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 2012

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: Latvia

Reporting Year: 2012

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 2012 .

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.

Data on cattle, pigs, horses, goats and sheep: 01.01.2013.

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)	- in total	31765		90103		393097		31765	
Ducks	- in total	1				500		1	
Gallus gallus (fowl)	parent breeding flocks for meat production line	30				211427		1	
	laying hens	50				2692340		10	
	broilers	70		15203122		1668340		3	
	- in total [1)]	150		15203122		4572107		13	
Goats	- in total	2893		51		13329		2893	
Pigs	- in total	3984		406438		313291		3984	
Sheep	- in total	4408		13539		83632		4408	
Solipeds, domestic	horses - in total	5047		416		10920		5047	
Ostriches	farmed	1				40		1	
Quails	- in total	12				2182		12	

Comments:

Table Susceptible animal populations

Comments:

[1)] 1 integrated (mixed) holding 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 - at slaughterhouse - Surveillance		Objective sampling	Official sampling	food sample > neck skin		Single	25g	100			
Meat from broilers (Gallus gallus) - fresh - at processing plant - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	35	7	7	
Meat from broilers (Gallus gallus) - fresh - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	180	16	8	7
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	140	1		
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	125			
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	10			
Meat from turkey - fresh - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	10			
Meat from turkey - meat products - cooked, ready-to -eat - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	15			
Meat from turkey - meat products - raw but intended to be eaten cooked - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	15			
Meat from broilers (Gallus gallus) - fresh			HACCP and own checks	food sample > meat	Domestic	Single	25g	1290	13	8	
Meat from broilers (Gallus gallus) - fresh - frozen			HACCP and own checks	food sample > meat	Domestic	Single	25g	116	0		
Meat from broilers (Gallus gallus) - minced meat			HACCP and own checks	food sample > meat	Domestic	Single	25g	20	1		1

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 turkey - fresh - frozen			HACCP and own checks	food sample > meat	Domestic	Single	25g	4	0		
Meat from turkey - minced meat			HACCP and own checks	food sample > meat	Domestic	Single	25g	4	0		
Meat from turkey - minced meat - intended to be eaten cooked - chilled - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	10	2		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Chartres	S. Isangi	S. Kentucky	S. Livingstone	S. Minnesota	S. Newport
Meat from broilers (Gallus gallus) - carcase - at slaughterhouse - Surveillance								
Meat from broilers (Gallus gallus) - fresh - at processing plant - Surveillance								
Meat from broilers (Gallus gallus) - fresh - at retail - Surveillance				1				
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail - Surveillance							1	
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail - Surveillance								
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - at retail - Surveillance								
Meat from turkey - fresh - at retail - Surveillance								

Table Salmonella in poultry meat and products thereof

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Chartres	S. Isangi	S. Kentucky	S. Livingstone	S. Minnesota	S. Newport
Meat from turkey - meat products - cooked, ready-to-eat - at retail - Surveillance								
Meat from turkey - meat products - raw but intended to be eaten cooked - at retail - Surveillance								
Meat from broilers (Gallus gallus) - fresh					1	1		3
Meat from broilers (Gallus gallus) - fresh - frozen								
Meat from broilers (Gallus gallus) - minced meat								
Meat from turkey - fresh - frozen								
Meat from turkey - minced meat								
Meat from turkey - minced meat - intended to be eaten cooked - chilled - at retail - Surveillance			2					

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 - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	75	0		
Cheeses made from cows' milk - fresh - made from pasteurised milk - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	20	0		
Cheeses, made from unspecified milk or other animal milk - hard			HACCP and own checks	food sample	Domestic	Single	25g	106	0		
Cheeses, made from unspecified milk or other animal milk - spreadable			HACCP and own checks	food sample	Domestic	Single	25g	40	0		
Dairy products (excluding cheeses) - cream - made from pasteurised milk - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	30	0		
Dairy products (excluding cheeses) - fermented dairy products			HACCP and own checks	food sample	Domestic	Single	25ml	108	0		
Dairy products (excluding cheeses) - ice-cream			HACCP and own checks	food sample	Domestic	Single	25g	3	0		
Dairy products (excluding cheeses) - ice-cream - made from pasteurised milk - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	15	0		
Dairy products (excluding cheeses) - milk powder and whey powder			HACCP and own checks	food sample	Domestic	Single	25g	32	0		
Dairy products (excluding cheeses) - yoghurt			HACCP and own checks	food sample	Domestic	Single	25ml	94	0		
Dairy products (excluding cheeses) - yoghurt - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	10	0		
Dairy products, unspecified			HACCP and own checks	food sample	Domestic	Single	25g	251	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
Milk, cows' - pasteurised milk			HACCP and own checks	food sample > milk	Domestic	Single	25ml	7	0		
Milk, cows' - raw milk			HACCP and own checks	food sample > milk	Domestic	Single	25ml	19	0		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Cheeses made from cows' milk - curd - at retail - Surveillance		
Cheeses made from cows' milk - fresh - made from pasteurised milk - at retail - Surveillance		
Cheeses, made from unspecified milk or other animal milk - hard		
Cheeses, made from unspecified milk or other animal milk - spreadable		
Dairy products (excluding cheeses) - cream - made from pasteurised milk - at retail - Surveillance		
Dairy products (excluding cheeses) - fermented dairy products		
Dairy products (excluding cheeses) - ice-cream		
Dairy products (excluding cheeses) - ice-cream - made from pasteurised milk - at retail - Surveillance		

Table Salmonella in milk and dairy products

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Dairy products (excluding cheeses) - milk powder and whey powder		
Dairy products (excluding cheeses) - yoghurt		
Dairy products (excluding cheeses) - yoghurt - at retail - Surveillance		
Dairy products, unspecified		
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 - at packing centre - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	20	0		
Eggs - table eggs - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	90	1		1
Eggs - raw material (liquid egg) for egg products - at processing plant - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	30	0		
Fish - smoked - at retail - Surveillance		Objective sampling	Official sampling	food sample > milk		Single	25g	10	0		
Bakery products			HACCP and own checks	food sample	Domestic	Single	25g	39	0		
Beverages, alcoholic			HACCP and own checks	food sample	Domestic	Single	25ml	12	0		
Beverages, non-alcoholic - soft drinks			HACCP and own checks	food sample	Unknown	Single	25ml	6	0		
Crustaceans - prawns - cooked			HACCP and own checks	food sample	Unknown	Single	25g	131	0		
Egg products			HACCP and own checks	food sample	Unknown	Single	25g	55	1		
Eggs - table eggs			HACCP and own checks	food sample	Unknown	Single	25g	58	0		
Fats and oils (excluding butter) - oils			HACCP and own checks	food sample	Unknown	Single	25ml	1	0		
Fish - cooked			HACCP and own checks	food sample	Unknown	Single	25g	369	0		
Fish - gravad /slightly salted - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	30	0		
Fish - marinated - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	75	0		
Fish - raw - frozen			HACCP and own checks	food sample	Unknown	Single	25g	85	0		
Fruits - products			HACCP and own checks	food sample	Unknown	Single	25g	3	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
Honey			HACCP and own checks	food sample	Domestic	Single	25g	1	0		
Juice - fruit juice			HACCP and own checks	food sample	Unknown	Single	25ml	20	0		
Nuts and nut products			HACCP and own checks	food sample	Unknown	Single	25g	1	0		
Other processed food products and prepared dishes - unspecified - ready-to-eat foods			HACCP and own checks	food sample	Domestic	Single	25g	420	0		
Spices and herbs			HACCP and own checks	food sample	Domestic	Single	25g	38	0		
Sweets			HACCP and own checks	food sample	Domestic	Single	25g	30	0		
Vegetables - pre-cut - ready-to-eat			HACCP and own checks	food sample	Unknown	Single	25g	2	0		
Vegetables - products			HACCP and own checks	food sample	Unknown	Single	25g	66	0		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Infantis
Eggs - table eggs - at packing centre - Surveillance			
Eggs - table eggs - at retail - Surveillance			
Eggs - raw material (liquid egg) for egg products - at processing plant - Surveillance			
Fish - smoked - at retail - Surveillance			
Bakery products			

Table Salmonella in other food

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Infantis
Beverages, alcoholic			
Beverages, non-alcoholic - soft drinks			
Crustaceans - prawns - cooked			
Egg products			1
Eggs - table eggs			
Fats and oils (excluding butter) - oils			
Fish - cooked			
Fish - gravad /slightly salted - at retail - Surveillance			
Fish - marinated - at retail - Surveillance			
Fish - raw - frozen			
Fruits - products			
Honey			
Juice - fruit juice			
Nuts and nut products			
Other processed food products and prepared dishes - unspecified - ready-to-eat foods			
Spices and herbs			
Sweets			
Vegetables - pre-cut - ready-to-eat			

Table Salmonella in other food

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Infantis
Vegetables - products			

