amd1:2007

Vaccination policy

Laying hens flocks

Preventive vaccination against zoonotic salmonellosis agents is permitted using inactivated vaccines or live marked vaccines according to requirements of the Commission Regulation (EC) No 1177/2006 of 1 August 2006 implementing Regulation (EC) No 2160/2003 of the European Parliament and of the Council as regards for the use of specific control methods in the framework of national programmes for the control of Salmonella in poultry.

Other preventive measures than vaccination in place

Laying hens flocks

Bio-security measures are applied at the holdings.

Measures in case of the positive findings or single cases

Laying hens flocks

-Trade restrictions on the animals and products thereof are applied to the infected flocks.
-Live animals from the infected flock are not allowed to leave the holding except for slaughter.
-Meat of the positive flock is heat treated according to the Community legislation on food hygiene.
-Table eggs are not allowed to leave the holding except for further processing at an establishment producing egg products.
-The premises of the infected flock are cleaned and disinfected. Restocking is allowed after an official environmental sampling.
- If Salmonella spp. are detected in a laying hen flock, all other flocks in the same holding are officialy sampled at the earliest convenience.
-Epidemiological investigations are carried out to clarify the origin of the Salmonella infection.

Notification system in place

All Salmonella serotypes are notifiable in animals, foodstuffs, feed and humans.

D. Salmonella spp. in bovine animals

Additional information

Salmonellosis in other animals than poultry is not surveyed. Table shows results of investigations on request of the owner or veterinarian in case of clinical symptoms.

E. Salmonella spp. in pigs

Additional information

Salmonellosis in other animals than poultry is not surveyed. Table shows results of investigations on request of the owner or veterinarian in case of clinical symptoms.

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

Additional information

Look at Salmonella spp. in animal

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

Additional information

Look at Salmonella spp. in animal

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

Additional information

There is no registered commercial turkey holdings in Latvia.

I. Salmonella spp. in animal

Monitoring system

Sampling strategy

Testing is carried out according to the sampling requirements of the
Regulation of Cabinet of Ministers No 741, 6 November, 2007 “Order of eradication of salmonella and other food-borne zoonotic agents in poultry flocks which are direct suppliers of small quantities to final consumer”.

1.Samples are taken in poultry flocks others than Gallus gallus (quail etc.) for egg production:
1.1. day-old birds:
- rinses from the internal surfaces of boxes in which the chicks are delivered to the holding;
- samples from the carcasses of chicks found to be dead on arrival.
1.2.pullets two weeks prior to entering the laying phase - pooled faecal samples;
1.3.adult poultry - once during laying phase and 4 weeks prior to slaughter - pooled faecal samples.

2. Samples are taken in duck and geese flocks for meat production - semi-annually one flock per holding prior to slaughter - pooled faecal samples.

Case definition

Animals at farm

A positive case is a unit (flock, herd or individual animal) confirmed positive for Salmonella. In general, the flock is the epidemiological unit.

Diagnostic/analytical methods used

Animals at farm

Bacteriological method: Amendment 1 of EN/ISO 6579-2002/Amd1:2007

Measures in case of the positive findings or single cases

-Official trade restrictions on poultry and products thereof are applied to the infected flock.
-Live poultry from the infected flock is not allowed to leave the holding except for slaughter.
-Meat of the positive flock has to be heat treated according to the Community legislation on food hygiene.
-Table eggs are not allowed to leave the holding except for further processing in an establishment producing egg products.
-The premises of the infected flock are cleaned and disinfected. Restocking is allowed after an official environmental sampling.
-Epidemiological investigations are carried out to clarify the origin of the Salmonella infection.

Notification system in place

Salmonella spp. is notifiable in animals, foodstuffs, feed and humans.

Table Salmonella in breeding flocks of Gallus gallus

	No of flocks under control programme	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Target Verification	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis
Gallus gallus (fowl) - parent breeding flocks for broiler production line - day-old chicks - Control and eradication programmes	16	Food and veterinary service	Census	Industry sampling	animal sample > organ/tissue	Intra EU trade	yes	Flock	16	0	
Gallus gallus (fowl) - parent breeding flocks for broiler production line - during rearing period - Control and eradication programmes	22	Food and veterinary service	Census	Official and industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	22	0	
Gallus gallus (fowl) - parent breeding flocks for broiler production line - adult - Control and eradication programmes	26	Food and veterinary service	Census	Official and industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	26	0	

	S. Hadar	S. Infantis	S. Typhimurium	S. Virchow	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Gallus gallus (fowl) - parent breeding flocks for broiler production line - day-old chicks - Control and eradication programmes						
Gallus gallus (fowl) - parent breeding flocks for broiler production line - during rearing period - Control and eradication programmes						
Gallus gallus (fowl) - parent breeding flocks for broiler production line - adult - Control and eradication programmes						

Table Salmonella in other birds

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	S. 1,4,[5],12:i:-
Quails - Farm - Monitoring	Food and veterinary service	Census	Official and industry sampling	animal sample > faeces	Domestic	Flock	23	2	1		
Pheasants - Monitoring	Food and veterinary service	Census	Official and industry sampling	animal sample > faeces	Domestic	Flock	1	0			
Ostriches - farmed - Farm - Monitoring	Food and veterinary service	Census	Official and industry sampling	animal sample > faeces	Domestic	Flock	3	0			

	Salmonella spp., unspecified	S. Coeln
Quails - Farm - Monitoring		1
Pheasants - Monitoring		
Ostriches - farmed - Farm - Monitoring		

Table Salmonella in other animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	S. 1,4,[5],12:i:-
All animals - zoo animals - Zoo		Suspect sampling	Industry sampling	animal sample > faeces	Unknown	Animal	17	1			
Cats - pet animals - Veterinary clinics - Clinical investigations		Suspect sampling	Industry sampling	animal sample > faeces	Domestic	Animal	7	0			
Cattle (bovine animals) - calves (under 1 year) - Farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample > faeces	Domestic	Animal	4	0			
Dogs - pet animals - Veterinary clinics - Clinical investigations		Suspect sampling	Industry sampling	animal sample > faeces	Domestic	Animal	12	1		1	
Fish - farmed - Farm		Suspect sampling	Industry sampling	animal sample > organ/tissue	Domestic	Herd	2	0			
Sheep - Farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample > organ/tissue	Domestic	Animal	1	1			
Sheep - Farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample > faeces	Domestic	Animal	1	0			

	Salmonella spp., unspecified	S. Montevideo
All animals - zoo animals - Zoo		1
Cats - pet animals - Veterinary clinics - Clinical investigations		

Table Salmonella in other animals

	Salmonella spp., unspecified	S. Montevideo
Cattle (bovine animals) - calves (under 1 year) - Farm - Clinical investigations		
Dogs - pet animals - Veterinary clinics - Clinical investigations		
Fish - farmed - Farm		
Sheep - Farm - Clinical investigations	1	
Sheep - Farm - Clinical investigations		

Table Salmonella in other poultry

	No of flocks under control programme	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Target Verification	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis
Gallus gallus (fowl) - laying hens - day-old chicks - Control and eradication programmes	20	Food and veterinary service	Census	Industry sampling	animal sample > organ/tissue	Intra EU trade	yes	Flock	20	0	
Gallus gallus (fowl) - laying hens - during rearing period - Control and eradication programmes	23	Food and veterinary service	Census	Industry sampling	animal sample > faeces	Domestic	yes	Flock	23	0	
Gallus gallus (fowl) - laying hens - adult - Farm - Control and eradication programmes	44	Food and veterinary service	Census	Official and industry sampling	environmental sample > boot swabs and dust	Domestic	yes	Flock	44	1	1
Gallus gallus (fowl) - broilers - day-old chicks - Control and eradication programmes	2	Food and veterinary service	Census	Official and industry sampling	animal sample > organ/tissue	Intra EU trade	yes	Flock	2	1	1
Gallus gallus (fowl) - broilers - before slaughter - Farm - Control and eradication programmes	598	Food and veterinary service	Census	Official and industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	598	0	
Ducks - Farm - Surveillance	1	Food and veterinary service	Census	Official sampling	animal sample > faeces	Domestic		Flock	1	1	
Gallus gallus (fowl) - laying hens - Farm - Monitoring [1)]				Industry sampling	animal sample > faeces	Domestic		Flock	3	3	
Geese - Farm - Surveillance	1	Food and veterinary service	Census	Official sampling	animal sample > faeces	Domestic		Flock	1	1	

	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Derby	S. Goldcoast	S. Newport
Gallus gallus (fowl) - laying hens - day-old chicks - Control and eradication programmes						

Table Salmonella in other poultry

	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Derby	S. Goldcoast	S. Newport
Gallus gallus (fowl) - laying hens - during rearing period - Control and eradication programmes						
Gallus gallus (fowl) - laying hens - adult - Farm - Control and eradication programmes						
Gallus gallus (fowl) - broilers - day-old chicks - Control and eradication programmes						
Gallus gallus (fowl) - broilers - before slaughter - Farm - Control and eradication programmes						
Ducks - Farm - Surveillance					1	
Gallus gallus (fowl) - laying hens - Farm - Monitoring [1)]	1			1		1
Geese - Farm - Surveillance					1	

Comments:

[1)] Backyard poultry

2.1.4 Salmonella in feedingstuffs

Table Salmonella in compound feedingstuffs

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Compound feedingstuffs for pigs - final product - Feed mill - Surveillance	Food and veterinary service	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	3	1		
Compound feedingstuffs for poultry (non specified) - final product - Feed mill - Surveillance	Food and veterinary service	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	2	0		
Compound feedingstuffs for poultry - breeders - final product - Feed mill - Surveillance	Food and veterinary service	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	4	0		
Compound feedingstuffs for poultry - laying hens - final product - Feed mill - Surveillance	Food and veterinary serviec	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	18	1		
Compound feedingstuffs for poultry - broilers - final product - Feed mill - Surveillance	Food and veterinary service	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	4	0		
Compound feedingstuffs for cattle - final product			HACCP and own checks	feed sample	Unknown	Single	25g	10	0		
Compound feedingstuffs for fish - final product			HACCP and own checks	feed sample	Unknown	Single	25g	2	0		
Compound feedingstuffs for fur animal - final product			HACCP and own checks	feed sample	Unknown	Single	25g	15	1		
Compound feedingstuffs for pigs - final product			HACCP and own checks	feed sample	Unknown	Single	25g	49	0		
Compound feedingstuffs for poultry (non specified) - final product			HACCP and own checks	feed sample	Unknown	Single	25g	35	0		
Compound feedingstuffs for poultry - broilers - final product			HACCP and own checks	feed sample	Unknown	Single	25g	20	0		

Table Salmonella in compound feedingstuffs

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Compound feedingstuffs for poultry - laying hens - final product			HACCP and own checks	feed sample	Unknown	Single	25g	93	0		
Compound feedingstuffs for rabbits - final product			HACCP and own checks	feed sample	Unknown	Single	25g	6	0		
Compound feedingstuffs, not specified - final product			HACCP and own checks	feed sample	Unknown	Single	25g	79	3		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. 4,12:-:-	S. Amsterdam	S. Havana	S. Senftenberg	S. Virchow
Compound feedingstuffs for pigs - final product - Feed mill - Surveillance						1	
Compound feedingstuffs for poultry (non specified) - final product - Feed mill - Surveillance							
Compound feedingstuffs for poultry - breeders - final product - Feed mill - Surveillance							
Compound feedingstuffs for poultry - laying hens - final product - Feed mill - Surveillance						1	
Compound feedingstuffs for poultry - broilers - final product - Feed mill - Surveillance							
Compound feedingstuffs for cattle - final product							
Compound feedingstuffs for fish - final product							

Table Salmonella in compound feedingstuffs

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. 4,12:-:-	S. Amsterdam	S. Havana	S. Senftenberg	S. Virchow
Compound feedingstuffs for fur animal - final product							1
Compound feedingstuffs for pigs - final product							
Compound feedingstuffs for poultry (non specified) - final product							
Compound feedingstuffs for poultry - broilers - final product							
Compound feedingstuffs for poultry - laying hens - final product							
Compound feedingstuffs for rabbits - final product							
Compound feedingstuffs, not specified - final product			1	1	1		

Table Salmonella in feed material of animal origin

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Feed material of land animal origin - feather meal - Feed mill - Surveillance	Food and veterinary service	Objective sampling	Official sampling	feed sample	Intra EU trade	Batch	25g	1	0		
Feed material of marine animal origin - fish meal - Feed mill - Surveillance	Food and veterinary service	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	4	0		
Feed material of land animal origin - animal fat			HACCP and own checks	feed sample	Unknown	Single	25g	8	0		
Feed material of land animal origin - blood meal			HACCP and own checks	feed sample	Unknown	Single	25g	2	0		
Feed material of land animal origin - feather meal			HACCP and own checks	feed sample	Unknown	Single	25g	17	0		
Feed material of land animal origin - meat and bone meal			HACCP and own checks	feed sample	Unknown	Single	25g	8	1		
Feed material of land animal origin - meat meal			HACCP and own checks	feed sample	Unknown	Single	25g	17	0		
Feed material of land animal origin - offal			HACCP and own checks	feed sample	Unknown	Single	25g	13	1		1
Feed material of marine animal origin - fish meal			HACCP and own checks	feed sample	Unknown	Single	25g	584	9		
Feed material of marine animal origin - fish oil			HACCP and own checks	feed sample	Unknown	Single	25ml	51	0		
Feed material of marine animal origin - fish silage			HACCP and own checks	feed sample	Unknown	Single	25g	1	0		

Table Salmonella in feed material of animal origin

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Agona	S. Meleagridis	S. Montevideo	S. Obogu	S. Senftenberg	S. Somone
Feed material of land animal origin - feather meal - Feed mill - Surveillance								
Feed material of marine animal origin - fish meal - Feed mill - Surveillance								
Feed material of land animal origin - animal fat								
Feed material of land animal origin - blood meal								
Feed material of land animal origin - feather meal								
Feed material of land animal origin - meat and bone meal							1	
Feed material of land animal origin - meat meal								
Feed material of land animal origin - offal								
Feed material of marine animal origin - fish meal		2	2	1	2	1		1
Feed material of marine animal origin - fish oil								
Feed material of marine animal origin - fish silage								

Table Salmonella in other feed matter

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Complementary feedingstuffs - final product			HACCP and own checks	feed sample	Unknown	Single	25g	25	0		
Compound feedingstuffs for poultry - broilers - final product			HACCP and own checks	feed sample	Unknown	Single	25g	46	0		
Feed material of cereal grain origin - barley derived			HACCP and own checks	feed sample	Unknown	Single	25g	2	0		
Feed material of cereal grain origin - maize derived			HACCP and own checks	feed sample	Imported from outside EU	Single	25g	10	0		
Feed material of cereal grain origin - oat derived			HACCP and own checks	feed sample	Unknown	Single	25g	3	0		
Feed material of cereal grain origin - other cereal grain derived			HACCP and own checks	feed sample	Unknown	Single	25g	11	0		
Feed material of cereal grain origin - wheat derived			HACCP and own checks	feed sample	Unknown	Single	25g	8	0		
Feed material of oil seed or fruit origin - linseed derived			HACCP and own checks	feed sample	Unknown	Single	25g	1	0		
Feed material of oil seed or fruit origin - rape seed derived			HACCP and own checks	feed sample	Unknown	Single	25g	24	1		
Feed material of oil seed or fruit origin - soya (bean) derived			HACCP and own checks	feed sample	Imported from outside EU	Single	25g	66	7		
Feed material of oil seed or fruit origin - sunflower seed derived			HACCP and own checks	feed sample	Imported from outside EU	Single	25g	15	0		
Pet food - final product			HACCP and own checks	feed sample	Unknown	Single	25g	37	0		

Table Salmonella in other feed matter

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Cubana	S. Infantis	S. Lexington	S. Orion	S. Senftenberg
Complementary feedingstuffs - final product							
Compound feedingstuffs for poultry - broilers - final product							
Feed material of cereal grain origin - barley derived							
Feed material of cereal grain origin - maize derived							
Feed material of cereal grain origin - oat derived							
Feed material of cereal grain origin - other cereal grain derived							
Feed material of cereal grain origin - wheat derived							
Feed material of oil seed or fruit origin - linseed derived							
Feed material of oil seed or fruit origin - rape seed derived					1		
Feed material of oil seed or fruit origin - soya (bean) derived			1	1		3	2
Feed material of oil seed or fruit origin - sunflower seed derived							
Pet food - final product							

2.1.5 Antimicrobial resistance in Salmonella isolates

A. Antimicrobial resistance in Salmonella in poultry

Additional information

Differences between prevalence tables and antimicrobial resistance tables are due to fact, that for instance positive poultry flock is counted only once irrespective of number of samples taken and isolated salmonella cultures from flock.
Also antimicrobial resistance is detected for salmonella cultures from official samples and self - control samples, which are investigated in Nacional reference laboratory BIOR, there no shown data on antimicrobial resistance from self-control samples investigated in private (company) laboratories. In the prevalence tables shown all data from official control and self-control as well.