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 - at slaughterhouse - Surveillance		Objective sampling	Official sampling	food sample > carcase swabs		Single		750	5		
Meat from pig - meat preparation - intended to be eaten cooked - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	50	0		
Meat from pig - meat products - cooked, ready-to-eat - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	55	0		
Meat from bovine animals - meat products - cooked, ready-to-eat - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	10	0		
Meat from bovine animals - fresh			HACCP and own checks	food sample > meat	Unknown	Single	25g	195	0		
Meat from bovine animals - meat preparation			HACCP and own checks	food sample	Unknown	Single	25g	45	0		
Meat from bovine animals - minced meat			HACCP and own checks	food sample	Unknown	Single	25g	9	0		
Meat from bovine animals - other slaughtering products - at slaughterhouse			HACCP and own checks	food sample > carcase swabs	Domestic	Single	100cm2	412	0		
Meat from horse - carcase - at slaughterhouse			HACCP and own checks	food sample > carcase swabs	Domestic	Single	unknow	6	0		
Meat from pig - fresh			HACCP and own checks	food sample > meat	Unknown	Single	25g	211	5		5
Meat from pig - fresh - frozen			HACCP and own checks	food sample	Unknown	Single	25g	4	1		1
Meat from pig - meat preparation			HACCP and own checks	food sample > meat	Unknown	Single	25g	216	2		1
Meat from pig - minced meat			HACCP and own checks	food sample > meat	Unknown	Single	25g	268	6		6
Meat from pig - other slaughtering products - at slaughterhouse			HACCP and own checks	food sample > carcase swabs	Domestic	Single	100cm2	569	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 - fresh			HACCP and own checks	food sample > meat	Unknown	Single	25g	46	0		
Meat from sheep - fresh - at slaughterhouse			HACCP and own checks	food sample > carcase swabs	Domestic	Single	400cm2	11	0		
Meat from wild boar - fresh			HACCP and own checks	food sample > meat	Domestic	Single	25g	1	0		
Meat, mixed meat - meat preparation			HACCP and own checks	food sample	Unknown	Single	25g	1227	7	3	
Meat, mixed meat - meat preparation - intended to be eaten cooked - chilled - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	100	6		3
Meat, mixed meat - meat products - cooked, ready-to-eat - chilled - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	30	0		
Meat, mixed meat - meat products - pâté - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	20	0		
Meat, mixed meat - minced meat			HACCP and own checks	food sample > meat	Unknown	Single	25g	134	6	2	2
Meat, mixed meat - minced meat - intended to be eaten cooked - chilled - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	10g	60	3		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Agama	S. Chartres	S. Derby	S. Infantis	S. Kentucky	S. London	S. Magwa
Meat from pig - carcase - at slaughterhouse - Surveillance					5				
Meat from pig - meat preparation - intended to be eaten cooked - at retail - Surveillance									

Table Salmonella in red meat and products thereof

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Agama	S. Chartres	S. Derby	S. Infantis	S. Kentucky	S. London	S. Magwa
Meat from pig - meat products - cooked, ready-to-eat - at retail - Surveillance									
Meat from bovine animals - meat products - cooked, ready-to-eat - at retail - Surveillance									
Meat from bovine animals - fresh									
Meat from bovine animals - meat preparation									
Meat from bovine animals - minced meat									
Meat from bovine animals - other slaughtering products - at slaughterhouse									
Meat from horse - carcase - at slaughterhouse									
Meat from pig - fresh									
Meat from pig - fresh - frozen									
Meat from pig - meat preparation								1	
Meat from pig - minced meat									
Meat from pig - other slaughtering products - at slaughterhouse									
Meat from sheep - fresh									
Meat from sheep - fresh - at slaughterhouse									
Meat from wild boar - fresh									
Meat, mixed meat - meat preparation				1	2		1		

Table Salmonella in red meat and products thereof

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Agama	S. Chartres	S. Derby	S. Infantis	S. Kentucky	S. London	S. Magwa
Meat, mixed meat - meat preparation - intended to be eaten cooked - chilled - at retail - Surveillance			1		1				1
Meat, mixed meat - meat products - cooked, ready-to-eat - chilled - at retail - Surveillance									
Meat, mixed meat - meat products - pâté - at retail - Surveillance									
Meat, mixed meat - minced meat		1			1				
Meat, mixed meat - minced meat - intended to be eaten cooked - chilled - at retail - Surveillance					2	1			

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	19	FVS	Census	Industry sampling	animal sample > organ/tissue	Intra EU trade	yes	Flock	19	0	
Gallus gallus (fowl) - parent breeding flocks for broiler production line - during rearing period - Control and eradication programmes	21	FVS	Census	Official and industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	21	0	
Gallus gallus (fowl) - parent breeding flocks for broiler production line - adult - Control and eradication programmes	30	FVS	Census	Official and industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	30	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						

Footnote:

FVS - Food and veterinary service

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 - at farm - Monitoring	FVS	Census	Official and industry sampling	animal sample > faeces	Domestic	Flock	12	1	1		
Pheasants - Monitoring	FVS	Census	Official and industry sampling	animal sample > faeces	Domestic	Flock	1	1	1		
Ostriches - farmed - at farm - Monitoring	FVS	Census	Official and industry sampling	animal sample > faeces	Domestic	Flock	1	0			

	Salmonella spp., unspecified
Quails - at farm - Monitoring	
Pheasants - Monitoring	
Ostriches - farmed - at farm - Monitoring	

Footnote:

FVS - Food and veterinary service

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:-
Cattle (bovine animals) - adult cattle over 2 years - at farm - Monitoring			Official and industry sampling	animal sample > organ/tissue	Domestic	Animal	101	2			
Sheep - at farm - Monitoring			Official and industry sampling	animal sample > organ/tissue	Domestic	Animal	8	0			
Pigs - fattening pigs - at farm - Monitoring			Official and industry sampling	animal sample > organ/tissue	Domestic	Animal	29	0			
Solipeds, domestic - horses - at farm - Monitoring			Official and industry sampling	animal sample > organ/tissue	Domestic	Animal	1	0			
Cattle (bovine animals) - unspecified - at farm - Clinical investigations			Industry sampling	animal sample	Domestic	Animal	49	0			
Fish - farmed - at farm - Clinical investigations			Industry sampling	animal sample > organ/tissue	Domestic	Animal	11	0			
Fur animals - farmed - at farm - Clinical investigations			Industry sampling	animal sample > organ/tissue	Domestic	Animal	12	1		1	
Other animals - unspecified - at zoo - Unspecified			Industry sampling	animal sample > faeces	Domestic	Animal	30	3			
Other animals - unspecified - unspecified - Unspecified			Industry sampling	animal sample > organ/tissue	Domestic	Animal	3	0			
Pet animals, all - in total - Clinical investigations			Industry sampling	animal sample	Domestic	Animal	37	0			
Pigs - fattening pigs - unspecified - at farm - Clinical investigations			Industry sampling	animal sample > organ/tissue	Domestic	Animal	65	4		2	1
Sheep - mixed herds - at farm - Clinical investigations			Industry sampling	animal sample > organ/tissue	Domestic	Animal	7	0			

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:-
Solipeds, domestic - horses - at farm - Clinical investigations			Industry sampling	animal sample > organ/tissue	Domestic	Animal	1	0			

	Salmonella spp., unspecified	S. Dublin	S. Gozo	S. Montevideo
Cattle (bovine animals) - adult cattle over 2 years - at farm - Monitoring		2		
Sheep - at farm - Monitoring				
Pigs - fattening pigs - at farm - Monitoring				
Solipeds, domestic - horses - at farm - Monitoring				
Cattle (bovine animals) - unspecified - at farm - Clinical investigations				
Fish - farmed - at farm - Clinical investigations				
Fur animals - farmed - at farm - Clinical investigations				
Other animals - unspecified - at zoo - Unspecified	1		1	1
Other animals - unspecified - unspecified - Unspecified				
Pet animals, all - in total - Clinical investigations				

Table Salmonella in other animals

	Salmonella spp., unspecified	S. Dublin	S. Gozo	S. Montevideo
Pigs - fattening pigs - unspecified - at farm - Clinical investigations	1			
Sheep - mixed herds - at farm - Clinical investigations				
Solipeds, domestic - horses - at farm - Clinical investigations				

Footnote:

In this table "monitoring" - mean passive monitoring - data derived from diseased animals. This passive monitoring programme not specially for samonella, but for the epidemiological investigations in cases of animal illness, for the finding of cause of animal illness. In those cases all costs are covered by Food and veterinary service (FVS).

In this table "clinical investigation"- mean that all samples were taken and sent by private veterinarians only without participation of FVS. In those cases all costs are covered by owner/keeper of animals.

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	17	FVS	Census	Industry sampling	animal sample > organ/tissue	Intra EU trade	yes	Flock	17	0	
Gallus gallus (fowl) - laying hens - during rearing period - Control and eradication programmes	24	FVS	Census	Industry sampling	animal sample > faeces	Domestic	yes	Flock	24	0	
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	50	FVS	Census	Official and industry sampling	environmental sample > boot swabs and dust	Domestic	yes	Flock	50	3	
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	563	FVS	Census	Official and industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	563	0	
Ducks - at farm - Control and eradication programmes	1	FVS	Census	Official sampling	animal sample > faeces	Domestic		Flock	1	1	
Gallus gallus (fowl) - laying hens - at farm - Clinical investigations [1)]				HACCP and own checks	animal sample	Domestic		Animal	94	11	11

	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Goldcoast	S. Infantis
Gallus gallus (fowl) - laying hens - day-old chicks - Control and eradication programmes					
Gallus gallus (fowl) - laying hens - during rearing period - Control and eradication programmes					
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes					3

Table Salmonella in other poultry

	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Goldcoast	S. Infantis
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes					
Ducks - at farm - Control and eradication programmes				1	
Gallus gallus (fowl) - laying hens - at farm - Clinical investigations [1)]					

Comments:

[1)] Backyard poultry

Footnote:

FVS - Food and veterinary service

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 cattle - final product - at feed mill - Surveillance	FVS	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	1	1		
Compound feedingstuffs for pigs - final product - at feed mill - Surveillance	FVS	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	6	0		
Compound feedingstuffs for poultry - breeders - final product - at feed mill - Surveillance	FVS	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	8	0		
Compound feedingstuffs for poultry - laying hens - final product - at feed mill - Surveillance	FVS	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	19	0		
Compound feedingstuffs for poultry - broilers - final product - at feed mill - Surveillance	FVS	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	5	0		
Compound feedingstuffs for cattle - final product - at processing plant - Unspecified			HACCP and own checks	feed sample	Unknown	Single	25g	6	0		
Compound feedingstuffs for fish - final product - at farm			HACCP and own checks	feed sample	Domestic	Single	25g	3	0		
Compound feedingstuffs for fur animal - final product - at farm			HACCP and own checks	feed sample	Domestic	Single	25g	9	4	1	
Compound feedingstuffs for pigs - final product - unspecified - Unspecified			HACCP and own checks	feed sample	Unknown	Single	25g	76	0		
Compound feedingstuffs for poultry (non specified) - final product			HACCP and own checks	feed sample	Unknown	Single	25g	150	0		
Compound feedingstuffs for poultry - laying hens - final product			HACCP and own checks	feed sample	Unknown	Single	25g	96	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, not specified - Surveillance [1)]	FVS	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	5	0		
Compound feedingstuffs, not specified - final product - at feed mill - Surveillance [2)]	FVS	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	1	0		
Compound feedingstuffs, not specified - final product - in total [3)]			HACCP and own checks	feed sample	Unknown	Single	25g	21	0		
Compound feedingstuffs, not specified - final product - unspecified			HACCP and own checks	feed sample	Unknown	Single	25g	25	1		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	Other serovars	S. Derby	S. Infantis
Compound feedingstuffs for cattle - final product - at feed mill - Surveillance			1		
Compound feedingstuffs for pigs - final product - at feed mill - Surveillance					
Compound feedingstuffs for poultry - breeders - final product - at feed mill - Surveillance					
Compound feedingstuffs for poultry - laying hens - final product - at feed mill - Surveillance					
Compound feedingstuffs for poultry - broilers - final product - at feed mill - Surveillance					
Compound feedingstuffs for cattle - final product - at processing plant - Unspecified					

Table Salmonella in compound feedingstuffs

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	Other serovars	S. Derby	S. Infantis
Compound feedingstuffs for fish - final product - at farm					
Compound feedingstuffs for fur animal - final product - at farm				1	2
Compound feedingstuffs for pigs - final product - unspecified - Unspecified					
Compound feedingstuffs for poultry (non specified) - final product					
Compound feedingstuffs for poultry - laying hens - final product					
Compound feedingstuffs, not specified - Surveillance [1)]					
Compound feedingstuffs, not specified - final product - at feed mill - Surveillance [2)]					
Compound feedingstuffs, not specified - final product - in total [3)]					
Compound feedingstuffs, not specified - final product - unspecified			1		

Comments:

[1)] for different species

[2)] pet food

[3)] pet food

Table Salmonella in compound feedingstuffs

Footnote:

Other serovars - Salmonella Podiensis (O:3,10 H1:z10, H2:e,n,x)

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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 - meat and bone meal - at feed mill - Surveillance			HACCP and own checks	feed sample	Unknown	Single	25g	32	1		
Feed material of land animal origin - feather meal - at feed mill - Surveillance			HACCP and own checks	feed sample	Unknown	Single	25g	14	1		
Feed material of land animal origin - animal fat - at feed mill - Surveillance			HACCP and own checks	feed sample	Unknown	Single	25g	2	0		
Feed material of marine animal origin - fish meal - at feed mill - Surveillance	FVS	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	6	0		
Feed material of marine animal origin - fish meal			HACCP and own checks	feed sample	Unknown	Single	25g	814	22		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Agama	S. Bredeney	S. Edinburg	S. Kentucky	S. Mbandaka	S. Ohio	S. Senftenberg	S. Tennessee
Feed material of land animal origin - meat and bone meal - at feed mill - Surveillance			1							
Feed material of land animal origin - feather meal - at feed mill - Surveillance					1					
Feed material of land animal origin - animal fat - at feed mill - Surveillance										
Feed material of marine animal origin - fish meal - at feed mill - Surveillance										
Feed material of marine animal origin - fish meal				7		1	5	1	7	1

Table Salmonella in feed material of animal origin

Footnote:

FVS - Food and veterinary service

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
Feed material of cereal grain origin - wheat derived - at feed mill - Surveillance	FVS	Objective sampling	Official sampling	feed sample	Domestic	Batch	25g	2	0		
Feed material of cereal grain origin - other cereal grain derived - at feed mill - Surveillance			HACCP and own checks	feed sample	Unknown	Single	25g	48	0		
Feed material of cereal grain origin - maize derived - at feed mill - Surveillance			HACCP and own checks	feed sample	Unknown	Single	25g	7	0		
Feed material of oil seed or fruit origin - rape seed derived - at feed mill - Surveillance			HACCP and own checks	feed sample	Unknown	Single	25g	17	0		
Feed material of oil seed or fruit origin - soya (bean) derived - at feed mill - Surveillance			HACCP and own checks	feed sample	Unknown	Single	25g	15	0		
Feed material of oil seed or fruit origin - sunflower seed derived - at feed mill - Surveillance			HACCP and own checks	feed sample	Unknown	Single	25g	21	0		
Other feed material - other plants - at feed mill - Surveillance			HACCP and own checks	feed sample	Unknown	Single	25g	3	0		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Feed material of cereal grain origin - wheat derived - at feed mill - Surveillance		
Feed material of cereal grain origin - other cereal grain derived - at feed mill - Surveillance		

Table Salmonella in other feed matter

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Feed material of cereal grain origin - maize derived - at feed mill - Surveillance		
Feed material of oil seed or fruit origin - rape seed derived - at feed mill - Surveillance		
Feed material of oil seed or fruit origin - soya (bean) derived - at feed mill - Surveillance		
Feed material of oil seed or fruit origin - sunflower seed derived - at feed mill - Surveillance		
Other feed material - other plants - at feed mill - Surveillance		

Footnote:

FVS - Food and veterinary service

2.1.5 Salmonella serovars and phagetype distribution

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

Table Salmonella serovars in animals

Serovar	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
Sources of isolates	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Number of isolates in the laboratory			2				4		3				3
Number of isolates serotyped			2				4		3				3
Number of isolates per serovar													
S. 1,4,5,12:i:-							1						
S. Dublin			2										
S. Enteritidis													2
S. Goldcoast													1
S. Gozo													
S. Infantis									3				

Table Salmonella serovars in animals

Serovar	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
Sources of isolates	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Number of isolates in the laboratory			2				4		3				3
Number of isolates serotyped			2				4		3				3
Number of isolates per serovar													
S. Montevideo													
S. Typhimurium							2						
Salmonella spp., unspecified							1						

Serovar	Other poultry			Fur animals - farmed - at farm				Other animals - at zoo			
Sources of isolates	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory		11				1				3	
Number of isolates serotyped		11				1				3	
Number of isolates per serovar											
S. 1,4,5,12:i:-											
S. Dublin											
S. Enteritidis		11									

Table Salmonella serovars in animals

Serovar / Sources of isolates	Other poultry			Fur animals - farmed - at farm				Other animals - at zoo			
	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory		11				1				3	
Number of isolates serotyped		11				1				3	
Number of isolates per serovar											
S. Goldcoast											
S. Gozo										1	
S. Infantis											
S. Montevideo										1	
S. Typhimurium						1					
Salmonella spp., unspecified										1	

Table Salmonella serovars in feed

Serovar	Compound feedingstuffs for pigs		Compound feedingstuffs for fur animal - final product		Compound feedingstuffs, not specified - final product		Feed material of land animal origin - feather meal		Feed material of land animal origin - meat and bone meal		Feed material of marine animal origin - fish meal - Control and eradication programmes	
Sources of isolates	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
Number of isolates in the laboratory				4	1	1		1		1		22
Number of isolates serotyped				4	1	1		1		1	0	22
Number of isolates per serovar												
Other serovars					1	1						
S. Agama										1		
S. Bredeney												7
S. Derby				1								
S. Edinburg								1				
S. Enteritidis				1								
S. Infantis				2								
S. Kentucky												1
S. Mbandaka												5
S. Ohio												1

Table Salmonella serovars in feed

Serovar	Compound feedingstuffs for pigs		Compound feedingstuffs for fur animal - final product		Compound feedingstuffs, not specified - final product		Feed material of land animal origin - feather meal		Feed material of land animal origin - meat and bone meal		Feed material of marine animal origin - fish meal - Control and eradication programmes	
Sources of isolates	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
Number of isolates in the laboratory				4	1	1		1		1		22
Number of isolates serotyped				4	1	1		1		1	0	22
Number of isolates per serovar												
S. Senftenberg												7
S. Tennessee												1

Table Salmonella serovars in food

Serovar	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Meat from other poultry species		Other products of animal origin		Eggs		Meat from turkey
Sources of isolates	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring
Number of isolates in the laboratory				19		38						2	
Number of isolates serotyped				19		38						2	
Number of isolates per serovar													
S. Agama													
S. Chartres													
S. Derby				5									
S. Enteritidis						23							
S. Infantis												1	
S. Isangi						1							
S. Kentucky						1							
S. Livingstone						1							
S. London				1									
S. Magwa													
S. Minnesota						1							

Table Salmonella serovars in food

Serovar	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Meat from other poultry species		Other products of animal origin		Eggs		Meat from turkey
Sources of isolates	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring
Number of isolates in the laboratory				19		38						2	
Number of isolates serotyped				19		38						2	
Number of isolates per serovar													
S. Newport						3							
S. Typhimurium				13		8						1	
Salmonella spp., unspecified													

Serovar	Meat from turkey	Meat, mixed meat	
Sources of isolates	Surveillance	Monitoring	Surveillance
Number of isolates in the laboratory	2		22
Number of isolates serotyped	2		22
Number of isolates per serovar			
S. Agama			1
S. Chartres	2		1
S. Derby			6

Table Salmonella serovars in food

Serovar	Meat from turkey	Meat, mixed meat	
Sources of isolates	Surveillance	Monitoring	Surveillance
Number of isolates in the laboratory	2		22
Number of isolates serotyped	2		22
Number of isolates per serovar			
S. Enteritidis			5
S. Infantis			1
S. Isangi			
S. Kentucky			1
S. Livingstone			
S. London			
S. Magwa			1
S. Minnesota			
S. Newport			
S. Typhimurium			5
Salmonella spp., unspecified			1