Table Antimicrobial susceptibility testing of S. Agona in Feed material of marine animal origin - fish meal - Border inspection activities - Surveillance - feed sample - quantitative data [Dilution method]

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

S. Agona	Feed material of marine animal origin - fish meal - Border inspection activities - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	2																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	2	0										1	1											
Aminoglycosides - Streptomycin	16	2	0															2							
Amphenicols - Chloramphenicol	16	2	0														2								
Fluoroquinolones - Ciprofloxacin	0.06	2	0			2																			
Penicillins - Ampicillin	8	2	0											2											
Quinolones - Nalidixic acid	16	2	0													1	1								
Tetracyclines - Tetracycline	8	2	0													2									
Trimethoprim	2	2	0										2												
Sulfonamides - Sulfamethoxazole	256	2	0																		2				

S. Agona	Feed material of marine animal origin - fish meal - Border inspection activities - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Agona in Feed material of marine animal origin - fish meal - Border inspection activities - Surveillance - feed sample - quantitative data [Dilution method]

S. Agona	Feed material of marine animal origin - fish meal - Border inspection activities - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of Other serovars in Feed material of marine animal origin - fish meal - Border inspection activities - Surveillance - feed sample - quantitative data [Dilution method]

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

Other serovars	Feed material of marine animal origin - fish meal - Border inspection activities - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	1																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0											1											
Aminoglycosides - Streptomycin	16	1	0															1							
Amphenicols - Chloramphenicol	16	1	0														1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																			
Penicillins - Ampicillin	8	1	0											1											
Quinolones - Nalidixic acid	16	1	0													1									
Tetracyclines - Tetracycline	8	1	0													1									
Trimethoprim	2	1	0										1												
Sulfonamides - Sulfamethoxazole	256	1	0																	1					

Other serovars	Feed material of marine animal origin - fish meal - Border inspection activities - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of Other serovars in Feed material of marine animal origin - fish meal - Border inspection activities - Surveillance - feed sample - quantitative data [Dilution method]

Other serovars	Feed material of marine animal origin - fish meal - Border inspection activities - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Senftenberg in Compound feedingstuffs for pigs - final product - Processing plant - Surveillance - feed sample - quantitative data [Dilution method]

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

S. Senftenberg	Compound feedingstuffs for pigs - final product - Processing plant - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	1																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0									1													
Aminoglycosides - Streptomycin	16	1	0															1							
Amphenicols - Chloramphenicol	16	1	0														1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																			
Penicillins - Ampicillin	8	1	0											1											
Quinolones - Nalidixic acid	16	1	0													1									
Tetracyclines - Tetracycline	8	1	0													1									
Trimethoprim	2	1	0										1												
Sulfonamides - Sulfamethoxazole	256	1	0																	1					

S. Senftenberg	Compound feedingstuffs for pigs - final product - Processing plant - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64

Table Antimicrobial susceptibility testing of S. Senftenberg in Compound feedingstuffs for pigs - final product - Processing plant - Surveillance - feed sample - quantitative data [Dilution method]

S. Senftenberg	Compound feedingstuffs for pigs - final product - Processing plant - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. 4,12:-:- in Compound feedingstuffs for fur animal - final product - Farm - Surveillance - feed sample - quantitative data [Dilution method]

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

S. 4,12:-:-	Compound feedingstuffs for fur animal - final product - Farm - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	1																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Streptomycin	16	1	1																		1					
Amphenicols - Chloramphenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	8	1	1																1							
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	0										1													
Sulfonamides - Sulfamethoxazole	256	1	1																					1		

S. 4,12:-:-	Compound feedingstuffs for fur animal - final product - Farm - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. 4,12:-:- in Compound feedingstuffs for fur animal - final product - Farm - Surveillance - feed sample - quantitative data [Dilution method]

S. 4,12:-:-	Compound feedingstuffs for fur animal - final product - Farm - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 193 in Compound feedingstuffs for fur animal - final product - Unknown - Surveillance - feed sample - quantitative data [Dilution method]

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

DT 193	Compound feedingstuffs for fur animal - final product - Unknown - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	2																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Streptomycin	16	1	1																		1					
Amphenicols - Chloramphenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	8	1	1																1							
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	0										1													
Sulfonamides - Sulfamethoxazole	256	1	1																					1		

DT 193	Compound feedingstuffs for fur animal - final product - Unknown - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 193 in Compound feedingstuffs for fur animal - final product - Unknown - Surveillance - feed sample - quantitative data [Dilution method]

DT 193	Compound feedingstuffs for fur animal - final product - Unknown - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 41 in Compound feedingstuffs for fur animal - final product - Farm - Surveillance - feed sample - quantitative data [Dilution method]

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

DT 41	Compound feedingstuffs for fur animal - final product - Farm - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	2																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Streptomycin	16	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	8	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Sulfonamides - Sulfamethoxazole	256	1	0																	1						

DT 41	Compound feedingstuffs for fur animal - final product - Farm - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 41 in Compound feedingstuffs for fur animal - final product - Farm - Surveillance - feed sample - quantitative data [Dilution method]

DT 41	Compound feedingstuffs for fur animal - final product - Farm - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Orion in Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance - feed sample - quantitative data [Dilution method]

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

S. Orion	Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	3																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	3	0										3													
Aminoglycosides - Streptomycin	16	3	0															3								
Amphenicols - Chloramphenicol	16	3	0														3									
Fluoroquinolones - Ciprofloxacin	0.06	3	0			3																				
Penicillins - Ampicillin	8	3	0											3												
Quinolones - Nalidixic acid	16	3	0														3									
Tetracyclines - Tetracycline	8	3	0													3										
Trimethoprim	2	3	0										3													
Sulfonamides - Sulfamethoxazole	256	3	0																3							

S. Orion	Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Orion in Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance - feed sample - quantitative data [Dilution method]

S. Orion	Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Senftenberg in Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance - feed sample - quantitative data [Dilution method]

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

S. Senftenberg	Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	2																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	2	0										2												
Aminoglycosides - Streptomycin	16	2	0															2							
Amphenicols - Chloramphenicol	16	2	0													2									
Fluoroquinolones - Ciprofloxacin	0.06	2	0			2																			
Penicillins - Ampicillin	8	2	0											1			1								
Quinolones - Nalidixic acid	16	2	0													2									
Tetracyclines - Tetracycline	8	2	0													2									
Trimethoprim	2	2	0										2												
Sulfonamides - Sulfamethoxazole	256	2	0																1		1				

S. Senftenberg	Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Senftenberg in Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance - feed sample - quantitative data [Dilution method]

S. Senftenberg	Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Senftenberg in Compound feedingstuffs for poultry (non specified) - final product - Farm - Surveillance - feed sample - quantitative data [Dilution method]

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

S. Senftenberg	Compound feedingstuffs for poultry (non specified) - final product - Farm - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	1																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0									1													
Aminoglycosides - Streptomycin	16	1	0															1							
Amphenicols - Chloramphenicol	16	1	0														1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																
Penicillins - Ampicillin	8	1	0											1											
Quinolones - Nalidixic acid	16	1	0													1									
Tetracyclines - Tetracycline	8	1	0													1									
Trimethoprim	2	1	0										1												
Sulfonamides - Sulfamethoxazole	256	1	0																	1					

S. Senftenberg	Compound feedingstuffs for poultry (non specified) - final product - Farm - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64

Table Antimicrobial susceptibility testing of S. Senftenberg in Compound feedingstuffs for poultry (non specified) - final product - Farm - Surveillance - feed sample - quantitative data [Dilution method]

S. Senftenberg	Compound feedingstuffs for poultry (non specified) - final product - Farm - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Cubana in Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance - feed sample - quantitative data [Dilution method]

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

S. Cubana	Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	1																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0									1														
Aminoglycosides - Streptomycin	16	1	0															1								
Amphenicols - Chloramphenicol	16	1	0													1										
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																				
Penicillins - Ampicillin	8	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0													1										
Trimethoprim	2	1	0										1													
Sulfonamides - Sulfamethoxazole	256	1	0																			1				

S. Cubana	Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Cubana in Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance - feed sample - quantitative data [Dilution method]

S. Cubana	Feed material of oil seed or fruit origin - soya (bean) derived - Border inspection activities - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 193 in Feed material of land animal origin - offal - Surveillance - feed sample - quantitative data [Dilution method]

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

DT 193	Feed material of land animal origin - offal - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	1																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Streptomycin	16	1	1																		1					
Amphenicols - Chloramphenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	8	1	1																1							
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	0										1													
Sulfonamides - Sulfamethoxazole	256	1	1																					1		

DT 193	Feed material of land animal origin - offal - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 193 in Feed material of land animal origin - offal - Surveillance - feed sample - quantitative data [Dilution method]

DT 193	Feed material of land animal origin - offal - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Essen in Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Processing plant - Surveillance - food sample - quantitative data [Dilution method]

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

S. Essen	Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Processing plant - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	2																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	2	0									2													
Aminoglycosides - Streptomycin	16	2	0												2										
Amphenicols - Chloramphenicol	16	2	0													2									
Cephalosporins - Cefotaxime	0.5	2	0							2															
Fluoroquinolones - Ciprofloxacin	0.06	2	0						2																
Penicillins - Ampicillin	8	2	0													2									
Quinolones - Nalidixic acid	16	2	0													2									
Tetracyclines - Tetracycline	8	2	0													2									
Trimethoprim	2	2	0										2												
Sulfonamides - Sulfamethoxazole	256	2	0																	2					

S. Essen	Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Processing plant - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Essen in Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Processing plant - Surveillance - food sample - quantitative data [Dilution method]

S. Essen	Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Processing plant - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Bardo in Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance - food sample - meat - quantitative data [Dilution method]

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

S. Bardo	Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	1																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0									1													
Aminoglycosides - Streptomycin	16	1	0														1								
Amphenicols - Chloramphenicol	16	1	0													1									
Cephalosporins - Cefotaxime	0.5	1	0								1														
Fluoroquinolones - Ciprofloxacin	0.06	1	1									1													
Penicillins - Ampicillin	8	1	1																1						
Quinolones - Nalidixic acid	16	1	0														1								
Tetracyclines - Tetracycline	8	1	0											1											
Trimethoprim	2	1	0										1												
Sulfonamides - Sulfamethoxazole	256	1	0																1						

S. Bardo	Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Bardo in Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance - food sample - meat - quantitative data [Dilution method]

S. Bardo	Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Nigeria in Meat from turkey - fresh - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

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

S. Nigeria	Meat from turkey - fresh - Retail - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	1																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0									1														
Aminoglycosides - Streptomycin	16	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	8	1	0												1											
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Sulfonamides - Sulfamethoxazole	256	1	0																	1						

S. Nigeria	Meat from turkey - fresh - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64

Table Antimicrobial susceptibility testing of S. Nigeria in Meat from turkey - fresh - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

S. Nigeria	Meat from turkey - fresh - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Stanley in Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance - food sample - meat - quantitative data [Dilution method]

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

S. Stanley	Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	2																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	2	0									2														
Aminoglycosides - Streptomycin	16	2	0													2										
Amphenicols - Chloramphenicol	16	2	0														2									
Cephalosporins - Cefotaxime	0.5	2	0								2															
Fluoroquinolones - Ciprofloxacin	0.06	2	0				2																			
Penicillins - Ampicillin	8	2	0											2												
Quinolones - Nalidixic acid	16	2	0													2										
Tetracyclines - Tetracycline	8	2	0												2											
Trimethoprim	2	2	0										2													
Sulfonamides - Sulfamethoxazole	256	2	0																		2					

S. Stanley	Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Stanley in Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance - food sample - meat - quantitative data [Dilution method]

S. Stanley	Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Derby in Meat from pig - Slaughterhouse - Surveillance - food sample - carcase swabs - quantitative data [Dilution method]

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

S. Derby	Meat from pig - Slaughterhouse - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	6																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	6	0									1	5													
Aminoglycosides - Streptomycin	16	6	0													1	2	3								
Amphenicols - Chloramphenicol	16	6	0														6									
Cephalosporins - Cefotaxime	0.5	6	0								6															
Fluoroquinolones - Ciprofloxacin	0.06	6	0				4		2																	
Penicillins - Ampicillin	8	6	0											6												
Quinolones - Nalidixic acid	16	6	0													6										
Tetracyclines - Tetracycline	8	6	0												6											
Trimethoprim	2	6	0										6													
Sulfonamides - Sulfamethoxazole	256	6	0																	6						

S. Derby	Meat from pig - Slaughterhouse - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	6	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Derby in Meat from pig - Slaughterhouse - Surveillance - food sample - carcase swabs - quantitative data [Dilution method]

S. Derby	Meat from pig - Slaughterhouse - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	6	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Derby in Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

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

S. Derby	Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	5																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	2	0										2												
Aminoglycosides - Streptomycin	16	2	0														2								
Amphenicols - Chloramphenicol	16	2	0														2								
Cephalosporins - Cefotaxime	0.5	2	0							2															
Fluoroquinolones - Ciprofloxacin	0.06	2	0				2																		
Penicillins - Ampicillin	8	2	0											2											
Quinolones - Nalidixic acid	16	2	0													2									
Tetracyclines - Tetracycline	8	2	0												2										
Trimethoprim	2	2	0										2												
Sulfonamides - Sulfamethoxazole	256	2	0																	2					

S. Derby	Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	5	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Derby in Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