Table Salmonella serovars in food

Table Salmonella Enteritidis phagetypes in animals

Phagetype	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
Sources of isolates	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Number of isolates in the laboratory													2
Number of isolates phagetyped	0	0	0	0	0	0	0	0	0	0	0	0	2
Number of isolates per phagetype													
PT 1													1
PT 12													
PT 21													1
PT 4													
PT 6a													
PT 7													
PT 7a													

Table Salmonella Enteritidis phagetypes in animals

Phagetype	Other poultry		
Sources of isolates	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory		11	
Number of isolates phagetyped	0	11	0
Number of isolates per phagetype			
PT 1		2	
PT 12		1	
PT 21		4	
PT 4		1	
PT 6a		1	
PT 7		1	
PT 7a		1	

Table Salmonella Enteritidis phagetypes in food

Phagetype	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Meat from other poultry species		Other products of animal origin	
Sources of isolates	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance
Number of isolates in the laboratory						15				
Number of isolates phagetyped	0	0	0	0	0	15	0	0	0	0
Number of isolates per phagetype										
Other						2				
PT 1						1				
PT 21						3				
PT 3a						2				
PT 6						7				

Table Salmonella Typhimurium phagetypes in food

Phagetype	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Meat from other poultry species		Other products of animal origin		Meat, mixed meat	
Sources of isolates	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance
Number of isolates in the laboratory						6						3
Number of isolates phagetyped	0	0	0	0	0	6	0	0	0	0		3
Number of isolates per phagetype												
Other						6						1
U 302												2

Footnote:

Other: non-specific phage

2.1.6 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 Salmonella in Pigs

Salmonella	S. Typhimurium		S. 1,4,[5],12:i:-		S. Derby		S. Agona		Salmonella spp.	
Isolates out of a monitoring program (yes/no)			no							
Number of isolates available in the laboratory			1							
Antimicrobials:	N	n	N	n	N	n	N	n	N	n
Aminoglycosides - Gentamicin			1	0						
Aminoglycosides - Kanamycin			1	0						
Aminoglycosides - Streptomycin			1	0						
Amphenicols - Chloramphenicol			1	0						
Amphenicols - Florfenicol			1	0						
Cephalosporins - 3rd generation cephalosporins			1	0						
Fluoroquinolones - Ciprofloxacin			1	0						
Penicillins - Ampicillin			1	0						
Quinolones - Nalidixic acid			1	0						
Sulfonamides			1	0						
Tetracyclines - Tetracycline			1	0						
Trimethoprim			1	0						
Fully sensitive			1	1						

Table Antimicrobial susceptibility testing of Other serovars in Compound feedingstuffs, not specified - final product - feed sample - quantitative data [Dilution method]

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

Other serovars	Compound feedingstuffs, not specified - final product																									
Isolates out of a monitoring program (yes/no)	yes																									
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin		1	1													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol		1	1													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Sulfonamides	256	1	0																	1						
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													

Other serovars	Compound feedingstuffs, not specified - final product	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of Other serovars in Compound feedingstuffs, not specified - final product - feed sample - quantitative data [Dilution method]

Other serovars	Compound feedingstuffs, not specified - final product	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

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

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

S. Enteritidis	Compound feedingstuffs for fur animal - final product																									
Isolates out of a monitoring program (yes/no)	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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0									1														
Aminoglycosides - Kanamycin		1	1													1										
Aminoglycosides - Streptomycin	32	1	0												1											
Amphenicols - Chloramphenicol	16	1	0													1										
Amphenicols - Florfenicol		1	1													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0												1											
Quinolones - Nalidixic acid	16	1	0														1									
Sulfonamides	256	1	0																	1						
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													

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

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

S. Enteritidis	Compound feedingstuffs for fur animal - final product	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

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

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

S. Kentucky	Feed material of marine animal origin - fish meal																									
Isolates out of a monitoring program (yes/no)	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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin		1	1													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol		1	1													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Sulfonamides	256	1	0																1							
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													

S. Kentucky	Feed material of marine animal origin - fish meal	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

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

S. Kentucky	Feed material of marine animal origin - fish meal	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

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

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

S. Bredeney	Feed material of marine animal origin - fish meal																									
Isolates out of a monitoring program (yes/no)	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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	5	0											5												
Aminoglycosides - Kanamycin		5	5													5										
Aminoglycosides - Streptomycin	32	5	0														5									
Amphenicols - Chloramphenicol	16	5	0													5										
Amphenicols - Florfenicol		5	5													5										
Cephalosporins - Cefotaxime	0.5	5	0								5															
Fluoroquinolones - Ciprofloxacin	0.06	5	0					5																		
Penicillins - Ampicillin	4	5	0											5												
Quinolones - Nalidixic acid	16	5	0													5										
Sulfonamides	256	5	0																	5						
Tetracyclines - Tetracycline	8	5	0												5											
Trimethoprim	2	5	0										5													

S. Bredeney	Feed material of marine animal origin - fish meal	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	5	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

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

S. Bredeney	Feed material of marine animal origin - fish meal	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	5	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Agama in Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Control and eradication programmes - Official sampling - food sample - meat - quantitative data [Dilution method]

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

S. Agama	Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)	yes																									
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin		1	1													1										
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol		1	1													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Sulfonamides	256	1	0																1							
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													

Table Antimicrobial susceptibility testing of S. Agama in Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Control and eradication programmes - Official sampling - food sample - meat - quantitative data [Dilution method]

S. Agama	Meat, mixed meat - minced meat - intended to be eaten cooked - frozen - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Typhimurium in Pigs - at farm - animal sample - quantitative data [Dilution method]

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

S. Typhimurium	Pigs - at farm																									
Isolates out of a monitoring program (yes/no)	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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										2													
Aminoglycosides - Kanamycin		2	2													2										
Aminoglycosides - Streptomycin	32	2	0														2									
Amphenicols - Chloramphenicol	16	2	0													1	1									
Amphenicols - Florfenicol		2	2													2										
Cephalosporins - Cefotaxime	0.5	2	0							1	1															
Fluoroquinolones - Ciprofloxacin	0.06	2	0				2																			
Penicillins - Ampicillin	4	2	0											2												
Quinolones - Nalidixic acid	16	2	0													2										
Sulfonamides	256	2	0															1	1							
Tetracyclines - Tetracycline	8	2	0												2											
Trimethoprim	2	2	0										2													

S. Typhimurium	Pigs - at farm	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Typhimurium in Pigs - at farm - animal sample - quantitative data [Dilution method]

S. Typhimurium	Pigs - at farm	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Dublin in Cattle (bovine animals) - at farm - animal sample - organ/tissue - quantitative data [Dilution method]

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

S. Dublin	Cattle (bovine animals) - at farm																									
Isolates out of a monitoring program (yes/no)	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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										2													
Aminoglycosides - Kanamycin		2	2													2										
Aminoglycosides - Streptomycin	32	2	0														1	1								
Amphenicols - Chloramphenicol	16	2	0													2										
Amphenicols - Florfenicol		2	2												1	1										
Cephalosporins - Cefotaxime	0.5	2	0							2																
Fluoroquinolones - Ciprofloxacin	0.06	2	0				2																			
Penicillins - Ampicillin	4	2	0										1	1												
Quinolones - Nalidixic acid	16	2	0													2										
Sulfonamides	256	2	0																1	1						
Tetracyclines - Tetracycline	8	2	0											1	1											
Trimethoprim	2	2	0										2													

S. Dublin	Cattle (bovine animals) - at farm	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Dublin in Cattle (bovine animals) - at farm - animal sample - organ/tissue - quantitative data [Dilution method]

S. Dublin	Cattle (bovine animals) - at farm	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Enteritidis in Other poultry - at farm - animal sample - faeces - quantitative data [Dilution method]

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

S. Enteritidis	Other poultry - at farm																								
Isolates out of a monitoring program (yes/no)	yes																								
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0									1	1												
Aminoglycosides - Kanamycin		2	2													2									
Aminoglycosides - Streptomycin	32	2	0												1	1									
Amphenicols - Chloramphenicol	16	2	0													1	1								
Amphenicols - Florfenicol		2	2													2									
Cephalosporins - Cefotaxime	0.5	2	0							1	1														
Fluoroquinolones - Ciprofloxacin	0.06	2	0			1			1																
Penicillins - Ampicillin	4	2	0										1	1											
Quinolones - Nalidixic acid	16	2	0													1	1								
Sulfonamides	256	2	0															1	1						
Tetracyclines - Tetracycline	8	2	0												2										
Trimethoprim	2	2	0										2												

S. Enteritidis	Other poultry - at farm	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Enteritidis in Other poultry - at farm - animal sample - faeces - quantitative data [Dilution method]

S. Enteritidis	Other poultry - at farm	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - laying hens - at farm - animal sample - quantitative data [Dilution method]

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

S. Enteritidis	Gallus gallus (fowl) - laying hens - at farm																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	11																									
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	11	0									10	1													
Aminoglycosides - Kanamycin		11	11													11										
Aminoglycosides - Streptomycin	32	11	0												6	4	1									
Amphenicols - Chloramphenicol	16	11	0													4	7									
Amphenicols - Florfenicol		11	11												1	9	1									
Cephalosporins - Cefotaxime	0.5	11	0							2	8	1														
Fluoroquinolones - Ciprofloxacin	0.06	11	0						10	1																
Penicillins - Ampicillin	4	11	1											2	8				1							
Quinolones - Nalidixic acid	16	11	0													9	2									
Sulfonamides	256	11	0																11							
Tetracyclines - Tetracycline	8	11	1												10					1						
Trimethoprim	2	11	0										11													

S. Enteritidis	Gallus gallus (fowl) - laying hens - at farm	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	11	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - laying hens - at farm - animal sample - quantitative data [Dilution method]