S. Derby	Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	5	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Derby in Meat from pig - meat products - fresh raw sausages - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

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

S. Derby	Meat from pig - meat products - fresh raw sausages - Retail - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	6																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Streptomycin	16	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	8	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Sulfonamides - Sulfamethoxazole	256	1	0																	1						

S. Derby	Meat from pig - meat products - fresh raw sausages - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	6	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Derby in Meat from pig - meat products - fresh raw sausages - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

S. Derby	Meat from pig - meat products - fresh raw sausages - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	6	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Schwarzengrund in Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

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

S. Schwarzengrund	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	1																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1												
Aminoglycosides - Streptomycin	16	1	0															1							
Amphenicols - Chloramphenicol	16	1	0														1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																
Penicillins - Ampicillin	8	1	0											1											
Quinolones - Nalidixic acid	16	1	0													1									
Tetracyclines - Tetracycline	8	1	0													1									
Trimethoprim	2	1	0										1												
Sulfonamides - Sulfamethoxazole	256	1	0																		1				

S. Schwarzengrund	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64

Table Antimicrobial susceptibility testing of S. Schwarzengrund in Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

S. Schwarzengrund	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Virchow in Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance - food sample - quantitative data [Dilution method]

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

S. Virchow	Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	3																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	3	0										3												
Aminoglycosides - Streptomycin	16	3	0												3										
Amphenicols - Chloramphenicol	16	3	0														3								
Cephalosporins - Cefotaxime	0.5	3	0								3														
Fluoroquinolones - Ciprofloxacin	0.06	3	0						3																
Penicillins - Ampicillin	8	2	0											2											
Quinolones - Nalidixic acid	16	3	0													3									
Tetracyclines - Tetracycline	8	3	0												3										
Trimethoprim	2	3	0										3												
Sulfonamides - Sulfamethoxazole	256	3	0																	3					

S. Virchow	Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Virchow in Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance - food sample - quantitative data [Dilution method]

S. Virchow	Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 120 in Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance - food sample - quantitative data [Dilution method]

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

DT 120	Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	3																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	3	0										3													
Aminoglycosides - Streptomycin	16	3	3																		3					
Amphenicols - Chloramphenicol	16	3	2														1			2						
Cephalosporins - Cefotaxime	0.5	3	0							2		1														
Fluoroquinolones - Ciprofloxacin	0.06	3	0						2	1																
Penicillins - Ampicillin	8	3	3																3							
Quinolones - Nalidixic acid	16	3	0													2	1									
Tetracyclines - Tetracycline	8	3	3																	3						
Trimethoprim	2	3	0										3													
Sulfonamides - Sulfamethoxazole	256	3	3																					3		

DT 120	Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 120 in Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance - food sample - quantitative data [Dilution method]

DT 120	Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - Other in Meat, mixed meat - minced meat - intended to be eaten cooked - Processing plant - Surveillance - food sample - meat - quantitative data [Dilution method]

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

Other	Meat, mixed meat - minced meat - intended to be eaten cooked - Processing plant - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	8																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1												
Aminoglycosides - Streptomycin	16	1	0														1								
Amphenicols - Chloramphenicol	16	1	0														1								
Cephalosporins - Cefotaxime	0.5	1	0							1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																
Penicillins - Ampicillin	8	1	0												1										
Quinolones - Nalidixic acid	16	1	0													1									
Tetracyclines - Tetracycline	8	1	0												1										
Trimethoprim	2	1	0										1												
Sulfonamides - Sulfamethoxazole	256	1	0																	1					

Other	Meat, mixed meat - minced meat - intended to be eaten cooked - Processing plant - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	8	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Typhimurium - Other in Meat, mixed meat - minced meat - intended to be eaten cooked - Processing plant - Surveillance - food sample - meat - quantitative data [Dilution method]

Other	Meat, mixed meat - minced meat - intended to be eaten cooked - Processing plant - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	8	
Antimicrobials:	lowest	highest
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 104 in Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

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

DT 104	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	8																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Streptomycin	16	1	1																		1					
Amphenicols - Chloramphenicol	16	1	1																	1						
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	8	1	1																1							
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	1																1							
Trimethoprim	2	1	0										1													
Sulfonamides - Sulfamethoxazole	256	1	1																					1		

DT 104	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	8	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 104 in Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

DT 104	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	8	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Livingstone in Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

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

S. Livingstone	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	1																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0									1													
Aminoglycosides - Streptomycin	16	1	0															1							
Amphenicols - Chloramphenicol	16	1	0														1								
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																			
Penicillins - Ampicillin	8	1	0												1										
Quinolones - Nalidixic acid	16	1	0													1									
Tetracyclines - Tetracycline	8	1	0													1									
Trimethoprim	2	1	0										1												
Sulfonamides - Sulfamethoxazole	256	1	0																	1					

S. Livingstone	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64

Table Antimicrobial susceptibility testing of S. Livingstone in Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

S. Livingstone	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Bovismorbificans in Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

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

S. Bovismorbificans	Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	1																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0											1											
Aminoglycosides - Streptomycin	16	1	1																		1				
Amphenicols - Chloramphenicol	16	1	0														1								
Cephalosporins - Cefotaxime	0.5	1	0								1														
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																		
Penicillins - Ampicillin	8	1	1																1						
Quinolones - Nalidixic acid	16	1	0													1									
Tetracyclines - Tetracycline	8	1	1																	1					
Trimethoprim	2	1	1																1						
Sulfonamides - Sulfamethoxazole	256	1	1																				1		

S. Bovismorbificans	Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Bovismorbificans in Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

S. Bovismorbificans	Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Agona in Meat from pig - meat preparation - intended to be eaten cooked - Processing plant - Surveillance - food sample - meat - quantitative data [Dilution method]

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

S. Agona	Meat from pig - meat preparation - intended to be eaten cooked - Processing plant - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	2																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	2	0										2													
Aminoglycosides - Streptomycin	16	2	0														2									
Amphenicols - Chloramphenicol	16	2	0														2									
Cephalosporins - Cefotaxime	0.5	2	0								2															
Fluoroquinolones - Ciprofloxacin	0.06	2	0						2																	
Penicillins - Ampicillin	8	2	0											2												
Quinolones - Nalidixic acid	16	2	0													2										
Tetracyclines - Tetracycline	8	2	0												2											
Trimethoprim	2	2	0										2													
Sulfonamides - Sulfamethoxazole	256	2	0																	2						

S. Agona	Meat from pig - meat preparation - intended to be eaten cooked - Processing plant - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Agona in Meat from pig - meat preparation - intended to be eaten cooked - Processing plant - Surveillance - food sample - meat - quantitative data [Dilution method]

S. Agona	Meat from pig - meat preparation - intended to be eaten cooked - Processing plant - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Uppsala in Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance - food sample - meat - quantitative data [Dilution method]

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

S. Uppsala	Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	2																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	2	0										2												
Aminoglycosides - Streptomycin	16	2	2																	2					
Amphenicols - Chloramphenicol	16	2	0														2								
Fluoroquinolones - Ciprofloxacin	0.06	2	2									2													
Penicillins - Ampicillin	8	2	2																2						
Quinolones - Nalidixic acid	16	2	2																2						
Tetracyclines - Tetracycline	8	2	0													2									
Trimethoprim	2	2	2													2									
Sulfonamides - Sulfamethoxazole	256	2	0																	2					

S. Uppsala	Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64

Table Antimicrobial susceptibility testing of S. Uppsala in Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance - food sample - meat - quantitative data [Dilution method]

S. Uppsala	Meat from broilers (Gallus gallus) - fresh - frozen - Wholesale - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Derby in Meat from pig - minced meat - intended to be eaten cooked - Processing plant - Surveillance - food sample - meat - quantitative data [Dilution method]

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

S. Derby	Meat from pig - minced meat - intended to be eaten cooked - Processing plant - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	5																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	3	0										3												
Aminoglycosides - Streptomycin	16	3	0															3							
Amphenicols - Chloramphenicol	16	3	0														3								
Cephalosporins - Cefotaxime	0.5	3	0								3														
Fluoroquinolones - Ciprofloxacin	0.06	3	0						3																
Penicillins - Ampicillin	8	3	0											3											
Quinolones - Nalidixic acid	16	3	0													3									
Tetracyclines - Tetracycline	8	3	0												3										
Trimethoprim	2	3	0										3												
Sulfonamides - Sulfamethoxazole	256	3	0																	3					

S. Derby	Meat from pig - minced meat - intended to be eaten cooked - Processing plant - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	5	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Derby in Meat from pig - minced meat - intended to be eaten cooked - Processing plant - Surveillance - food sample - meat - quantitative data [Dilution method]

S. Derby	Meat from pig - minced meat - intended to be eaten cooked - Processing plant - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	5	
Antimicrobials:	lowest	highest
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Derby in Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

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

S. Derby	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	1																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1												
Aminoglycosides - Streptomycin	16	1	0															1							
Amphenicols - Chloramphenicol	16	1	0														1								
Cephalosporins - Cefotaxime	0.5	1	0								1														
Fluoroquinolones - Ciprofloxacin	0.06	1	0							1															
Penicillins - Ampicillin	8	1	0											1											
Quinolones - Nalidixic acid	16	1	0													1									
Tetracyclines - Tetracycline	8	1	0												1										
Trimethoprim	2	1	0										1												
Sulfonamides - Sulfamethoxazole	256	1	0																	1					

S. Derby	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Derby in Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

S. Derby	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Derby in Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance - food sample - quantitative data [Dilution method]

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

S. Derby	Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	6																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	5	0									1	4													
Aminoglycosides - Streptomycin	16	5	0														1	4								
Amphenicols - Chloramphenicol	16	5	0														1	4								
Cephalosporins - Cefotaxime	0.5	5	0							1		4														
Fluoroquinolones - Ciprofloxacin	0.06	5	0				1		4																	
Penicillins - Ampicillin	8	5	0											1	4											
Quinolones - Nalidixic acid	16	5	0													5										
Tetracyclines - Tetracycline	8	5	0												4	1										
Trimethoprim	2	5	0										5													
Sulfonamides - Sulfamethoxazole	256	5	0																1		4					

S. Derby	Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	6	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Derby in Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance - food sample - quantitative data [Dilution method]

S. Derby	Meat, mixed meat - meat products - fresh raw sausages - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	6	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Virchow in Meat, mixed meat - meat products - cooked, ready-to-eat - Retail - Surveillance - food sample - quantitative data [Dilution method]

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

S. Virchow	Meat, mixed meat - meat products - cooked, ready-to-eat - Retail - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	3																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Penicillins - Ampicillin	8	1	0											1											

S. Virchow	Meat, mixed meat - meat products - cooked, ready-to-eat - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Penicillins - Ampicillin	0.5	32

Table Antimicrobial susceptibility testing of S. Infantis in Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

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

S. Infantis	Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Retail - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	1																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0									1													
Aminoglycosides - Streptomycin	16	1	1																1						
Amphenicols - Chloramphenicol	16	1	0															1							
Cephalosporins - Cefotaxime	0.5	1	0									1													
Fluoroquinolones - Ciprofloxacin	0.06	1	1										1												
Penicillins - Ampicillin	8	1	0												1										
Quinolones - Nalidixic acid	16	1	1																	1					
Tetracyclines - Tetracycline	8	1	1																	1					
Trimethoprim	2	1	0										1												
Sulfonamides - Sulfamethoxazole	256	1	1																				1		

S. Infantis	Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Infantis in Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

S. Infantis	Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - Other in Meat from broilers (Gallus gallus) - fresh - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

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

Other	Meat from broilers (Gallus gallus) - fresh - Retail - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	1																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1												
Aminoglycosides - Streptomycin	16	1	0														1								
Amphenicols - Chloramphenicol	16	1	0													1									
Cephalosporins - Cefotaxime	0.5	1	0							1															
Fluoroquinolones - Ciprofloxacin	0.06	1	1										1												
Penicillins - Ampicillin	8	1	0												1										
Quinolones - Nalidixic acid	16	1	1																1						
Tetracyclines - Tetracycline	8	1	0												1										
Trimethoprim	2	1	0										1												
Sulfonamides - Sulfamethoxazole	256	1	0																	1					

Other	Meat from broilers (Gallus gallus) - fresh - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Typhimurium - Other in Meat from broilers (Gallus gallus) - fresh - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

Other	Meat from broilers (Gallus gallus) - fresh - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 12 in Meat, mixed meat - minced meat - intended to be eaten cooked - Processing plant - Surveillance - food sample - meat - quantitative data [Dilution method]

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

DT 12	Meat, mixed meat - minced meat - intended to be eaten cooked - Processing plant - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	8																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Streptomycin	16	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	8	1	0												1											
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0													1										
Trimethoprim	2	1	0										1													
Sulfonamides - Sulfamethoxazole	256	1	0															1								

DT 12	Meat, mixed meat - minced meat - intended to be eaten cooked - Processing plant - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	8	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 12 in Meat, mixed meat - minced meat - intended to be eaten cooked - Processing plant - Surveillance - food sample - meat - quantitative data [Dilution method]

DT 12	Meat, mixed meat - minced meat - intended to be eaten cooked - Processing plant - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	8	
Antimicrobials:	lowest	highest
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 193 in Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

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

DT 193	Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	1																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Streptomycin	16	1	1																		1					
Amphenicols - Chloramphenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	8	1	1																1							
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	0										1													
Sulfonamides - Sulfamethoxazole	256	1	1																					1		

DT 193	Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 193 in Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

DT 193	Meat from pig - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 193 in Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

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

DT 193	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	8																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	5	0										5													
Aminoglycosides - Streptomycin	16	5	5																		5					
Amphenicols - Chloramphenicol	16	5	0														5									
Cephalosporins - Cefotaxime	0.5	5	0								5															
Fluoroquinolones - Ciprofloxacin	0.06	5	0						5																	
Penicillins - Ampicillin	8	5	5																5							
Quinolones - Nalidixic acid	16	5	0													5										
Tetracyclines - Tetracycline	8	5	5																	5						
Trimethoprim	2	5	0										5													
Sulfonamides - Sulfamethoxazole	256	5	5																					5		

DT 193	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	8	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 193 in Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance - food sample - meat - quantitative data [Dilution method]

DT 193	Meat, mixed meat - minced meat - intended to be eaten cooked - Retail - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	8	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Coeln in Quails - laying hens - Farm - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

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

S. Coeln	Quails - laying hens - Farm - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	1																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0									1														
Aminoglycosides - Streptomycin	16	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	8	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0													1										
Trimethoprim	2	1	0										1													
Sulfonamides - Sulfamethoxazole	256	1	0																			1				

S. Coeln	Quails - laying hens - Farm - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64

Table Antimicrobial susceptibility testing of S. Coeln in Quails - laying hens - Farm - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Coeln	Quails - laying hens - Farm - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Goldcoast in Geese - Farm - Surveillance - animal sample - faeces - quantitative data [Dilution method]

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

S. Goldcoast	Geese - Farm - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	2																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1												
Aminoglycosides - Streptomycin	16	1	0														1								
Amphenicols - Chloramphenicol	16	1	0														1								
Cephalosporins - Cefotaxime	0.5	1	0								1														
Fluoroquinolones - Ciprofloxacin	0.06	1	1										1												
Penicillins - Ampicillin	8	1	0											1											
Quinolones - Nalidixic acid	16	1	1																1						
Tetracyclines - Tetracycline	8	1	0											1											
Trimethoprim	2	1	0										1												
Sulfonamides - Sulfamethoxazole	256	1	0															1							

S. Goldcoast	Geese - Farm - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64

Table Antimicrobial susceptibility testing of S. Goldcoast in Geese - Farm - Surveillance - animal sample - faeces - quantitative data [Dilution method]

S. Goldcoast	Geese - Farm - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Enteritidis - PT 21 in Gallus gallus (fowl) - laying hens - day-old chicks - Control and eradication programmes - animal sample - organ/tissue - quantitative data [Dilution method]

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

PT 21	Gallus gallus (fowl) - laying hens - day-old chicks - Control and eradication programmes																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	4																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	4	0									2	2												
Aminoglycosides - Streptomycin	16	4	0													4									
Amphenicols - Chloramphenicol	16	4	0														4								
Cephalosporins - Cefotaxime	0.5	4	0								4														
Fluoroquinolones - Ciprofloxacin	0.06	4	4										4												
Penicillins - Ampicillin	8	4	0												4										
Quinolones - Nalidixic acid	16	4	4																	4					
Tetracyclines - Tetracycline	8	4	0												4										
Trimethoprim	2	4	0										4												
Sulfonamides - Sulfamethoxazole	256	4	0																	4					

PT 21	Gallus gallus (fowl) - laying hens - day-old chicks - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	4	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Enteritidis - PT 21 in Gallus gallus (fowl) - laying hens - day-old chicks - Control and eradication programmes - animal sample - organ/tissue - quantitative data [Dilution method]

PT 21	Gallus gallus (fowl) - laying hens - day-old chicks - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	4	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 193 in Gallus gallus (fowl) - mixed flocks/holdings - Farm - Surveillance - animal sample - faeces - quantitative data [Dilution method]

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

DT 193	Gallus gallus (fowl) - mixed flocks/holdings - Farm - Surveillance																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	3																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Streptomycin	16	1	1																		1					
Amphenicols - Chloramphenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	8	1	1																1							
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	0										1													
Sulfonamides - Sulfamethoxazole	256	1	1																					1		

DT 193	Gallus gallus (fowl) - mixed flocks/holdings - Farm - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Typhimurium - DT 193 in Gallus gallus (fowl) - mixed flocks/holdings - Farm - Surveillance - animal sample - faeces - quantitative data [Dilution method]

DT 193	Gallus gallus (fowl) - mixed flocks/holdings - Farm - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Goldcoast in Ducks - Farm - Surveillance - animal sample - faeces - quantitative data [Dilution method]

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

S. Goldcoast	Ducks - Farm - Surveillance																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	2																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1												
Aminoglycosides - Streptomycin	16	1	0														1								
Amphenicols - Chloramphenicol	16	1	0														1								
Cephalosporins - Cefotaxime	0.5	1	0								1														
Fluoroquinolones - Ciprofloxacin	0.06	1	1										1												
Penicillins - Ampicillin	8	1	0											1											
Quinolones - Nalidixic acid	16	1	1																1						
Tetracyclines - Tetracycline	8	1	0											1											
Trimethoprim	2	1	0										1												
Sulfonamides - Sulfamethoxazole	256	1	0															1							

S. Goldcoast	Ducks - Farm - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64

Table Antimicrobial susceptibility testing of S. Goldcoast in Ducks - Farm - Surveillance - animal sample - faeces - quantitative data [Dilution method]

S. Goldcoast	Ducks - Farm - Surveillance	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Enteritidis - Not typeable in Gallus gallus (fowl) - laying hens - Farm - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

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

Not typeable	Gallus gallus (fowl) - laying hens - Farm - Control and eradication programmes																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	7																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	2	0									2													
Aminoglycosides - Streptomycin	16	2	0															2							
Amphenicols - Chloramphenicol	16	2	0														2								
Fluoroquinolones - Ciprofloxacin	0.06	2	0						2																
Penicillins - Ampicillin	8	2	0												2										
Quinolones - Nalidixic acid	16	2	0													2									
Tetracyclines - Tetracycline	8	2	0														2								
Trimethoprim	2	2	0										2												
Sulfonamides - Sulfamethoxazole	256	2	0																	2					

Not typeable	Gallus gallus (fowl) - laying hens - Farm - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	7	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64

Table Antimicrobial susceptibility testing of S. Enteritidis - Not typeable in Gallus gallus (fowl) - laying hens - Farm - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Not typeable	Gallus gallus (fowl) - laying hens - Farm - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	7	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	1024

Table Antimicrobial susceptibility testing of S. Enteritidis - PT 1 in Quails - laying hens - Unknown - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

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

PT 1	Quails - laying hens - Unknown - Control and eradication programmes																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	4																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>4096
Aminoglycosides - Gentamicin	2	1	0										1												
Aminoglycosides - Streptomycin	16	1	0												1										
Amphenicols - Chloramphenicol	16	1	0													1									
Cephalosporins - Cefotaxime	0.5	1	0							1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																
Penicillins - Ampicillin	8	1	0												1										
Quinolones - Nalidixic acid	16	1	0													1									
Tetracyclines - Tetracycline	8	1	0												1										
Trimethoprim	2	1	0										1												
Sulfonamides - Sulfamethoxazole	256	1	0																	1					

PT 1	Quails - laying hens - Unknown - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	4	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Streptomycin	2	128

Table Antimicrobial susceptibility testing of S. Enteritidis - PT 1 in Quails - laying hens - Unknown - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

PT 1	Quails - laying hens - Unknown - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	4	
Antimicrobials:	lowest	highest
Amphenicols - Chloramphenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Sulfonamides - Sulfamethoxazole	8	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 <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		32	
Amphenicols	Chloramphenicol		16	
Cephalosporins	Cefotaxime		0.5	
	Ceftazidime		2	
Fluoroquinolones	Ciprofloxacin		0.064	
Penicillins	Ampicillin		8	
Quinolones	Nalidixic acid		16	
Sulfonamides	Sulfonamides		256	
Tetracyclines	Tetracycline		8	
Trimethoprim	Trimethoprim		2	

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 <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		32	
Amphenicols	Chloramphenicol		16	
Cephalosporins	Cefotaxime		0.5	
	Ceftazidime		2	
Fluoroquinolones	Ciprofloxacin		0.064	
Penicillins	Ampicillin		8	
Quinolones	Nalidixic acid		16	
Sulfonamides	Sulfonamides		256	
Tetracyclines	Tetracycline		8	
Trimethoprim	Trimethoprim		2	

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 <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		32	
Amphenicols	Chloramphenicol		16	
Cephalosporins	Cefotaxime		0.5	
	Ceftazidime		2	
Fluoroquinolones	Ciprofloxacin		0.064	
Penicillins	Ampicillin		8	
Quinolones	Nalidixic acid		16	
Sulfonamides	Sulfonamides		256	
Tetracyclines	Tetracycline		8	
Trimethoprim	Trimethoprim		2	

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

Campylobacter in food has been monitored for the first time in 2004.

In 2004 and 2005, there was no control programme in place for thermophilic Campylobacter in feed or animals.
Campylobacter in broiler flocks has been monitored for the first time in 2006 and following in 2007. In 2008 monitoring of Campylobacter in broiler flocks was carried out in the framework of the Baseline Survey on Campylobacter spp. in broiler flocks and Campylobacter spp. and Salmonella spp. in broiler carcasses (Commission Decision 2007/516/EC of 19 July 2007).

From 2009 to 2012 there was no control programme in place for the thermophilic Campylobacter in food and animals.

Campylobacteriosis is a notifiable disease in humans and animals.

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

Because of the short time that Campylobacter is controlled in food and monitored in broiler flocks, it is not possible to evaluate trends.
The number of human cases is very low and presumably does not reflect the real situation.

2.2.2 Campylobacter in animals

Table Campylobacter in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Campylobacter	C. coli	C. jejuni	C. lari
Dogs			Not applicable	animal sample > faeces	Domestic	Animal	10	0			
Cats			Not applicable	animal sample > faeces	Domestic	Animal	7	0			
All animals - zoo animals - Clinical investigations			Not applicable	animal sample > faeces	Domestic	Animal	4	1			
Cattle (bovine animals) - calves (under 1 year) - Farm - Clinical investigations			Industry sampling	animal sample > faeces	Domestic	Animal	4	0			

	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Dogs		
Cats		
All animals - zoo animals - Clinical investigations		1
Cattle (bovine animals) - calves (under 1 year) - Farm - Clinical investigations		

Table Campylobacter in animals

2.2.3 Antimicrobial resistance in Campylobacter isolates

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 <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		4	
Fluoroquinolones	Ciprofloxacin		0.5	
Macrolides	Erythromycin		8	
Quinolones	Nalidixic acid		16	
Tetracyclines	Tetracycline		2	

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 <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		4	
Fluoroquinolones	Ciprofloxacin		0.5	
Macrolides	Erythromycin		8	
Quinolones	Nalidixic acid		16	
Tetracyclines	Tetracycline		2	

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 <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		4	
Fluoroquinolones	Ciprofloxacin		0.5	
Macrolides	Erythromycin		8	
Quinolones	Nalidixic acid		16	
Tetracyclines	Tetracycline		2	

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 <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		4	
Fluoroquinolones	Ciprofloxacin		0.5	
Macrolides	Erythromycin		4	
Quinolones	Nalidixic acid		16	
Tetracyclines	Tetracycline		1	

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 <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		4	
Fluoroquinolones	Ciprofloxacin		0.5	
Macrolides	Erythromycin		4	
Quinolones	Nalidixic acid		16	
Tetracyclines	Tetracycline		1	

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 <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		4	
Fluoroquinolones	Ciprofloxacin		0.5	
Macrolides	Erythromycin		4	
Quinolones	Nalidixic acid		16	
Tetracyclines	Tetracycline		1	

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

Monitoring of Listeria monocytogenes in food has been started in 2003 in the frame of a national surveillance programme. It was the first targeted control programme that has been set up additionally to the laboratory control programme, because Listeria is considered to be one of the most important microorgansims to cause human disease that may have fatal outcome. Especially the risk groups like pregnant women, newborns and small children and older people are very sensitive to Listeria infections, and there have been fatal cases in humans in the past.
In 2009, the national control programme on Listeria monocytogenes was based on the Regulation (EC) No 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of Salmonella and other specified foodborne zoonotic agents. In 2010, no control programme on Listeria monocytogenes for food in palce. In the year 2011 L. monocytogenes were controled in the framework of EU Coordinated programme, but in 2012 and 2013 there was a national control programme for listeria.

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

Due to a short time of controlling foodstuffs and risk products it is hardly possible to evaluate trends.

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

Human cases are occuring sporadically.

2.3.2 Listeria in foodstuffs

Table Listeria monocytogenes in milk and dairy products

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for L. monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	10g	55		55	
Cheeses made from cows' milk - curd			HACCP and own checks	food sample	Unknown	Single	25g/10g	80	0	73	0
Cheeses made from cows' milk - curd - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	10g	50		50	
Cheeses made from cows' milk - fresh			HACCP and own checks	food sample	Unknown	Single	10g	2	0		
Cheeses made from cows' milk - soft and semi-soft			HACCP and own checks	food sample	Unknown	Single	25g/10g	114	0	78	0
Cheeses made from goats' milk - fresh			HACCP and own checks	food sample	Domestic	Single	10g	1	0		
Cheeses, made from unspecified milk or other animal milk - fresh			HACCP and own checks	food sample	Unknown	Single	25g	11	0	11	0
Cheeses, made from unspecified milk or other animal milk - hard			HACCP and own checks	food sample	Unknown	Single	25g	10	0	10	0
Cheeses, made from unspecified milk or other animal milk - spreadable			HACCP and own checks	food sample	Unknown	Single	25g	10	0	10	0
Cheeses, made from unspecified milk or other animal milk - unspecified			HACCP and own checks	food sample	Unknown	Single	25g	13	0	13	0
Dairy products (excluding cheeses) - butter			HACCP and own checks	food sample	Unknown	Single	25g	34	0	34	0
Dairy products (excluding cheeses) - cream			HACCP and own checks	food sample	Unknown	Single	25g/10g	99	0	84	0

Table Listeria monocytogenes in milk and dairy products

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for L. monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g
Dairy products (excluding cheeses) - dairy desserts			HACCP and own checks	food sample	Unknown	Single	25g	51	0	51	0
Dairy products (excluding cheeses) - dairy products, not specified - ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g/10g	33	0	27	0
Dairy products (excluding cheeses) - ice-cream			HACCP and own checks	food sample	Unknown	Single	25g/10g	18	0	11	0
Dairy products (excluding cheeses) - milk powder and whey powder			HACCP and own checks	food sample	Unknown	Single	25g	31	0	31	0
Dairy products (excluding cheeses) - sour milk			HACCP and own checks	food sample	Unknown	Single	25ml/10ml	41	0	36	0
Dairy products (excluding cheeses) - whey			HACCP and own checks	food sample	Unknown	Single	10ml	2	0		
Dairy products (excluding cheeses) - yoghurt			HACCP and own checks	food sample	Unknown	Single	25ml	154	0	154	0
Milk, cows' - pasteurised milk			HACCP and own checks	food sample > milk	Unknown	Single	25ml/10ml	53	0	52	0
Milk, cows' - raw milk			HACCP and own checks	food sample > milk	Unknown	Single	25ml	4	1	4	1

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk - Retail - Surveillance			
Cheeses made from cows' milk - curd	7	0	
Cheeses made from cows' milk - curd - Retail - Surveillance			

Table Listeria monocytogenes in milk and dairy products

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Cheeses made from cows' milk - fresh	2	0	
Cheeses made from cows' milk - soft and semi-soft	36	0	
Cheeses made from goats' milk - fresh	1	0	
Cheeses, made from unspecified milk or other animal milk - fresh			
Cheeses, made from unspecified milk or other animal milk - hard			
Cheeses, made from unspecified milk or other animal milk - spreadable			
Cheeses, made from unspecified milk or other animal milk - unspecified			
Dairy products (excluding cheeses) - butter			
Dairy products (excluding cheeses) - cream	15	0	
Dairy products (excluding cheeses) - dairy desserts			
Dairy products (excluding cheeses) - dairy products, not specified - ready-to-eat	6	0	
Dairy products (excluding cheeses) - ice-cream	7	0	
Dairy products (excluding cheeses) - milk powder and whey powder			
Dairy products (excluding cheeses) - sour milk	5	0	
Dairy products (excluding cheeses) - whey	2	0	

Table Listeria monocytogenes in milk and dairy products

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Dairy products (excluding cheeses) - yoghurt			
Milk, cows' - pasteurised milk	1	0	
Milk, cows' - raw milk			

Footnote:

Whereas it was self-control, then in the sample delivery protocol did not specify exactly where the sample was taken. In these cases “Sampling stage” is unknown