S. Enteritidis	Gallus gallus (fowl) - laying hens - at farm	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	11	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Infantis in Gallus gallus (fowl) - laying hens - at farm - animal sample - quantitative data [Dilution method]

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

S. Infantis	Gallus gallus (fowl) - laying hens - at farm																									
Isolates out of a monitoring program (yes/no)	yes																									
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	3	0										3													
Aminoglycosides - Kanamycin		3	3													3										
Aminoglycosides - Streptomycin	32	3	0														3									
Amphenicols - Chloramphenicol	16	3	0														3									
Amphenicols - Florfenicol		3	3													1	2									
Cephalosporins - Cefotaxime	0.5	3	0								3															
Fluoroquinolones - Ciprofloxacin	0.06	3	0						3																	
Penicillins - Ampicillin	4	3	0											3												
Quinolones - Nalidixic acid	16	3	0													3										
Sulfonamides	256	3	0																	3						
Tetracyclines - Tetracycline	8	3	0												3											
Trimethoprim	2	3	0										3													

S. Infantis	Gallus gallus (fowl) - laying hens - at farm	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Infantis in Gallus gallus (fowl) - laying hens - at farm - animal sample - quantitative data [Dilution method]

S. Infantis	Gallus gallus (fowl) - laying hens - at farm	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Goldcoast in Other poultry - at farm - animal sample - quantitative data [Dilution method]

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

S. Goldcoast	Other poultry - at farm																									
Isolates out of a monitoring program (yes/no)	yes																									
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin		1	1													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol		1	1													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Sulfonamides	256	1	0																	1						
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													

S. Goldcoast	Other poultry - at farm	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Goldcoast in Other poultry - at farm - animal sample - quantitative data [Dilution method]

S. Goldcoast	Other poultry - at farm	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of Salmonella spp., unspecified in Pigs - at farm - animal sample - quantitative data [Dilution method]

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

Salmonella spp., unspecified	Pigs - at farm																									
Isolates out of a monitoring program (yes/no)	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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin		1	1													1										
Aminoglycosides - Streptomycin	32	1	1																		1					
Amphenicols - Chloramphenicol	16	1	0													1										
Amphenicols - Florfenicol		1	1													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	0													1										
Sulfonamides	256	1	1																						1	
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	1																1							

Salmonella spp., unspecified	Pigs - at farm	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of Salmonella spp., unspecified in Pigs - at farm - animal sample - quantitative data [Dilution method]

Salmonella spp., unspecified	Pigs - at farm	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Enteritidis in Meat from broilers (Gallus gallus) - food sample - quantitative data [Dilution method]

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

S. Enteritidis	Meat from broilers (Gallus gallus)																									
Isolates out of a monitoring program (yes/no)	yes																									
Number of isolates available in the laboratory	15																									
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	15	0									8	5		2											
Aminoglycosides - Kanamycin		15	15													13	2									
Aminoglycosides - Streptomycin	32	15	0												7	8										
Amphenicols - Chloramphenicol	16	15	0													5	10									
Amphenicols - Florfenicol		15	15													15										
Cephalosporins - Cefotaxime	0.5	15	0							10	5															
Fluoroquinolones - Ciprofloxacin	0.06	15	8						7			4	4													
Penicillins - Ampicillin	4	15	0										2	2	11											
Quinolones - Nalidixic acid	16	15	8													7				8						
Sulfonamides	256	15	0																13	2						
Tetracyclines - Tetracycline	8	15	0												15											
Trimethoprim	2	15	0										15													

S. Enteritidis	Meat from broilers (Gallus gallus)	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	15	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Enteritidis in Meat from broilers (Gallus gallus) - food sample - quantitative data [Dilution method]

S. Enteritidis	Meat from broilers (Gallus gallus)	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	15	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Chartres in Meat from turkey - feed sample - quantitative data [Dilution method]

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

S. Chartres	Meat from turkey																									
Isolates out of a monitoring program (yes/no)	yes																									
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										2													
Aminoglycosides - Kanamycin		2	2													2										
Aminoglycosides - Streptomycin	32	2	0																2							
Amphenicols - Chloramphenicol	16	2	0														2									
Amphenicols - Florfenicol		2	2													2										
Cephalosporins - Cefotaxime	0.5	2	0								2															
Fluoroquinolones - Ciprofloxacin	0.06	2	0						2																	
Penicillins - Ampicillin	4	2	0												2											
Quinolones - Nalidixic acid	16	2	0													2										
Sulfonamides	256	2	2																						2	
Tetracyclines - Tetracycline	8	2	2																	2						
Trimethoprim	2	2	0										2													

S. Chartres	Meat from turkey	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Chartres in Meat from turkey - feed sample - quantitative data [Dilution method]

S. Chartres	Meat from turkey	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Infantis in Meat, mixed meat - feed sample - quantitative data [Dilution method]

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

S. Infantis	Meat, mixed meat																									
Isolates out of a monitoring program (yes/no)	yes																									
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin		1	1													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	1																	1						
Amphenicols - Florfenicol		1	1																	1						
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	0													1										
Sulfonamides	256	1	1																						1	
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													

S. Infantis	Meat, mixed meat	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Infantis in Meat, mixed meat - feed sample - quantitative data [Dilution method]

S. Infantis	Meat, mixed meat	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Isangi in Meat from broilers (Gallus gallus) - feed sample - quantitative data [Dilution method]

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

S. Isangi	Meat from broilers (Gallus gallus)																								
Isolates out of a monitoring program (yes/no)	yes																								
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1											
Aminoglycosides - Kanamycin		1	1													1									
Aminoglycosides - Streptomycin	32	1	0														1								
Amphenicols - Chloramphenicol	16	1	0														1								
Amphenicols - Florfenicol		1	1													1									
Cephalosporins - Cefotaxime	0.5	1	0							1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																
Penicillins - Ampicillin	4	1	0											1											
Quinolones - Nalidixic acid	16	1	0													1									
Sulfonamides	256	1	0																	1					
Tetracyclines - Tetracycline	8	1	0												1										
Trimethoprim	2	1	0										1												

S. Isangi	Meat from broilers (Gallus gallus)	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Isangi in Meat from broilers (Gallus gallus) - feed sample - quantitative data [Dilution method]

S. Isangi	Meat from broilers (Gallus gallus)	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Magwa in Meat, mixed meat - feed sample - quantitative data [Dilution method]

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

S. Magwa	Meat, mixed meat																									
Isolates out of a monitoring program (yes/no)	yes																									
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin		1	1													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol		1	1														1									
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Sulfonamides	256	1	0																		1					
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													

S. Magwa	Meat, mixed meat	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Magwa in Meat, mixed meat - feed sample - quantitative data [Dilution method]

S. Magwa	Meat, mixed meat	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Minnesota in Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail - quantitative data [Dilution method]

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

S. Minnesota	Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail																									
Isolates out of a monitoring program (yes/no)	yes																									
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin		1	1													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol		1	1														1									
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Sulfonamides	256	1	0																			1				
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													

Table Antimicrobial susceptibility testing of S. Minnesota in Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail - quantitative data [Dilution method]

S. Minnesota	Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Typhimurium in Meat, mixed meat - meat preparation - intended to be eaten cooked - chilled - at retail - food sample - quantitative data [Dilution method]

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

S. Typhimurium	Meat, mixed meat - meat preparation - intended to be eaten cooked - chilled - at retail																								
Isolates out of a monitoring program (yes/no)	yes																								
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	3	0									2	1												
Aminoglycosides - Kanamycin		3	3													3									
Aminoglycosides - Streptomycin	32	3	2															1		2					
Amphenicols - Chloramphenicol	16	3	2															1		2					
Amphenicols - Florfenicol		3	3													1				2					
Cephalosporins - Cefotaxime	0.5	3	0							3															
Fluoroquinolones - Ciprofloxacin	0.06	3	0				1		2																
Penicillins - Ampicillin	4	3	2											1					2						
Quinolones - Nalidixic acid	16	3	0													3									
Sulfonamides	256	3	2																	1				2	
Tetracyclines - Tetracycline	8	3	0												3										
Trimethoprim	2	3	0										3												

Table Antimicrobial susceptibility testing of S. Typhimurium in Meat, mixed meat - meat preparation - intended to be eaten cooked - chilled - at retail - food sample - quantitative data [Dilution method]

S. Typhimurium	Meat, mixed meat - meat preparation - intended to be eaten cooked - chilled - at retail	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Typhimurium in Meat from broilers (Gallus gallus) - fresh - at retail - quantitative data [Dilution method]

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

S. Typhimurium	Meat from broilers (Gallus gallus) - fresh - at retail																								
Isolates out of a monitoring program (yes/no)	yes																								
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	7	0										6	1											
Aminoglycosides - Kanamycin		7	7													7									
Aminoglycosides - Streptomycin	32	7	1														1	5		1					
Amphenicols - Chloramphenicol	16	7	0														7								
Amphenicols - Florfenicol		7	7													7									
Cephalosporins - Cefotaxime	0.5	7	0							7															
Fluoroquinolones - Ciprofloxacin	0.06	7	0				6		1																
Penicillins - Ampicillin	4	7	1											6					1						
Quinolones - Nalidixic acid	16	7	0													7									
Sulfonamides	256	7	1																5	1					1
Tetracyclines - Tetracycline	8	7	0												7										
Trimethoprim	2	7	1										6						1						

Table Antimicrobial susceptibility testing of S. Typhimurium in Meat from broilers (Gallus gallus) - fresh - at retail - quantitative data [Dilution method]

S. Typhimurium	Meat from broilers (Gallus gallus) - fresh - at retail	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	7	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Typhimurium in Eggs - table eggs - at retail - quantitative data [Dilution method]