Table Listeria monocytogenes in other foods

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for L. monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g
Meat from pig - meat products - cooked, ready-to-eat - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	10g	50		50	
Fish - smoked - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	10g	95		95	
All foodstuffs [1)]			HACCP and own checks	food sample	Domestic	Single	25g	22	0	22	0
Egg products - ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g/10g	29	0	14	0
Fish - cooked			HACCP and own checks	food sample	Unknown	Single	10g	2	0		
Fish - marinated			HACCP and own checks	food sample	Unknown	Single	25g/10g	181	5	154	5
Fish - raw - chilled			HACCP and own checks	food sample	Unknown	Single	25g/10g	70	9	29	8
Fish - raw - frozen			HACCP and own checks	food sample	Unknown	Single	25g/10g	102	12	87	12
Fish - smoked			HACCP and own checks	food sample	Unknown	Single	25g/10g	83	0	66	0
Fishery products, unspecified - non-ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g/10g	19	3	4	3
Fishery products, unspecified - non-ready-to-eat - frozen			HACCP and own checks	food sample	Unknown	Single	25g/10g	111	0	109	0
Fishery products, unspecified - ready-to-eat - chilled			HACCP and own checks	food sample	Unknown	Single	25g/10g	71	4	36	4
Juice - mixed juice			HACCP and own checks	food sample	Unknown	Single	25ml	4	0	4	0
Meat from bovine animals - carcase - Slaughterhouse			HACCP and own checks	food sample > carcase swabs	Domestic	Single	20cm2	5	1	5	1
Meat from bovine animals - fresh - chilled			HACCP and own checks	food sample > meat	Unknown	Single	25g	17	1	17	1

Table Listeria monocytogenes in other foods

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for L. monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g
Meat from bovine animals - meat products - fermented sausages			HACCP and own checks	food sample	Unknown	Single	10g	15	0		
Meat from bovine animals - meat products - unspecified, ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g/10g	8	0	2	0
Meat from broilers (Gallus gallus) - fresh - chilled			HACCP and own checks	food sample > meat	Unknown	Single	25g	24	1	24	1
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked			HACCP and own checks	food sample	Unknown	Single	25g	6	0	6	0
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g/10g	16	0	6	0
Meat from broilers (Gallus gallus) - mechanically separated meat (MSM)			HACCP and own checks	food sample > meat	Unknown	Single	25g	205	1	205	1
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten raw			HACCP and own checks	food sample > meat	Unknown	Single	25g	10	0	10	0
Meat from other animal species or not specified - meat products - cooked, ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g	10	0	10	0
Meat from pig - fresh - chilled			HACCP and own checks	food sample > meat	Unknown	Single	25g	1	1	1	1
Meat from pig - fresh - frozen			HACCP and own checks	food sample > meat	Unknown	Single	25g	1	0	1	0
Meat from pig - meat products - cooked ham - non-sliced			HACCP and own checks	food sample > meat	Unknown	Single	10g	5	0		
Meat from pig - meat products - cooked, ready-to-eat			HACCP and own checks	food sample > meat	Unknown	Single	25g/10g	47	0	41	0
Meat from turkey - fresh - chilled			HACCP and own checks	food sample > meat	Unknown	Single	25g	4	0	4	0
Meat, mixed meat - meat preparation - intended to be eaten cooked			HACCP and own checks	food sample > meat	Unknown	Single	25g/10g	35	0	13	0

Table Listeria monocytogenes in other foods

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for L. monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g
Meat, mixed meat - meat products - cooked, ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g/10g	102	1	92	1
Meat, mixed meat - meat products - fermented sausages			HACCP and own checks	food sample	Unknown	Single	25g/10g	41	0	15	0
Meat, mixed meat - meat products - fermented sausages - Retail - Surveillance		Objective sampling	Official sampling	food sample		Single	10g	65		65	
Meat, mixed meat - minced meat - intended to be eaten raw			HACCP and own checks	food sample > meat	Unknown	Single	10g	1	0		
Other food			HACCP and own checks	environmental sample > fabric swab	Domestic	Single	20cm2	187	0	187	0
Ready-to-eat salads			HACCP and own checks	food sample	Domestic	Single	25g	14	0	14	0
Sweets			HACCP and own checks	food sample	Unknown	Single	25g/10g	25	0	8	0
Vegetables - bulb/clove			HACCP and own checks	food sample	Unknown	Single	25g	1	0	1	0
Vegetables - non-pre-cut			HACCP and own checks	food sample	Unknown	Single	25g	12	0	12	0
Vegetables - pre-cut			HACCP and own checks	food sample	Unknown	Single	25g	7	0	7	0

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Meat from pig - meat products - cooked, ready-to-eat - Retail - Surveillance			
Fish - smoked - Retail - Surveillance			

Table Listeria monocytogenes in other foods

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
All foodstuffs [1)]			
Egg products - ready-to-eat	15	0	
Fish - cooked	2	0	
Fish - marinated	27	0	
Fish - raw - chilled	41	0	1
Fish - raw - frozen	15	0	
Fish - smoked	17	0	
Fishery products, unspecified - non-ready-to-eat	15	0	
Fishery products, unspecified - non-ready-to-eat - frozen	2	0	
Fishery products, unspecified - ready-to-eat - chilled	35	0	
Juice - mixed juice			
Meat from bovine animals - carcase - Slaughterhouse			
Meat from bovine animals - fresh - chilled			
Meat from bovine animals - meat products - fermented sausages	15	0	
Meat from bovine animals - meat products - unspecified, ready-to-eat	6	0	
Meat from broilers (Gallus gallus) - fresh - chilled			

Table Listeria monocytogenes in other foods

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked			
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat	10	0	
Meat from broilers (Gallus gallus) - mechanically separated meat (MSM)			
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten raw			
Meat from other animal species or not specified - meat products - cooked, ready-to-eat			
Meat from pig - fresh - chilled			
Meat from pig - fresh - frozen			
Meat from pig - meat products - cooked ham - non-sliced	5	0	
Meat from pig - meat products - cooked, ready-to-eat	6	0	
Meat from turkey - fresh - chilled			
Meat, mixed meat - meat preparation - intended to be eaten cooked	22	0	
Meat, mixed meat - meat products - cooked, ready-to-eat	10	0	
Meat, mixed meat - meat products - fermented sausages	26	0	

Table Listeria monocytogenes in other foods

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Meat, mixed meat - meat products - fermented sausages - Retail - Surveillance			
Meat, mixed meat - minced meat - intended to be eaten raw	1	0	
Other food			
Ready-to-eat salads			
Sweets	17	0	
Vegetables - bulb/clove			
Vegetables - non-pre-cut			
Vegetables - pre-cut			

Comments:

[1)] mixed products

Footnote:

Whereas it was self-control, then in the sample delivery protocol did not specify exactly where the sample was taken. In these cases “Sampling stage” is unknown

2.3.3 Listeria in animals

Table Listeria in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Listeria	L. monocytogenes	Listeria spp., unspecified
Cattle (bovine animals) - Farm - Clinical investigations			Official sampling	animal sample > foetus/stillbirth	Domestic	Animal	18	4	4	
Pigs - breeding animals - Farm - Clinical investigations			Official sampling	animal sample > foetus/stillbirth	Domestic	Animal	2	0		
Sheep - Farm - Clinical investigations			Official sampling	animal sample > foetus/stillbirth	Domestic	Animal	5	1	1	

2.4 E. COLI INFECTIONS

2.4.1 General evaluation of the national situation

A. Verotoxigenic Escherichia coli infections general evaluation

History of the disease and/or infection in the country

In 2013, no control programme was existing in Latvia regarding VTEC infections in animals and food. Samples are sent by private veterinarians.

Additional information

The method used for detection of VTEC in animals is classical bacteriological method according to OIE Manual 2013 Chapter 2.9.11. Serogroups of E.coli are detected with antisera. It is possible to detect 20 different serogroups.

2.4.2 Escherichia coli, pathogenic in foodstuffs

Table VT E. coli in food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Analytical Method	Sampling unit	Sample weight	Units tested	Total units positive for Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC) - VTEC O157
Cheeses made from cows' milk			HACCP and own checks	food sample	Unknown	ISO 16654:2001	Single	25g	1	0	
Fish - cooked			HACCP and own checks	food sample	Unknown	ISO 16654:2001	Single	25g	1	0	
Fish - raw - chilled			HACCP and own checks	food sample	Unknown	ISO 16654:2001	Single	25g	4	0	
Meat from bovine animals - fresh			HACCP and own checks	food sample > meat	Unknown	ISO 16654:2001	Single	25g	13	0	
Meat from bovine animals - fresh - frozen			HACCP and own checks	food sample > meat	Unknown	ISO 16654:2001	Single	25g	2	0	
Meat from broilers (Gallus gallus) - fresh			HACCP and own checks	food sample > meat	Unknown	ISO 16654:2001	Single	25g	18	0	
Meat from broilers (Gallus gallus) - meat preparation			HACCP and own checks	food sample > meat	Unknown	ISO 16654:2001	Single	25g	1	0	
Meat from pig - fresh			HACCP and own checks	food sample > meat	Unknown	ISO 16654:2001	Single	25g	4	0	
Meat from turkey - fresh			HACCP and own checks	food sample > meat	Unknown	ISO 16654:2001	Single	25g	4	0	
Meat, mixed meat - minced meat - intended to be eaten cooked - frozen			HACCP and own checks	food sample > meat	Unknown	ISO 16654:2001	Single	25g	2	0	

	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Cheeses made from cows' milk		

Table VT E. coli in food

	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Fish - cooked		
Fish - raw - chilled		
Meat from bovine animals - fresh		
Meat from bovine animals - fresh - frozen		
Meat from broilers (Gallus gallus) - fresh		
Meat from broilers (Gallus gallus) - meat preparation		
Meat from pig - fresh		
Meat from turkey - fresh		
Meat, mixed meat - minced meat - intended to be eaten cooked - frozen		

2.4.3 Escherichia coli, pathogenic in animals

Table VT E. coli in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Analytical Method	Sampling unit	Sample weight	Units tested	Total units positive for Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC) - VTEC O157
Dogs - Clinical investigations			Not applicable	animal sample > organ/tissue	Domestic	Detection method	Animal		6	2	
Cats - Clinical investigations			Not applicable	animal sample > organ/tissue	Domestic	Detection method	Animal		10	2	
All animals - zoo animals - Zoo - Clinical investigations			Not applicable	animal sample > organ/tissue	Domestic	Detection method	Animal		12	2	
All animals - zoo animals - Zoo - Clinical investigations			Not applicable	animal sample > faeces	Domestic	Detection method	Animal		27	3	
Cats - pet animals - Veterinary clinics - Clinical investigations			Not applicable	animal sample > faeces	Domestic	Detection method	Animal		8	4	
Cattle (bovine animals) - Farm - Clinical investigations			Industry sampling	animal sample > organ/tissue	Domestic	Detection method	Animal		75	15	2
Cattle (bovine animals) - calves (under 1 year) - Farm - Clinical investigations			Industry sampling	animal sample > faeces	Domestic	Detection method	Animal		12	7	
Deer - farmed - red deer - Farm - Clinical investigations			Industry sampling	animal sample > organ/tissue	Domestic	Detection method	Animal		7	1	
Dogs - pet animals - Veterinary clinics - Clinical investigations			Not applicable	animal sample > faeces	Domestic	Detection method	Animal		12	6	
Gallus gallus (fowl) - Farm - Clinical investigations			Industry sampling	animal sample > fleece	Domestic	Detection method	Animal		6	1	

Table VT E. coli in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Analytical Method	Sampling unit	Sample weight	Units tested	Total units positive for Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC) - VTEC O157
Gallus gallus (fowl) - unspecified - Farm - Clinical investigations			Industry sampling	animal sample > organ/tissue	Domestic	Detection method	Animal		32	2	
Minks - farmed - Farm - Clinical investigations			Industry sampling	animal sample > organ/tissue	Domestic	Detection method	Animal		20	4	
Pigs - breeding animals - Farm - Clinical investigations			Industry sampling	animal sample > organ/tissue	Domestic	Detection method	Animal		52	15	
Sheep - Farm - Clinical investigations			Industry sampling	animal sample > faeces	Domestic	Detection method	Animal		2	1	
Sheep - Farm - Clinical investigations			Industry sampling	animal sample > organ/tissue	Domestic	Detection method	Animal		13	5	
Turkeys - Farm - Clinical investigations			Industry sampling	animal sample > organ/tissue	Domestic	Detection method	Animal		1	1	
Wild boars - wild - Hunting			Industry sampling	animal sample > organ/tissue	Unknown	Detection method	Animal		2	1	

	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified	Verotoxigenic E. coli (VTEC) - VTEC NT (Not Typeable)	Verotoxigenic E. coli (VTEC) - VTEC O103	Verotoxigenic E. coli (VTEC) - VTEC O121	Verotoxigenic E. coli (VTEC) - VTEC O26	Verotoxigenic E. coli (VTEC) - VTEC O55
Dogs - Clinical investigations	2		2				
Cats - Clinical investigations	2		2				
All animals - zoo animals - Zoo - Clinical investigations	2		1		1		

Table VT E. coli in animals

	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified	Verotoxigenic E. coli (VTEC) - VTEC NT (Not Typeable)	Verotoxigenic E. coli (VTEC) - VTEC O103	Verotoxigenic E. coli (VTEC) - VTEC O121	Verotoxigenic E. coli (VTEC) - VTEC O26	Verotoxigenic E. coli (VTEC) - VTEC O55
All animals - zoo animals - Zoo - Clinical investigations	3		2			1	
Cats - pet animals - Veterinary clinics - Clinical investigations	4						
Cattle (bovine animals) - Farm - Clinical investigations	13		6	3		2	2
Cattle (bovine animals) - calves (under 1 year) - Farm - Clinical investigations	7		4	1		2	
Deer - farmed - red deer - Farm - Clinical investigations	1		1				
Dogs - pet animals - Veterinary clinics - Clinical investigations	6			4	1	1	
Gallus gallus (fowl) - Farm - Clinical investigations	1		1				
Gallus gallus (fowl) - unspecified - Farm - Clinical investigations	2				1	1	
Minks - farmed - Farm - Clinical investigations	4		4				
Pigs - breeding animals - Farm - Clinical investigations	15		11	1	1	1	1
Sheep - Farm - Clinical investigations	1		1				
Sheep - Farm - Clinical investigations	5		5				
Turkeys - Farm - Clinical investigations	1		1				
Wild boars - wild - Hunting	1		1				

Table VT E. coli in animals

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

The use of intradermal tuberculin tests for diagnosis of bovine tuberculosis in Latvia has started in 1927. In the pre-war period, intradermal tuberculin tests were not compulsory and were done on a voluntary basis. In 1937, 10.4% of the tested cows were found positive. After the Second World War private farms were eliminated. The majority of animals were moved to collective holdings, where infected and non-infected animals were kept together, and tuberculosis continued to spread. Since tuberculosis preventive measures were introduced after 1960, the number of newly infected herds decreased. The tuberculosis eradication programme for domestic animals was introduced in 1968. Also testing of pigs, sheep, cats, birds and shepherd dogs was introduced with the aim to identify the sources of infection.

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

Since 1975, bovine tuberculosis was diagnosed only in 7 herds:
-1 herd in 1977
-1 herd in 1978
-2 herds in 1980
-2 herds in 1981
-1 herd in 1989

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

In 2013, no human infection with M. bovis was detected.

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

From 2011 Latvija is officially free bovine tuberculosis country.