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

S. Typhimurium	Eggs - table eggs - at retail																									
Isolates out of a monitoring program (yes/no)	yes																									
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin		1	1													1										
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol		1	1													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Sulfonamides	256	1	0																1							
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													

S. Typhimurium	Eggs - table eggs - at retail	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Typhimurium in Eggs - table eggs - at retail - quantitative data [Dilution method]

S. Typhimurium	Eggs - table eggs - at retail	
Isolates out of a monitoring program (yes/no)	yes	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

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

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

S. Enteritidis	Meat from broilers (Gallus gallus) - fresh																									
Isolates out of a monitoring program (yes/no)	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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	4	0									1	2	1												
Aminoglycosides - Kanamycin		4	4													4										
Aminoglycosides - Streptomycin	32	4	0													3	1									
Amphenicols - Chloramphenicol	16	4	0													4										
Amphenicols - Florfenicol		4	4													4										
Cephalosporins - Cefotaxime	0.5	4	0								4															
Fluoroquinolones - Ciprofloxacin	0.06	4	4									1	2	1												
Penicillins - Ampicillin	4	4	0											2	2											
Quinolones - Nalidixic acid	16	4	4																	4						
Sulfonamides	256	4	0																1	2	1					
Tetracyclines - Tetracycline	8	4	0												4											
Trimethoprim	2	4	0										4													

S. Enteritidis	Meat from broilers (Gallus gallus) - fresh	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	4	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

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

S. Enteritidis	Meat from broilers (Gallus gallus) - fresh	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	4	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Enteritidis in Meat from broilers (Gallus gallus) - meat preparation - food sample - quantitative data [Dilution method]

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

S. Enteritidis	Meat from broilers (Gallus gallus) - meat preparation																									
Isolates out of a monitoring program (yes/no)	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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	4	0									1	3													
Aminoglycosides - Kanamycin		4	4													4										
Aminoglycosides - Streptomycin	32	4	0												2	2										
Amphenicols - Chloramphenicol	16	4	0													4										
Amphenicols - Florfenicol		4	4													4										
Cephalosporins - Cefotaxime	0.5	4	0							3	1															
Fluoroquinolones - Ciprofloxacin	0.06	4	4								1	2	1													
Penicillins - Ampicillin	4	4	1											1	2				1							
Quinolones - Nalidixic acid	16	4	4																	4						
Sulfonamides	256	4	1																	2	1				1	
Tetracyclines - Tetracycline	8	4	1												2	1				1						
Trimethoprim	2	4	1										3						1							

Table Antimicrobial susceptibility testing of S. Enteritidis in Meat from broilers (Gallus gallus) - meat preparation - food sample - quantitative data [Dilution method]

S. Enteritidis	Meat from broilers (Gallus gallus) - meat preparation	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	4	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Typhimurium in Meat from pig - meat preparation - food sample - quantitative data [Dilution method]

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

S. Typhimurium	Meat from pig - meat preparation																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	13																									
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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	13	0										9	1	3											
Aminoglycosides - Kanamycin		13	13													9	4									
Aminoglycosides - Streptomycin	32	13	0															13								
Amphenicols - Chloramphenicol	16	13	0													5	8									
Amphenicols - Florfenicol		13	13													13										
Cephalosporins - Cefotaxime	0.5	13	0							13																
Fluoroquinolones - Ciprofloxacin	0.06	13	0		6		7																			
Penicillins - Ampicillin	4	13	0											13												
Quinolones - Nalidixic acid	16	13	0													13										
Sulfonamides	256	13	0																10	3						
Tetracyclines - Tetracycline	8	13	0												13											
Trimethoprim	2	13	0										13													

S. Typhimurium	Meat from pig - meat preparation	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	13	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Typhimurium in Meat from pig - meat preparation - food sample - quantitative data [Dilution method]

S. Typhimurium	Meat from pig - meat preparation	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	13	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

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

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

S. Typhimurium	Meat from broilers (Gallus gallus) - minced meat																									
Isolates out of a monitoring program (yes/no)	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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin		1	1													1										
Aminoglycosides - Streptomycin	32	1	1																		1					
Amphenicols - Chloramphenicol	16	1	1																	1						
Amphenicols - Florfenicol		1	1																	1						
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	1									1														
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	1																	1						
Sulfonamides	256	1	1																						1	
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	0										1													

S. Typhimurium	Meat from broilers (Gallus gallus) - minced meat	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

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

S. Typhimurium	Meat from broilers (Gallus gallus) - minced meat	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

Table Antimicrobial susceptibility testing of S. Typhimurium in Meat, mixed meat - meat preparation - food sample - quantitative data [Dilution method]

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

S. Typhimurium	Meat, mixed meat - meat preparation																									
Isolates out of a monitoring program (yes/no)	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	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0									1	1													
Aminoglycosides - Kanamycin		2	2													1					1					
Aminoglycosides - Streptomycin	32	2	2																		2					
Amphenicols - Chloramphenicol	16	2	0													1		1								
Amphenicols - Florfenicol		2	2													1	1									
Cephalosporins - Cefotaxime	0.5	2	0								2															
Fluoroquinolones - Ciprofloxacin	0.06	2	0						1	1																
Penicillins - Ampicillin	4	2	2																2							
Quinolones - Nalidixic acid	16	2	0													1	1									
Sulfonamides	256	2	2																						2	
Tetracyclines - Tetracycline	8	2	2																	2						
Trimethoprim	2	2	2																2							

S. Typhimurium	Meat, mixed meat - meat preparation	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32

Table Antimicrobial susceptibility testing of S. Typhimurium in Meat, mixed meat - meat preparation - food sample - quantitative data [Dilution method]

S. Typhimurium	Meat, mixed meat - meat preparation	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Sulfonamides	8	1024
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32

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

Test Method Used	Standard methods used for testing
Broth dilution	NCCLS/CLSI

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin	EFSA	2	
	Streptomycin	EFSA	32	
Amphenicols	Chloramphenicol	EFSA	16	
Cephalosporins	Cefotaxime	EFSA	0.5	
Fluoroquinolones	Ciprofloxacin	EFSA	0.06	
Penicillins	Ampicillin	EFSA	4	
Quinolones	Nalidixic acid	EFSA	16	
Sulfonamides	Sulfonamides	EFSA	256	
Tetracyclines	Tetracycline	EFSA	8	
Trimethoprim	Trimethoprim	EFSA	2	

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

Test Method Used	Standard methods used for testing
Broth dilution	NCCLS/CLSI

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin	EFSA	2	
	Streptomycin	EFSA	32	
Amphenicols	Chloramphenicol	EFSA	16	
Cephalosporins	Cefotaxime	EFSA	0.5	
Fluoroquinolones	Ciprofloxacin	EFSA	0.06	
Penicillins	Ampicillin	EFSA	4	
Quinolones	Nalidixic acid	EFSA	16	
Sulfonamides	Sulfonamides	EFSA	256	
Tetracyclines	Tetracycline	EFSA	8	
Trimethoprim	Trimethoprim	EFSA	2	

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

Test Method Used	Standard methods used for testing
Broth dilution	NCCLS/CLSI

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin	EFSA	2	
	Streptomycin	EFSA	32	
Amphenicols	Chloramphenicol	EFSA	16	
Cephalosporins	Cefotaxime	EFSA	0.5	
Fluoroquinolones	Ciprofloxacin	EFSA	0.06	
Penicillins	Ampicillin	EFSA	4	
Quinolones	Nalidixic acid	EFSA	16	
Sulfonamides	Sulfonamides	EFSA	256	
Tetracyclines	Tetracycline	EFSA	8	
Trimethoprim	Trimethoprim	EFSA	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				animal sample > faeces	Domestic	Animal	9	0			
Cats				animal sample > faeces	Domestic	Animal	8	0			
Birds - wild - unspecified - Clinical investigations				animal sample > faeces	Domestic	Animal	2	0			
Cattle (bovine animals) - calves (under 1 year) - at farm - Clinical investigations				animal sample > faeces	Domestic	Animal	18	1		1	
Other animals - exotic pet animals - at zoo - Clinical investigations				animal sample > faeces	Domestic	Animal	8	0			
Pigs - fattening pigs - at farm - Clinical investigations				animal sample > faeces	Domestic	Animal	2	0			

	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Dogs		
Cats		
Birds - wild - unspecified - Clinical investigations		

Table Campylobacter in animals

	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Cattle (bovine animals) - calves (under 1 year) - at farm - Clinical investigations		
Other animals - exotic pet animals - at zoo - Clinical investigations		
Pigs - fattening pigs - at farm - Clinical investigations		

Footnote:

In this table "clinical investigation"- mean that all samples were taken and sent by private veterinarians. In those cases all costs are covered by owner/keeper of 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		1	
Macrolides	Erythromycin		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		1	
Macrolides	Erythromycin		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		1	
Macrolides	Erythromycin		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		1	
	Streptomycin		2	
Fluoroquinolones	Ciprofloxacin		1	
Macrolides	Erythromycin		4	
Tetracyclines	Tetracycline		2	

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		1	
	Streptomycin		2	
Fluoroquinolones	Ciprofloxacin		1	
Macrolides	Erythromycin		4	
Tetracyclines	Tetracycline		2	

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		1	
	Streptomycin		2	
Fluoroquinolones	Ciprofloxacin		1	
Macrolides	Erythromycin		4	
Tetracyclines	Tetracycline		2	