Monitoring system

Sampling strategy

Latvia has a national control programme in place to control tuberculosis in bovines. The programme is based on the Regulation of Cabinet of Ministers Nr. 298, 21 April 2006 "Procedures for prevention and combatting of such infectious diseases as to which both animals and humans are susceptible".

Frequency of the sampling

100% of stock bulls are tested annually by using intradermal tuberculin test. Also according to the national control programme, all bovine animals slaughtered have been subject to an official post mortem examination in accordance with provisions of Section I (2c) of Annex A to Directive 64/432/EEC, i.e., bovine tuberculosis surveillance are carried out through an official post-mortem examination in slaughterhouses.

Type of specimen taken

Intradermal tuberculin test.
Tissue from suspect animals in slaughterhouses or animals positive in the intradermal tuberculin test.

Case definition

A single animal from wich M. bovis has been isolated.

Diagnostic/analytical methods used

For bacteriological examination of tissue from suspect animals in slaughterhouses or animals positive in the intradermal test: Classical bacteriology - OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals 2013, Chapter 2.4.7.

Vaccination policy

Vaccination is prohibited.

Measures in case of the positive findings or single cases

According to The Veterinary Medicine Law, animal owner/keeper must immediately notify to veterinarian on animal death, aborts, simultaneous affection of several animals and any case, which arise suspicions that animal is affected by infectious disease.
Measures applied in cases of suspicion or confirmation of a disease is in accordance with Council Directive No 64/432/EEC of 26 June 1964, Council Directive No 78/52/EEC of 13 December 1977 and Council Directive No 77/391/EEC of 17 May 1977, implemented by Regulation of Cabinet of Ministers Nr. 298, 21 April 2006, "Procedures for prevention and combating of such infectious diseases as to which both animals and humans are susceptible.
According to Regulation of Cabinet of Ministers No 298, 21 April 2006 "Procedures for prevention and combating of such infectious diseases as to which both animals and humans are susceptible" if an

infection with a zoonotic agent is suspected, this shall be notified by animal owner/keeper, person in charge from laboratory to veterinarian or to regional office of the Food and Veterinary Service. The regional office then informs the Veterinary Surveillance Department of the Food and Veterinary Service. State veterinary inspectors carry out further epidemiological investigation and take appropriate measures to prevent spread of the disease.
Measures to be implemented at suspected holding includes:
1) Movement restrictions on the animals;
2) Live animals are not allowed to leave holding except for slaughter;
3) Listing all suspect animals;
4) Isolating of suspect or positive reacted animals;
5) Restrictions on the trade of milk and milk products;
6) Control of staff, visitors and vehicles;
7) Control of feed and water supply;
8) Control of the removal of manure;
9) Vermin control;
10) Carrying out tests with the bovine tuberculin at the holding.

In case of a positive reaction to the repeated test, the animal shall be intended for slaughter, the viscera thereof shall be removed and submitted for investigation to the authorised laboratory and additionally the following measures shall apply at the holding:
1) Slaughter of positive bovine animals at least within 30 days upon detection;
2) Slaughtering of animals shall be carried out in accordance with Community legislation on food hygiene. Products derived from such animals may be placed on the market for human consumption in accordance with Community legislation on food hygiene;
3) The premises and surrounding area, as well as vehicles, equipment and other materials that may be contaminated with disease agents are cleaned, washed and disinfected under the supervision of an authorised veterinarian or state veterinary inspector;
4) Bedding and other materials that may be contaminated with disease agents are disinfected under the supervision of an authorised veterinarian or state veterinary inspector; manure are disinfected or subjected to treatment in accordance with Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (Animal by-products Regulation);
5) Other disease eradication measures in the affected holding.

Restrictions are lifted by a State veterinary inspector after the above measures have been taken and all animals over six weeks of age have reacted negatively to at least two consecutive tuberculin tests, the first no less than 60 days and the second no less than four months and no more than 12 months after the removal of the last positive reactor.
Costs of eradication of bovine tuberculosis are compensated according to Regulation of Cabinet of Ministers No 177, 13 March 2005, “Procedure for payment of compensations to owners of animals which have arise due to eradication of epizootic diseases or animal infectious diseases, which are under state supervision”.

Notification system in place

According to The Veterinary Medicine Law, animal owner/keeper must immediately notify to veterinarian on animal death, aborts, simultaneous affection of several animals and any case, which arise suspicions that animal is affected by infectious disease.
According to Regulation of Cabinet of Ministers No 298, 21 April 2006 "Procedures for prevention and combating of such infectious diseases as to which both animals and humans are susceptible" if an

infection with a zoonotic agent is suspected, this shall be notified by animal owner/keeper, person in charge from laboratory to veterinarian or to regional office of the Food and Veterinary Service. The regional office then informs the Veterinary Surveillance Department of the Food and Veterinary Service. State veterinary inspectors carry out further epidemiological investigation and take appropriate measures to prevent spread of the disease.

Also the Directive 2003/99/EC is implemented into national law by Regulation of the Cabinet of Ministers Nr. 744, 5 September 2006 "Procedures for surveillance and exchange of information of such infectiuos diseases as to which both animals and humans are susceptible, and of the antimicrobial resistance of agents"

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

B. Mycobacterium bovis in farmed deer

Additional information

In 2013, there was no program in place for control of Mycobacterium bovis in farmed deer in Latvia.

C. Mycobacterium spp., unspecified in animal - Pigs - at farm

Monitoring system

Sampling strategy

Tissue from suspect animals in slaughterhouses.

Frequency of the sampling

According to the national control programme, all pigs slaughtered have been subject to an official post mortem examination.

Type of specimen taken

Tissue from suspect animals in slaughterhouses.

Methods of sampling (description of sampling techniques)

For bacteriological examination of tissue from suspect animals: Classical bacteriology - OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals 2013.

Case definition

A single animal from which M.bovis or M.avium has been isolated.

Vaccination policy

Vaccination is prohibited.

Notification system in place

According to The Veterinary Medicine Law, animal owner/keeper must immediately notify to veterinarian on animal death, aborts, simultaneous affection of several animals and any case, which arise suspicions that animal is affected by infectious disease.

Also the Directive 2003/99/EC is implemented into national law by Regulation of the Cabinet of Ministers Nr. 744, 5 September 2006 "Procedures for surveillance and exchange of information of such infectiuos diseases as to which both animals and humans are susceptible, and of the antimicrobial resistance of agents".

Table Tuberculosis in other animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Analytical Method	Sampling unit	Units tested	Total units positive for Mycobacterium	M. bovis	M. tuberculosis
Gallus gallus (fowl) - Farm - Surveillance	Food and veterinary service	Objective sampling	Industry sampling		Domestic		Animal	117	0		
Ostriches - farmed - Farm - Surveillance	Food and veterinary service	Objective sampling	Industry sampling		Domestic		Animal	5	0		
Pigs - Farm - Surveillance	Food and veterinary service	Objective sampling	Industry sampling		Domestic		Animal	2233	0		

	Mycobacterium spp., unspecified
Gallus gallus (fowl) - Farm - Surveillance	
Ostriches - farmed - Farm - Surveillance	
Pigs - Farm - Surveillance	

Footnote:

Animals are tested with skin test.

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			
Latvija	1)			30897								
	2)		415277									
	3)									30897	100	
	4)									0		
	5)	0				every 0 months						
	6)							0				
	7)								0			
	8)						0					
Total :	9)			30897	415277					30897	100	0

Latvija	1)						
	2)						
	3)						

Table Bovine tuberculosis in countries and regions that do not receive Community co-financing for eradication programmes

Latvija [4]						
[5]						
[6]				326		
[7]						
[8]						
Total : [9]	0	0	0	326	0	0

Comments:

[8] Official post-mortem examination for all slaughtered bovine animals is implemented

[8] Official post-mortem examination for all slaughtered bovine animals is implemented

[8] Official post-mortem examination for all slaughtered bovine animals is implemented

[8] Official post-mortem examination for all slaughtered bovine animals is implemented

[8] Official post-mortem examination for all slaughtered bovine animals is implemented

[8] Official post-mortem examination for all slaughtered bovine animals is implemented

[8] Official post-mortem examination for all slaughtered bovine animals is implemented

[8] Official post-mortem examination for all slaughtered bovine animals is implemented

[9] 0

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

The last time that bovine brucellosis was diagnosed in Latvia was in 1963. Vaccination has never been used as an instrument in brucellosis eradication and control. Brucella melitensis has never been detected in Latvia at all. Brucellosis in pigs was first detected in Latvia in 1981. From 1981 till 1994 porcine brucellosis were detected in 36 holdings. Since then till 2010, no cases of brucellosis in pigs has been detected. At the end of 2010 sporadic case of porcine brucellosis was detected in the one holding. Preventive vaccination of animals and usage of hyper - immune serum against brucellosis is prohibited. Abortions have to be reported. They are investigated bacteriologically.

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

As Latvia has been free of bovine brucellosis since 1963, and the status of freedom from brucellosis is controlled by the responsible authority, brucellosis is not considered to pose a risk on animal or human health.

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

Since 1988, no cases of human brucellosis have been registered.

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

Latvia is officially free from bovine brucellosis. Since 1963 no registered cases of bovine brucellosis in Latvia.

Monitoring system

Sampling strategy

Sampling is part of a national control programme and takes place on farm. The programme is based on the Council Directive No 64/432/EEC of 26 June 1964 on health problems affecting intra-Community trade in bovine animals and swine, on the Annex A Part II.

Frequency of the sampling

100% of the stock bulls are tested on brucellosis annually. Also according to the national control programme all cattle herds must be tested once per five years, i.e. every year are tested 20% of total number of cattle holdings.

Type of specimen taken

Milk/blood

Methods of sampling (description of sampling techniques)

Samples are taken on the farm.

Case definition

An animal is considered to be infected when the individual blood sample is positive in the complement fixation test or in the agglutination.

Diagnostic/analytical methods used

Serological tests are carried out by using the Rose-Bengal-Test (RBT) on blood serum samples for a first screening in cases that no milk is available or the number of animals is very low. In bigger dairy herds, bulk tank milk samples are tested by using ELISA. If blood samples turn out positive in the RBT or bulk milk samples after the ELISA, individual serological testing has to be carried out on each animal.

Vaccination policy

Vaccination is prohibited.

Measures in case of the positive findings or single cases

According to The Veterinary Medicine Law, animal owner/keeper must immediately notify to veterinarian on animal death, aborts, simultaneous affection of several animals and any case, which arise suspicions that animal is affected by infectious disease.
Measures applied in cases of suspicion or confirmation of a disease is in accordance with Council Directive No 64/432/EEC of 26 June 1964, Council Directive No 78/52/EEC of 13 December 1977 and Council Directive No 77/391/EEC of 17 May 1977, implemented by Regulation of Cabinet of Ministers Nr. 298, 21 April 2006, "Procedures for prevention and combating of such infectious diseases as to which

both animals and humans are susceptible".
According to Regulation of Cabinet of Ministers No 881, 18 December 2012 "Procedure for prevention and eradication of brucellosis in bovine animals" following measures are taken:
Measures to be implemented at suspected holding includes:
1) Movement restrictions on the animals;
2) Live animals are not allowed to leave holding except for slaughter;
3) Listing all suspect animals;
4) Restrictions on the trade of milk and milk products;
5) Control of staff, visitors and vehicles;
6) Control of feed and water supply;
7) Control of the removal of manure;
8) Vermin control;
9) Sampling of animals for further investigation.

In case of confirmed diagnosis additionally the following measures shall apply at the holding:
1) Slaughter of positive bovine animals at least within 30 days upon detection;
2) Slaughtering of animals shall be carried out in accordance with Community legislation on food hygiene. Products derived from such animals may be placed on the market for human consumption in accordance with Community legislation on food hygiene;
3) The premises and surrounding area, as well as vehicles, equipment and other materials that may be contaminated with disease agents are cleaned, washed and disinfected under the supervision of an authorised veterinarian or state veterinary inspector;
4) Bedding and other materials that may be contaminated with disease agents are disinfected under the supervision of an authorised veterinarian or state veterinary inspector; manure are disinfected or subjected to biothermic treatment;
5) Foetuses, still-born calves, calves which have died from brucellosis is destroyed in accordance with Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (Animal by-products Regulation).
6) Other disease eradication measures in the affected holding.

Restrictions are lifted by a State veterinary inspector if all bovine animals present in the herd at the time of the outbreak have been slaughtered, or two serological tests of all bovine animals over 12 months old show negative results (the first test is to be carried out at least 30 days after the removal of the positive animal and the second at least 60 days later) and above listed measures have been taken.

Notification system in place

According to The Veterinary Medicine Law, animal owner/keeper must immediately notify to veterinarian on animal death, aborts, simultaneous affection of several animals and any case, which arise suspicions that animal is affected by infectious disease.

Also the Directive 2003/99/EC is implemented into national law by Regulation of the Cabinet of Ministers Nr. 744, 5 September 2006 "Procedures for surveillance and exchange of information of such infectiuos diseases as to which both animals and humans are susceptible, and of the antimicrobial resistance of agents"

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

As Latvia has been free of bovine brucellosis since 1963, and the status of freedom from brucellosis is controlled by the responsible authority, brucellosis is not considered to pose a risk on animal or human health.

B. Brucella melitensis in goats

Status as officially free of caprine brucellosis during the reporting year

The entire country free

Latvia is officialy free country from Brucella melitensis.

Additional information

Brucella melitensis has never been detected in Latvia at all.

Monitoring system

Sampling strategy

In 2013, according to the national control programme, 5% of the total number of goats older than 6 months were tested on brucellosis.

Type of specimen taken

Blood

Methods of sampling (description of sampling techniques)

Blood samples are taken at farm.

Case definition

An animal is considered to be infected when the individual blood sample is positive in the RBT. In that case, the whole herd is considered to be infected.

Diagnostic/analytical methods used

Blood serum samples are tested by RBT.

Vaccination policy

Vaccination is prohibited.

Measures in case of the positive findings or single cases

See B. abortus in bovines.

Notification system in place

See B. abortus in bovines.

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

As no case of B. melitensis has ever been detected in Latvia, it does not pose a risk on animal and human health.

C. Brucella melitensis in sheep

Status as officially free of ovine brucellosis during the reporting year

The entire country free

Latvia is officialy free country from Brucella melitensis.

Additional information

B. melitensis has never been detected in Latvia at all.

Monitoring system

Sampling strategy

In 2013, according to the national control programme, 5% of the total number of sheep older than 6 months were tested on brucellosis.

Type of specimen taken

Blood

Methods of sampling (description of sampling techniques)

Blood samples are taken at farm.

Case definition

An animal is considered to be infected when the individual blood sample is positive.

Diagnostic/analytical methods used

Blood serum samples are tested by RBT or CFT.

Vaccination policy

Vaccination is prohibited.

Measures in case of the positive findings or single cases

See B. abortus in bovines

Notification system in place

See B. abortus in bovines.

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

As no case of B. melitensis has ever been detected in Latvia, it does not pose a risk on animal and human health.

D. B. suis in animal - Pigs - at farm

Monitoring system

Sampling strategy

All breeding boars that are used for artificial insemination are tested twice per year. Sows, young sows and breeding boars that are used for breeding in the own herd are tested as follows: sows - once per two years, young sows - before insemination and breeding boars - are tested twice per year.

Type of specimen taken

Blood

Case definition

If the RBT is positive, the animal is tested serologically again. If the second testing (Complement Fixation Test) also reveals positive results, the animal is slaughtered and tissues are submitted for bacteriological examination. If B. suis can be isolated, the animal and the herd, respectively, is considered positive.

Diagnostic/analytical methods used

Rose Bengal Test
Complement Fixation Test
Classical bacteriology (OIE Manual)

Vaccination policy

Vaccination is prohibited.

Measures in case of the positive findings or single cases

According to The Veterinary Medicine Law, animal owner/keeper must immediately notify to veterinarian on animal death, aborts, simultaneous affection of several animals and any case, which arise suspicions that animal is affected by infectious disease.

According to Regulation of Cabinet of Ministers No 298, 21 April 2006 "Procedures for prevention and combating of such infectious diseases as to which both animals and humans are susceptible" if an infection with a zoonotic agent is suspected, this shall be notified by animal owner/keeper, person in charge from laboratory to veterinarian or to regional office of the Food and Veterinary Service. The regional office then informs the Veterinary Surveillance Department of the Food and Veterinary Service. State veterinary inspectors carry out further epidemiological investigation and take appropriate measures to prevent spread of the disease.
Measures to be implemented at suspected holding includes:
1) Movement restrictions on the animals;
2) Live animals are not allowed to leave holding except for slaughter;
3) Listing of all suspect animals;
4) Control of staff, visitors and vehicles;
5) Control of feed and water supply;
6) Control of the removal of manure;
7) Vermin control;
8) Sampling of animals for further investigation.

In case of confirmed diagnosis additionally the following measures shall apply at the holding:
1) Slaughtering or destroying of serologically positive animals;
2) Slaughtering of serologically negative animals;
3) Slaughtering of animals shall be carried out in accordance with Community legislation on food hygiene. Products derived from such animals may be placed on the market for human consumption in accordance

with Community legislation on food hygiene;
4) The premises and surrounding area, as well as vehicles, equipment and other materials that may be contaminated with disease agents are cleaned, washed and disinfected under the supervision of a veterinarian or State veterinary inspector;
5) Bedding and other materials that may be contaminated with disease agents are disinfected under the supervision of a veterinarian or state veterinary inspector; manure are disinfected or subjected to biothermic treatment;
6) Foetuses, still-born piglets are destroyed in accordance with Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (Animal by-products Regulation).
7) Other disease eradication measures in the affected holding.

Restrictions are lifted by a State veterinary inspector if all porcine animals present in the herd at the time of the outbreak have been slaughtered or destroyed and final cleaning and desinfection are finished.

Notification system in place

According to The Veterinary Medicine Law, animal owner/keeper must immediately notify to veterinarian on animal death, aborts, simultaneous affection of several animals and any case, which arise suspicions that animal is affected by infectious disease.
According to Regulation of Cabinet of Ministers No 298, 21 April 2006 "Procedures for prevention and combating of such infectious diseases as to which both animals and humans are susceptible" if an infection with a zoonotic agent is suspected, this shall be notified by animal owner/keeper, person in charge from laboratory to veterinarian or to regional office of the Food and Veterinary Service. The regional office then informs the Veterinary Surveillance Department of the Food and Veterinary Service. State veterinary inspectors carry out further epidemiological investigation and take appropriate measures to prevent spread of the disease.

Also the Directive 2003/99/EC is implemented into national law by Regulation of the Cabinet of Ministers Nr. 744, 5 September 2006 "Procedures for surveillance and exchange of information of such infectiuos diseases as to which both animals and humans are susceptible, and of the antimicrobial resistance of agents"

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

Brucellosis in pigs was first detected in Latvia in 1981. From 1981 till 1994 porcine brucellosis were detected in 36 holdings. Since then till 2010, no cases of brucellosis in pigs has been detected. At the end of 2010 sporadic case of porcine brucellosis was detected in the one holding.

Table Brucellosis in other animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Brucella	B. abortus	B. melitensis	B. suis
Dogs - pet animals - Veterinary clinics - Clinical investigations		Suspect sampling	Not applicable	animal sample > blood	Domestic	Animal	2	0			
Pigs - Farm - Control and eradication programmes	Food and veterinary service	Objective sampling	Official and industry sampling	animal sample > foetus/stillbirth	Domestic	Animal	10	0			
Pigs - Farm - Control and eradication programmes	Food and veterinary service	Objective sampling	Industry sampling	animal sample > blood	Domestic	Animal	23321	0			

	Brucella spp., unspecified
Dogs - pet animals - Veterinary clinics - Clinical investigations	
Pigs - Farm - Control and eradication programmes	
Pigs - Farm - Control and eradication programmes	

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 microbio logically	Number of animals positive microbio logically	Number of suspended herds
Latvija	7215	97492	7215	100	0	0	495	5797	0	0	0	0	0	0
Total : [1)]	7215	97492	7215	100	0	0	495	5797	0	0	0	0	0	0

Comments:

[1)] 0

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.

Region	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 microbio logically	Number of animals positive microbio logically
																		Sero logically	BST		
Latvija	30897	415277	30897	100	0	0	9071	35900	0	1149	31389	0	186	0	0	0	0	0	0	0	0
Total : [1)]	30897	415277	30897	100	0	0	9071	35900	0	1149	31389	0	186	0	0	0	0	0	0	0	0

Comments:

[1)] 0

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

There is no program in place to control or monitor Yersinia enterocolitica in animals or food.

2.7.2 Yersinia in animals

Table Yersinia in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Yersinia	Y. enterocolitica	Y. pseudotuberculosis	Yersinia spp., unspecified
Sheep [1)]		Suspect sampling	Industry sampling	animal sample > faeces	Domestic	Animal	1	0			
Dogs [2)]		Suspect sampling	Industry sampling	animal sample > faeces	Domestic	Animal	11	1	1		
Cats [3)]		Suspect sampling	Industry sampling	animal sample > faeces	Domestic	Animal	8	0			
Cattle (bovine animals) - Farm - Monitoring - passive [4)]	Food and veterinary service	Suspect sampling	Official and industry sampling	animal sample > faeces	Domestic	Animal	4	0			
Cattle (bovine animals) - Farm - Monitoring - passive [5)]	Food and veterinary service	Suspect sampling	Official and industry sampling	animal sample > blood	Domestic	Animal	33	14	14		
Pigs - Farm - Monitoring - passive [6)]	Food and veterinary service	Suspect sampling	Official and industry sampling	animal sample > blood	Domestic	Animal	30	3	3		

	Y. enterocolitica - O:3	Y. enterocolitica - O:9	Y. enterocolitica - unspecified
Sheep [1)]			
Dogs [2)]			1
Cats [3)]			

Table Yersinia in animals

	Y. enterocolitica - O:3	Y. enterocolitica - O:9	Y. enterocolitica - unspecified
Cattle (bovine animals) - Farm - Monitoring - passive [4)]			
Cattle (bovine animals) - Farm - Monitoring - passive [5)]		14	
Pigs - Farm - Monitoring - passive [6)]		3	

Comments:

[1)] Bacteriological test

[2)] Bacteriological test

[3)] Bacteriological test

[4)] Bacteriological test

[5)] Serological test (Agglutination Test)

[6)] Serological test (Agglutination Test)

Footnote:

In this table "monitoring" - mean passive monitoring - data derived from diseased animals. This passive monitoring programme not specially for specific agent, but for the epidemiological investigation in cases of animal illness, for the finding of cause of animal illness.

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

In 2004, the Food and Veterinary Service has elaborated methodological guidelines for the veterinary expertise of pigs, cows, sheep, goats, horses and farmed and wild game at slaughterhouses determining the order and methods for detection and identification of trichinellosis agents. Guidelines are based on the requirements of Regulation (EC) No 854/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption and Commission Regulation (EC) No 2075/2005 of 5 December 2005 laying down specific rules on official controls for Trichinella in meat.

All the carcasses of pigs, horses, wild and farmed game are sampled and tested for Trichinella at slaughter. In cases when animals are slaughtered at home or hunted for personal consumption, it is the duty of the owner of the animals or the hunter, respectively, to ensure that meat samples are sent for laboratory testing.

2.8.2 Trichinella in animals

Table Trichinella in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Trichinella	T. spiralis	Trichinella spp., unspecified
Solipeds, domestic - horses - Slaughterhouse - Surveillance	Food and veterinary service	Census	Official sampling	animal sample > organ/tissue	Domestic	Animal	294	0		
Beavers - wild - Hunting	Food and veterinary service		Not applicable	animal sample > organ/tissue	Domestic	Animal	4	0		
Lynx - wild - Hunting	Food and veterinary service		Not applicable	animal sample > organ/tissue	Domestic	Animal	2	2		2
Pigs - Slaughterhouse - Surveillance	Food and veterinary service	Census	Official sampling	animal sample > organ/tissue	Domestic	Animal	417556	0		
Wild boars - wild - Hunting - Surveillance	Food and veterinary service	Census	Official and industry sampling	animal sample > organ/tissue	Domestic	Animal	4452	49		49

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 in productive animals is achieved trough the official meat inspection, where macroscopic investigation on hydatid cysts at the abattoir is part of the meat inspection procedure. Inspection is conducted according to the methodological guidelines of the Food and Veterinary Service for veterinary expertise of pigs, cows, sheep, goats, horses and farmed and wild game at slaughterhouses. These guidelines are based on requirements of Regulation (EC) No 854/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption.

There are no official monitoring programmes for echinococcosis in the final hosts - dogs and cats. Treatment with anti-helmintic drugs is advised.

2.9.2 Echinococcus in animals

Table Echinococcus in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Region	Units tested	Total units positive for Echinococcus	E. granulosus	E. multilocularis
Cattle (bovine animals) - Slaughterhouse - Surveillance	Food and veterinary service	Census	Official sampling		Domestic	Animal	Latvija	86888	0		
Sheep - Slaughterhouse - Surveillance	Food and veterinary service	Census	Official sampling		Domestic	Animal	Latvija	13902	0		
Goats - Slaughterhouse - Surveillance	Food and veterinary service	Census	Official sampling		Domestic	Animal	Latvija	95	0		
Pigs - Slaughterhouse - Surveillance	Food and veterinary service	Census	Official sampling		Domestic	Animal	Latvija	417556	0		
Solipeds, domestic - horses - Slaughterhouse - Surveillance	Food and veterinary service	Census	Official sampling		Domestic	Animal	Latvija	294	0		

	Echinococcus spp., unspecified
Cattle (bovine animals) - Slaughterhouse - Surveillance	
Sheep - Slaughterhouse - Surveillance	
Goats - Slaughterhouse - Surveillance	
Pigs - Slaughterhouse - Surveillance	

Table Echinococcus in animals

	Echinococcus spp., unspecified
Solipeds, domestic - horses - Slaughterhouse - Surveillance	

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

In 2013, Latvia had no monitoring programme in place to control Toxoplasma spp. in animals. Samples are sent by private veterinarians.

2.10.2 Toxoplasma in animals

Table Toxoplasma in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Analytical Method	Sampling unit	Units tested	Total units positive for Toxoplasma	T. gondii	Toxoplasma spp., unspecified
Sheep - Farm - Clinical investigations [1)]	Food and veterinary service		Industry sampling	animal sample > blood	Domestic	Latex agglutination test (LAT)	Animal	69	26	26	
Dogs - Clinical investigations	Food and veterinary service		Not applicable	animal sample > blood	Domestic	Latex agglutination test (LAT)	Animal	94	13	13	
Cats - Clinical investigations	Food and veterinary service		Not applicable	animal sample > blood	Domestic	Latex agglutination test (LAT)	Animal	93	15	15	

Comments:

[1)] Both tests were used: ELISA and LAT

Footnote:

In this table "clinical investigations"- mean that all samples were taken and sent by private veterinarians. In those cases all costs were covered by owner/keeper of animals.

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

After the First World War intensive spreading of rabies occured in 1923 - when were detected 308 cases of rabies in domestic animals from which 217 cases of rabies were detected in dogs. 260 dogs become ill with rabies in 1927. Till 1950 was observed rabies called - urban rabies - because rabies cases mostly detected in dogs. Since then "urban rabies" cases decreased and increased rabies cases in wild animals.

The density of red foxes and racoon dogs in Latvia has been increasing from 1,16 per square kilometre in 1998 up to 1,7 per square kilometre in 2003. The main reservoir for rabies in Latvia are red foxes and racoon dogs.
The rabies cases in red foxes varied between 71 and 144 in the years from 1993 until 1999, in racoon dogs there were between 20 and 39 cases of rabies. Since the year 2000, these numbers increased and had a peak in 2003 (471 cases in red foxes, 285 cases in racoon dogs). From the year 2004 until 2006, rabies cases in red foxes varied between 165 and 187, in racoon dogs there were between 126 and 153 cases of rabies. As a result of oral vaccination of wild animals (foxes and racoon dogs) rabies cases decreased about two times in 2007 - 95 rabies cases in red foxes and 33 rabies cases in racoon dogs were diagnosed. Also in 2008 and 2009 the number of cases continued to decrease - 44 cases and 24 rabies cases respectively in red foxes and 41 cases and 24 rabies cases accordingly in racoon dogs were detected. In 2010 there were only 16 cases of rabies from which 11 rabies cases were detected in red foxes and 1 rabies cases was detected in racoon dog. One rabies case reported in 2011 - in horse, but in 2012 registered two rabies cases - one in cattle and one in dog.

Other animals infected with rabies in the last years were for example minks, roes, martens, badgers, polecats, dogs, cats and cattle.

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

Infection generally occurs through a bite from infected animals. Wild animals (foxes and racoon dogs) are the most common source of infection in Latvia.

Additional information

In Latvia, in certain territories the oral vaccination of red foxes against rabies has been started in 1991. First used oral vaccine against rabies was vaccine was not originally introduced in baits and produced in Russia. This vaccine veterinarians introduced in baits (for instance - in jawl) by themselves. The oral vaccination of foxes and racoon dogs against rabies by vaccine originally introduced in baits has been started in 1998. Vaccination campaigns have been carried out twice per year: during spring and autumn. From 1998 - 2004, vaccine baits were distributed by hands (manual distribution), but since 2005, aerial distribution is used.

2.11.2 Lyssavirus (rabies) in animals

A. Rabies in dogs

Additional information

All dogs must be vaccinated against rabies once per year.

B. Rabies virus in animal

Monitoring system

Sampling strategy

In 2013, there were active and passive surveillance programmes in place regarding rabies.
In case of suspicion of rabies in a wild animal, pet or productive animal, the owner or finder, respectively, has to report immediately to an authorized veterinarian or the FVS. In dead animals, a partial post mortem inspection is performed and brain material is taken for further investigations. For pets or productive animals under suspicion - see measures.
Sampling is also performed in red foxes and racoon dogs to control the uptake of vaccine baits and to determine the antibody titer. These foxes and racoon dogs are hunted and submitted to the BIOR (former - National Diagnostic Centre).

Frequency of the sampling

Foxes and racoon dogs - during hunting season
Animals found dead, suspicions - throughout the year

Case definition

A case that is laboratory confirmed.