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 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
Milk, cows' - raw milk for manufacture - intended for manufacture of raw or low heat-treated products - at processing plant - Surveillance		Objective sampling	HACCP and own checks	food sample > milk	Domestic	Single	25ml	3	0	3	0
Milk, cows' - pasteurised milk - at processing plant - Surveillance		Objective sampling	HACCP and own checks	food sample > milk	Domestic	Single	25ml	20	0	20	0
Cheeses made from cows' milk - hard - made from pasteurised milk - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	40	0		
Cheeses made from goats' milk - soft and semi-soft - made from raw or low heat-treated milk - at processing plant - Surveillance		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	1	0	1	0
Dairy products (excluding cheeses) - butter - made from raw or low heat-treated milk - at processing plant - Surveillance		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	23	0	23	0
Dairy products (excluding cheeses) - cream - made from pasteurised milk - at processing plant - Surveillance		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	37	0	27	0
Cheeses made from cows' milk - curd - at processing plant - Surveillance		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	98	0	83	0
Cheeses made from cows' milk - curd - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	20	0		
Cheeses, made from unspecified milk or other animal milk - hard - Surveillance		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	2	0	2	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
Cheeses, made from unspecified milk or other animal milk - soft and semi-soft - Surveillance		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	169	0	119	0
Dairy products (excluding cheeses) - butter - at processing plant - Surveillance		Objective sampling	HACCP and own checks	food sample	Imported from outside EU	Batch	25g	5	0	5	0
Dairy products (excluding cheeses) - fermented dairy products - Surveillance		Objective sampling	HACCP and own checks	food sample	Imported from outside EU	Single	25g	23	0	23	0
Dairy products (excluding cheeses) - fermented dairy products - at processing plant - Surveillance		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	356	0	311	0
Dairy products (excluding cheeses) - ice-cream - Surveillance		Objective sampling	HACCP and own checks	food sample	Imported from outside EU	Single	25g	5	0	5	0
Dairy products (excluding cheeses) - ice-cream - at processing plant - Surveillance		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	12	0	8	0
Dairy products (excluding cheeses) - milk powder and whey powder - Surveillance		Objective sampling	HACCP and own checks	food sample	Imported from outside EU	Single	25g	10	0	10	0
Dairy products (excluding cheeses) - milk powder and whey powder - at processing plant - Surveillance		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	18	0	18	0
Dairy products (excluding cheeses) - yoghurt - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	15	0		
Dairy products, unspecified - at processing plant - Surveillance		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	18	0	18	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
Milk, cows' - raw milk for manufacture - intended for manufacture of raw or low heat-treated products - at processing plant - Surveillance			
Milk, cows' - pasteurised milk - at processing plant - Surveillance			
Cheeses made from cows' milk - hard - made from pasteurised milk - at retail - Surveillance	40	0	
Cheeses made from goats' milk - soft and semi-soft - made from raw or low heat-treated milk - at processing plant - Surveillance			
Dairy products (excluding cheeses) - butter - made from raw or low heat-treated milk - at processing plant - Surveillance			
Dairy products (excluding cheeses) - cream - made from pasteurised milk - at processing plant - Surveillance	10	0	
Cheeses made from cows' milk - curd - at processing plant - Surveillance	15	0	
Cheeses made from cows' milk - curd - at retail - Surveillance	20	0	
Cheeses, made from unspecified milk or other animal milk - hard - Surveillance			
Cheeses, made from unspecified milk or other animal milk - soft and semi-soft - Surveillance	50	0	
Dairy products (excluding cheeses) - butter - at processing plant - 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
Dairy products (excluding cheeses) - fermented dairy products - Surveillance			
Dairy products (excluding cheeses) - fermented dairy products - at processing plant - Surveillance	45	0	
Dairy products (excluding cheeses) - ice-cream - Surveillance			
Dairy products (excluding cheeses) - ice-cream - at processing plant - Surveillance	4	0	
Dairy products (excluding cheeses) - milk powder and whey powder - Surveillance			
Dairy products (excluding cheeses) - milk powder and whey powder - at processing plant - Surveillance			
Dairy products (excluding cheeses) - yoghurt - at retail - Surveillance	15	0	
Dairy products, unspecified - at processing plant - Surveillance			

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 broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	20	0		
Meat from pig - meat products - cooked, ready-to-eat - at processing plant - Surveillance		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	46	0	46	0
Fish - smoked - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	45	0		
Bakery products - cakes		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	3	0		
Crustaceans - prawns		Objective sampling	HACCP and own checks	food sample	Unknown	Single	25g	90	0	85	0
Egg products		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	4	0	4	0
Fish - cooked		Objective sampling	HACCP and own checks	food sample	Unknown	Single	25g	434	51	241	40
Fish - gravad /slightly salted - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	20	0		
Fish - raw		Objective sampling	HACCP and own checks	food sample	Unknown	Single	25g	201	32	196	31
Fishery products, unspecified		Objective sampling	HACCP and own checks	food sample	Unknown	Single	25g	67	2	67	2
Fruits and vegetables - non-pre-cut		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	12	0	12	0
Meat from bovine animals - fresh		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	13	0	13	0
Meat from bovine animals - meat products - cooked, ready-to-eat		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	15	0	14	0
Meat from broilers (Gallus gallus) - fresh		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	320	1	314	1
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	6	0	6	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 from other animal species or not specified		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	395	17	260	17
Meat from pig - fresh		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	38	16	38	16
Meat from pig - meat products - cooked ham - non-sliced - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	20	0		
Meat from pig - meat products - cooked, ready-to-eat - Surveillance		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	52	1	40	1
Meat from turkey - fresh		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	4	0	4	0
Meat, mixed meat - meat products - fermented sausages - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	55	0		
Other food		Objective sampling	HACCP and own checks	environmental sample	Domestic	Single	25ml	262	1	262	1
Other food		Objective sampling	HACCP and own checks	food sample	Domestic	Single	25g	105	1	43	1

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail - Surveillance	20	0	
Meat from pig - meat products - cooked, ready-to-eat - at processing plant - Surveillance			
Fish - smoked - at retail - Surveillance	45	0	
Bakery products - cakes	3	0	

Table Listeria monocytogenes in other foods

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Crustaceans - prawns	5	0	
Egg products			
Fish - cooked	193	11	
Fish - gravad /slightly salted - at retail - Surveillance	20	0	
Fish - raw	5	1	
Fishery products, unspecified			
Fruits and vegetables - non-pre-cut			
Meat from bovine animals - fresh			
Meat from bovine animals - meat products - cooked, ready-to-eat	1	0	
Meat from broilers (Gallus gallus) - fresh	6	0	
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat			
Meat from other animal species or not specified	135	0	
Meat from pig - fresh			
Meat from pig - meat products - cooked ham - non-sliced - at retail - Surveillance	20	0	
Meat from pig - meat products - cooked, ready-to-eat - Surveillance	12	0	
Meat from turkey - fresh			

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 - at retail - Surveillance	55	0	
Other food			
Other food	62	0	

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) - dairy cows - at farm - Monitoring			Official and industry sampling	animal sample > foetus/stillbirth	Domestic	Animal	89	15	15	
Sheep - at farm - Monitoring			Official and industry sampling	animal sample > foetus/stillbirth	Domestic	Animal	13	1	1	
Goats - at farm - Monitoring			Official and industry sampling	animal sample > foetus/stillbirth	Domestic	Animal	1	0		
Pigs - at farm - Monitoring			Official and industry sampling	animal sample > foetus/stillbirth	Domestic	Animal	11	4	4	
Cattle (bovine animals) - at farm - Clinical investigations [1)]			Industry sampling	animal sample > blood	Domestic	Animal	348	3	3	
Goats - at farm - Clinical investigations [2)]			Industry sampling	animal sample > blood	Domestic	Animal	4	0		
Pigs - at farm - Clinical investigations [3)]			Industry sampling	animal sample > blood	Domestic	Animal	25	0		
Sheep - at farm - Clinical investigations [4)]			Industry sampling	animal sample > blood	Domestic	Animal	29	0		
Solipeds, domestic - horses - at farm - Clinical investigations [5)]			Industry sampling	animal sample > blood	Domestic	Animal	5	1	1	

Table Listeria in animals

Comments:

[1)] Serological test

[2)] Serological test

[3)] Serological test

[4)] Serological test

[5)] Serological 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 investigations in cases of animal illness, for the finding of cause of animal illness. In those cases all costs are covered by Food and veterinary service (FVS).

In this table "clinical investigation"- mean that all samples were taken and sent by private veterinarians only without participation of FVS. In those cases all costs are covered by owner/keeper of animals.

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 2012, 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 2012 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
Meat from broilers (Gallus gallus) - fresh - at retail - Surveillance			HACCP and own checks	food sample	Unknown	ISO 16654:2001	Single	25g	3	0	
Meat from bovine animals - fresh - at processing plant - Surveillance			HACCP and own checks	food sample	Unknown	ISO 16654:2001	Single	25g	10	0	
Meat from pig - fresh - Surveillance			HACCP and own checks	feed sample	Unknown	ISO 16654:2001	Single	25g	3	0	
Meat from turkey - fresh - at retail - Surveillance			HACCP and own checks	food sample	Unknown	ISO 16654:2001	Single	25g	5	0	
Other food - Surveillance			HACCP and own checks	food sample	Unknown	ISO 16654:2001	Single	25g	41	0	

	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Meat from broilers (Gallus gallus) - fresh - at retail - Surveillance		
Meat from bovine animals - fresh - at processing plant - Surveillance		
Meat from pig - fresh - Surveillance		
Meat from turkey - fresh - at retail - Surveillance		
Other food - Surveillance		

Table VT E. coli in food

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				animal sample > faeces	Domestic	Detection method	Animal		10	3	
Cats - Clinical investigations				animal sample > faeces	Domestic	Detection method	Animal		8	1	
Cats - pet animals - veterinary clinics - Clinical investigations				animal sample > organ/tissue	Domestic	Detection method	Animal		4	0	
Cattle (bovine animals) - at farm - Clinical investigations				animal sample > faeces	Domestic	Detection method	Animal		24	3	
Cattle (bovine animals) - at farm - Clinical investigations				animal sample > organ/tissue	Domestic	Detection method	Animal		44	2	
Dogs - pet animals - veterinary clinics - Clinical investigations				animal sample > organ/tissue	Domestic	Detection method	Animal		7	0	
Fur animals - farmed - at farm - Clinical investigations				animal sample > organ/tissue	Domestic	Detection method	Animal		12	0	
Pigs - at farm - Clinical investigations				animal sample > organ/tissue	Domestic	Detection method	Animal		84	3	
Pigs - at farm - Clinical investigations				animal sample > faeces	Domestic	Detection method	Animal		2	0	
Poultry, unspecified - at farm - Clinical investigations				animal sample > organ/tissue	Domestic	Detection method	Animal		17	0	