Diagnostic/analytical methods used

Detection of viral antigens by an immunofluorescence test in neurological tissue (brain) in connection to partial post-mortem examination.
If the immunofluorescence test in neurological tissue (brain) is negative, isolation and identification of virus in cell culture. Genotyping of the virus by PCR is used for further investigations. Exceptionally, the mouse inoculation test is performed.

Vaccination policy

All cats, dogs and ferrets must be vaccinated against rabies once per year.

Foxes and racoon dogs - see general evaluation

Control program/mechanisms

The control program/strategies in place

Vaccination of red foxes and racoon dogs by aerial distribution of vaccine baits twice a year in the whole territory of Latvia will be continued in order to eradicate rabies.

Measures in case of the positive findings or single cases

Suspected animals will be put under observation for 10 days (cats, dogs and ferrets) or 15 days (other domestic animals). If the animal is vaccinated and no symptoms occur, the animal is re-vaccinated. In case the animal is not vaccinated, it has to be euthanised. Brain tissue is submitted to the BIOR for further investigations.
If the animal has not been vaccinated and the owner refuses to euthanise it, observation of animal for more longer period and vaccination is performed.

Notification system in place

Regulation of Cabinet of Ministers Nr. 178, 23 February 2010 "Order of the prophylaxis and eradication of rabies" determines responsibilities of animal owners/keepers, an authorised veterinarians and state institutions, and determines how to carry out prophylaxis and eradication of rabies.

In case of suspicion of rabies in a wild animals, pets or productive animals, the owner/keeper or finder, respectively, has to report immediately to an authorized veterinarian or the Food and Veterinary Service.

If an infection of animals with a rabies has been confirmed, a regional office of the Food and Veterinary Service provide information to branch of The Centre for Disease Prevention and Control, the district of State Forest Service and municipality regarding the location of the zoonosis outbreak and measures taken to contain the disease. Municipality then informs inhabitants on rabies case and measures taken.

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

In accordance with the epidemiological surveillance data, since 1974 rabies cases in humans have been registered as follows:

- 1982: 1 case in Kraslava district, source of infection: dog;
- 1986: 1 case in Kraslava district, source of infection: fox;
- 1993: 1 case in Saldus district, source of infection: fox;
- 2003: 1 case in Daugavpils district, source of infection: dog.

Table Rabies in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Region	Units tested	Total units positive for Lyssavirus (rabies)	Rabies virus (RABV)	EBLV-1
Cattle (bovine animals)	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	6	0		
Sheep	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	2	0		
Goats	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	1	0		
Dogs - stray dogs	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	2	0		
Cats - stray cats	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	3	0		
Foxes - wild - Monitoring	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	92	0		
Raccoon dogs - wild - Monitoring	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	76	0		
Badgers - wild	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	5	0		
Beavers - wild	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	3	0		
Cats - pet animals	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	22	0		
Deer - wild	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	1	0		

Table Rabies in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Region	Units tested	Total units positive for Lyssavirus (rabies)	Rabies virus (RABV)	EBLV-1
Deer - wild - roe deer	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	7	0		
Dogs - pet animals	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	29	0		
Ferrets - pet animals	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	1	0		
Hares - wild	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	2	0		
Lynx - wild	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	1	0		
Marten - wild	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	9	0		
Mice - wild	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	2	0		
Minks - wild	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	2	0		
Moose - wild	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	1	0		
Polecats - wild	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	5	0		
Rats - pet animal	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	1	0		
Rats - wild	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	1	0		

Table Rabies in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Region	Units tested	Total units positive for Lyssavirus (rabies)	Rabies virus (RABV)	EBLV-1
Wild boars - wild	Food and veterinary service	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	3	0		

	EBLV-2	Lyssavirus (unspecified virus)
Cattle (bovine animals)		
Sheep		
Goats		
Dogs - stray dogs		
Cats - stray cats		
Foxes - wild - Monitoring		
Raccoon dogs - wild - Monitoring		
Badgers - wild		
Beavers - wild		
Cats - pet animals		
Deer - wild		
Deer - wild - roe deer		
Dogs - pet animals		
Ferrets - pet animals		

Table Rabies in animals

	EBLV-2	Lyssavirus (unspecified virus)
Hares - wild		
Lynx - wild		
Marten - wild		
Mice - wild		
Minks - wild		
Moose - wild		
Polecats - wild		
Rats - pet animal		
Rats - wild		
Wild boars - wild		

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

A. Coxiella burnetii (Q-fever) general evaluation

History of the disease and/or infection in the country

In 2013, no control programme was existing in Latvia regarding Coxiella brunetii (Q fever) infections in animals.
Samples are sent by private veterinarians.

2.13.2 Coxiella (Q-fever) in animals

Table Coxiella burnetii (Q fever) in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Analytical Method	Sampling unit	Units tested	Total units positive for Coxiella (Q-fever)	C. burnetii	No of clinically affected herds
Cattle (bovine animals) - Farm - Monitoring - passive	Food and veterinary service	Suspect sampling	Official and industry sampling	animal sample > blood	Domestic	ELISA	Animal	534	55	55	
Goats - Farm - Monitoring - passive	Food and veterinary service	Suspect sampling	Official and industry sampling	animal sample > blood	Domestic	ELISA	Animal	2	0		
Sheep - Farm - Monitoring - passive	Food and veterinary service	Suspect sampling	Official and industry sampling	animal sample > blood	Domestic	ELISA	Animal	63	0		

2.14 WEST NILE VIRUS INFECTIONS

2.14.1 General evaluation of the national situation

3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE

3.1 ESCHERICHIA COLI, NON-PATHOGENIC

3.1.1 General evaluation of the national situation

3.1.2 Antimicrobial resistance in Escherichia coli, non-pathogenic

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 <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		16	
Amphenicols	Chloramphenicol		16	
Cephalosporins	Cefotaxime		0.25	
	Ceftazidime		0.5	
Fluoroquinolones	Ciprofloxacin		0.064	
Penicillins	Ampicillin		8	
Quinolones	Nalidixic acid		16	

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Animals

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Sulfonamides	Sulfonamides		256	
	Sulfamethoxazole		64	
Tetracyclines	Tetracycline		8	
Trimethoprim	Trimethoprim		2	

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 <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		16	
Amphenicols	Chloramphenicol		16	
Cephalosporins	Cefotaxime		0.25	
	Ceftazidime		0.5	
Fluoroquinolones	Ciprofloxacin		0.064	
Penicillins	Ampicillin		8	
Quinolones	Nalidixic acid		16	
Sulfonamides	Sulfonamides		256	
	Sulfamethoxazole		64	
Tetracyclines	Tetracycline		8	
Trimethoprim	Trimethoprim		2	

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Feed

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 <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		16	
Amphenicols	Chloramphenicol		16	
Cephalosporins	Cefotaxime		0.25	
	Ceftazidime		0.5	
Fluoroquinolones	Ciprofloxacin		0.064	
Penicillins	Ampicillin		8	
Quinolones	Nalidixic acid		16	
Sulfonamides	Sulfonamides		256	
	Sulfamethoxazole		64	
Tetracyclines	Tetracycline		8	
Trimethoprim	Trimethoprim		2	

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Food

3.2 ENTEROCOCCUS, NON-PATHOGENIC

3.2.1 General evaluation of the national situation

3.2.2 Antimicrobial resistance in Enterococcus, non-pathogenic isolates

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	Gentamicin		32	
	Streptomycin		512	
Amphenicols	Chloramphenicol		32	
Fluoroquinolones	Ciprofloxacin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	

Table Cut-off values for antibiotic resistance of E. faecalis in Animals

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		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	Gentamicin		32	
	Streptomycin		512	
Amphenicols	Chloramphenicol		32	
Fluoroquinolones	Ciprofloxacin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Tetracyclines	Tetracycline		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	Gentamicin		32	
	Streptomycin		512	
Amphenicols	Chloramphenicol		32	
Fluoroquinolones	Ciprofloxacin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Tetracyclines	Tetracycline		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	Gentamicin		32	
	Streptomycin		128	
Amphenicols	Chloramphenicol		32	
Fluoroquinolones	Ciprofloxacin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		1	
Tetracyclines	Tetracycline		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	Gentamicin		32	
	Streptomycin		128	
Amphenicols	Chloramphenicol		32	
Fluoroquinolones	Ciprofloxacin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		1	
Tetracyclines	Tetracycline		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	Gentamicin		32	
	Streptomycin		128	
Amphenicols	Chloramphenicol		32	
Fluoroquinolones	Ciprofloxacin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		1	
Tetracyclines	Tetracycline		4	

4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS

4.1 CRONOBACTER

4.1.1 General evaluation of the national situation

4.2 HISTAMINE

4.2.1 General evaluation of the national situation

4.2.2 Histamine in foodstuffs

Table Histamine in food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units in non-conformity	<= 100 mg/kg	>100 - <= 200 mg/kg
Fish - cooked			HACCP and own checks	food sample	Unknown	Single		138		138	
Fish - marinated			HACCP and own checks	food sample	Unknown	Single		26		26	
Fish - raw - chilled			HACCP and own checks	food sample	Unknown	Single		68		61	3
Fish - raw - frozen			HACCP and own checks	food sample	Unknown	Single		114		114	
Fish - smoked			HACCP and own checks	food sample	Unknown	Single		24		24	
Fishery products, unspecified - non-ready-to-eat - frozen			HACCP and own checks	food sample	Unknown	Single		11		11	
Fishery products, unspecified - ready-to-eat			HACCP and own checks	food sample	Unknown	Single		26		26	

Table Histamine in food

	>200 - <= 400 mg/kg	> 400 mg/kg
Fish - cooked		
Fish - marinated		
Fish - raw - chilled		4
Fish - raw - frozen		
Fish - smoked		
Fishery products, unspecified - non-ready-to-eat - frozen		
Fishery products, unspecified - ready-to-eat		

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, epidemological investigations and reporting of foodborne outbreaks

Clinicians are legally responsible for notifying of infectious diseases, including food-borne diseases. Notification is required for cases of suspected infectious disease, a change or discharge of diagnosis of an infectious disease, the final diagnosis and outcome of infectious disease and laboratory confirmation of the diagnosis.

Epidemiologists of the Centre for Disease Prevention and Control of Latvia (CDPC) receive information from clinicians and perform investigation of the cases (outbreaks), take environmental samples for laboratory investigation, collect, store and analyse the epidemiological data, organize preventive and control measures.

Description of the types of outbreaks covered by the reporting:

In 2013, there were 598 food-borne (or household contact possibly related to food implication) outbreaks with 2 and more cases, including 52 outbreaks with 5 or more cases.

National evaluation of the reported outbreaks in the country:

Trends in numbers of outbreaks and numbers of human cases involved

Altogether 1825 cases, including 1 strong evidence outbreak with 7 cases, related to home-made cake (raw eggs used).

Relevance of the different causative agents, food categories and the agent/food category combinations

Among all outbreaks 4% were caused by Salmonella spp., 20.2% - by Norwalk virus, 52.8% - by other viruses, incl. Rotavirus, Astrovirus, and mixed viruses, only 0.2% were caused by Campylobacter jejuni, 1.2% - caused by different bacteria, 20.6% were related to causative agents of unknown aethyology, and the rest related to other pathogens. Like previous years salmonelosis was caused mainly by improperly prepared egg/poultry products.

Evaluation of the severity and clinical picture of the human cases

We do not collect clinical information for all cases.

Descriptions of single outbreaks of special interest

The only strong evidence outbreak was related to homemade Tiramisu cake where raw eggs used. During the epidemiological investigation the rest of Tiramisu cake was tested in laboratory, and content of Salmonella Enteritidis bacteria amount in the cake was classified as high.

Control measures or other actions taken to improve the situation

Outbreak investigation includes recommendations from the Public health specialists, as well control and penalty measures (if necessary - closure) by other control institutions, Food veteriary Service and Health Inspection, working together with the Centre for Disease Prevention and Control of Latvia

Table Foodborne Outbreaks: summarised data

	Weak evidence or no vehicle outbreaks					
	Number of outbreaks	Human cases	Hospitalized	Deaths	Strong evidence Number of Outbreaks	Total number of outbreaks
Salmonella - S. Typhimurium	1	2	1	0	0	1
Salmonella - S. Enteritidis	21	106	42	0	1	22
Salmonella - Other serovars	1	2	1	0	0	1
Campylobacter	1	2	0	0	0	1
Listeria - Listeria monocytogenes	0	unknown	unknown	unknown	0	0
Listeria - Other Listeria	0	unknown	unknown	unknown	0	0
Yersinia	0	unknown	unknown	unknown	0	0
Escherichia coli, pathogenic - Verotoxigenic E. coli (VTEC)	0	unknown	unknown	unknown	0	0
Bacillus - B. cereus	0	unknown	unknown	unknown	0	0
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	0	0

	Weak evidence or no vehicle outbreaks					
	Number of outbreaks	Human cases	Hospitalized	Deaths	Strong evidence Number of Outbreaks	Total number of outbreaks
Clostridium - Other Clostridia	0	unknown	unknown	unknown	0	0
Other Bacterial agents - Brucella	0	unknown	unknown	unknown	0	0
Other Bacterial agents - Shigella	0	unknown	unknown	unknown	0	0
Other Bacterial agents - Other Bacterial agents	7	17	10	0	0	7
Parasites - Trichinella	2	6	2	0	0	2
Parasites - Giardia	1	5	0	0	0	1
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	121	453	180	0	0	121
Viruses - Hepatitis viruses	2	4	1	0	0	2
Viruses - Other Viruses	316	899	632	0	0	316
Other agents - Histamine	0	unknown	unknown	unknown	0	0
Other agents - Marine biotoxins	0	unknown	unknown	unknown	0	0
Other agents - Other Agents	1	2	0	0	0	1

	Weak evidence or no vehicle outbreaks					
	Number of outbreaks	Human cases	Hospitalized	Deaths	Strong evidence Number of Outbreaks	Total number of outbreaks
Unknown agent	123	320	204	0	0	123

Other Salmonella serovars - S.Mkamba

Other bacterial agents - Entamoeba hystolitica (imported from Malaysia), Proteus mirabilis, Klebsiella oxytoca, K.ozaenae, Enterobacter cloacae, Hafnia alveii

Hepatitis viruses - HAV, HEV

Other viruses - Rota, Astro, mixed (rota+noro, astro+adeno, rota+adeno, rota+noro+astro, etc.)

Table Foodborne Outbreaks: detailed data for Salmonella

Please use CTRL for multiple selection fields

S. Enteritidis

	Value
FBO Code	
Number of outbreaks	1
Number of human cases	7
Number of hospitalisations	4
Number of deaths	0
Food vehicle	Sweets and chocolate
More food vehicle information	Tiramisu cake
Nature of evidence	Detection of causative agent in food vehicle or its component - Detection of indistinguishable causative agent in humans
Outbreak type	Household
Setting	Household
Place of origin of problem	Household
Origin of food vehicle	Domestic
Contributory factors	Other contributory factor
Mixed Outbreaks (Other Agent)	
Additional information	Tiramisu cake was made at home, used raw eggs. Salmonella was found in the rest of cake