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
Sheep - at farm - Clinical investigations				animal sample > organ/tissue	Domestic	Detection method	Animal		8	0	

	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified	Verotoxigenic E. coli (VTEC) - VTEC O103	Verotoxigenic E. coli (VTEC) - VTEC O111	Verotoxigenic E. coli (VTEC) - VTEC O121	Verotoxigenic E. coli (VTEC) - VTEC O26
Dogs - Clinical investigations	3				1	2
Cats - Clinical investigations	1			1		
Cats - pet animals - veterinary clinics - Clinical investigations						
Cattle (bovine animals) - at farm - Clinical investigations	3				2	1
Cattle (bovine animals) - at farm - Clinical investigations	2		1		1	
Dogs - pet animals - veterinary clinics - Clinical investigations						
Fur animals - farmed - at farm - Clinical investigations						
Pigs - at farm - Clinical investigations	3		1		1	1
Pigs - at farm - Clinical investigations						
Poultry, unspecified - at farm - Clinical investigations						
Sheep - at farm - Clinical investigations						

Table VT E. coli in animals

Footnote:

In this table "clinical investigation"- mean that all samples were taken and sent by private veterinarians. In those cases all costs are covered by owner/keeper of 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 2012, 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 2012, Chapter 2.4.7. b)

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 2012, 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 2012.

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	Sampling unit	Units tested	Total units positive for Mycobacterium	M. bovis	M. tuberculosis	Mycobacterium spp., unspecified
Gallus gallus (fowl) - laying hens - at farm - Surveillance	FVS	Objective sampling				Animal	1017	0			
Ostriches - farmed - at farm - Surveillance	FVS	Objective sampling				Animal	5	0			
Pigs - at farm - Surveillance [1)]	FVS	Objective sampling	Industry sampling			Animal	10192	0			

Comments:

[1)] Intradermal tuberculin tests are used in pig holdings which wish to export pigs to third countries according to their requirements

Footnote:

FVS - Food and veterinary service
Animals are tested used intradermal tuberculin 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)]	31765	393097	31765	100	0	0	no routine test	0	398	0	0
Total : [2)]	31765	393097	31765	100	0	0	N.A.	0	398	0	0

Comments:

[1)] Official post-mortem examination for all slaughtered bovine animals is implemented.

[2)] N.A.

2.6 BRUCELLOSIS

2.6.1 General evaluation of the national situation

A. Brucellosis general evaluation

History of the disease and/or infection in the country

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. In that case, the whole herd is considered to be infected.

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 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) 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.
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

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 2012, 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 2012, 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 in the Rose Bengal Test (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.

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 ans 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
Goats - at farm - Control and eradication programmes [1)]	FVS	Objective sampling	Industry sampling	animal sample > foetus/stillbirth	Domestic	Animal	1	0			
Other animals - Clinical investigations [2)]			Industry sampling	animal sample > blood	Domestic	Animal	95	0			
Pigs - at farm - Control and eradication programmes [3)]	FVS	Objective sampling	Official and industry sampling	animal sample > organ/tissue	Domestic	Animal	10	0			
Pigs - at farm - Control and eradication programmes [4)]	FVS	Objective sampling	Industry sampling	animal sample > blood	Domestic	Animal	30272	0			
Sheep - at farm - Control and eradication programmes [5)]	FVS	Objective sampling	Industry sampling	animal sample > foetus/stillbirth	Domestic	Animal	6	0			
Solipeds, domestic - horses - at farm - Clinical investigations [6)]	FVS		Industry sampling	animal sample > foetus/stillbirth	Domestic	Animal	1	0			

	Brucella spp., unspecified
Goats - at farm - Control and eradication programmes [1)]	
Other animals - Clinical investigations [2)]	

Table Brucellosis in other animals

	Brucella spp., unspecified
Pigs - at farm - Control and eradication programmes [3)]	
Pigs - at farm - Control and eradication programmes [4)]	
Sheep - at farm - Control and eradication programmes [5)]	
Solipeds, domestic - horses - at farm - Clinical investigations [6)]	

Comments:

[1)] Bacteriological test

[2)] Serological tests - RBR, ELISA

[3)] Bacteriological tests

[4)] Serological tests - RBR, AR, CFR, ELISA

[5)] Bacteriological tests

[6)] Bacteriological test

Footnote:

FVS - Food and veterinary service.
In this table "clinical investigation"- mean that all samples were taken and sent by private veterinarians. In those cases all costs are covered by owner/keeper of animals.

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	7301	96961	7301	100	0	0	298	4101	0	0	0	0	0	0
Total : [1)]	7301	96961	7301	100	0	0	298	4101	0	0	0	0	0	0

Comments:

[1)] N.A.

Footnote:

In 2012, according to the national control programme, 5% of the total number of sheep and 5% of total number of goats older than 6 month were tested on brucellosis. In the table shown results of control programme both
for sheep and goats.

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	31765	393097	31765	100	0	0	6162	29897	0	725	25970	0	95	0	0	73	2	1	0	1	0
Total : [1)]	31765	393097	31765	100	0	0	6162	29897	0	725	25970	0	95	0	0	73	2	1	0	1	0

Comments:

[1)] N.A.

2.7 YERSINIOSIS

2.7.1 General evaluation of the national situation

A. Yersinia enterocolitica general evaluation

History of the disease and/or infection in the country

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
Pigs - fattening pigs - at farm - Monitoring [1)]			Official and industry sampling	animal sample > blood	Domestic	Animal	31	3	3		
Birds - wild - natural habitat				animal sample > faeces	Domestic	Animal	2	0			
Cats - pet animals - veterinary clinics - Clinical investigations			Industry sampling	animal sample > faeces	Domestic	Animal	8	0			
Cattle (bovine animals) - at farm - Clinical investigations [2)]			Industry sampling	animal sample > blood	Domestic	Animal	41	20	20		
Cattle (bovine animals) - at farm - Monitoring			Official and industry sampling	animal sample > faeces	Domestic	Animal	20	0			
Dogs - pet animals - Clinical investigations [3)]			Industry sampling	animal sample > blood	Domestic	Animal	1	0			
Dogs - pet animals - veterinary clinics - Clinical investigations			Industry sampling	animal sample > faeces	Domestic	Animal	9	0			
Other animals - exotic pet animals - at zoo - Clinical investigations			Industry sampling	animal sample > faeces	Domestic	Animal	8	0			
Other animals - wild - from hunting				animal sample > organ/tissue	Domestic	Animal	2	0			
Pigs - fattening pigs - at farm - Monitoring			Official and industry sampling	animal sample > faeces	Domestic	Animal	27	0			

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 - at farm - Monitoring [4]			Official and industry sampling	animal sample > blood	Domestic	Animal	7	0			

	Y. enterocolitica - O:3	Y. enterocolitica - O:9	Y. enterocolitica - unspecified
Pigs - fattening pigs - at farm - Monitoring [1]		3	
Birds - wild - natural habitat			
Cats - pet animals - veterinary clinics - Clinical investigations			
Cattle (bovine animals) - at farm - Clinical investigations [2]		20	
Cattle (bovine animals) - at farm - Monitoring			
Dogs - pet animals - Clinical investigations [3]			
Dogs - pet animals - veterinary clinics - Clinical investigations			
Other animals - exotic pet animals - at zoo - Clinical investigations			
Other animals - wild - from hunting			
Pigs - fattening pigs - at farm - Monitoring			
Sheep - at farm - Monitoring [4]			

Table Yersinia in animals

Comments:

[1)] Serological test

[2)] Serological test

[3)] Serological test

[4)] Serological 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 investigations in cases of animal illness, for the finding of cause of animal illness. In those cases all costs are covered by Food and veterinary service (FVS).

In this table "clinical investigation"- mean that all samples were taken and sent by private veterinarians only without participation of FVS. In those cases all costs are covered by owner/keeper of animals.

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 - at slaughterhouse - Surveillance	FVS	Census	Official sampling	animal sample > organ/tissue	Domestic	Animal	416	0		
Beavers - wild - from hunting	FVS			animal sample > organ/tissue	Domestic	Animal	2	0		
Deer - wild - roe deer - from hunting	FVS			animal sample > organ/tissue	Domestic	Animal	1	0		
Foxes - wild - from hunting - Monitoring	FVS			animal sample > organ/tissue	Domestic	Animal	177	100		100
Lynx - wild - from hunting	FVS			animal sample > organ/tissue	Domestic	Animal	5	5		5
Pigs - at slaughterhouse - Surveillance	FVS	Census	Official sampling	animal sample > organ/tissue	Domestic	Animal	406438	0		
Raccoon dogs - wild - from hunting - Monitoring	FVS			animal sample > organ/tissue	Domestic	Animal	57	17		17
Wild boars - wild - from hunting - Surveillance	FVS	Census	Official sampling	animal sample > organ/tissue	Domestic	Animal	3836	68		68

Footnote:

FVS - Food and veterinary service

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) - at slaughterhouse - Surveillance	FVS				Domestic	Animal	Latvija	90103	0		
Sheep - at slaughterhouse - Surveillance	FVS				Domestic	Animal	Latvija	13539	0		
Goats - at slaughterhouse - Surveillance	FVS				Domestic	Animal	Latvija	51	0		
Pigs - at slaughterhouse - Surveillance	FVS				Domestic	Animal	Latvija	406438	0		
Solipeds, domestic - horses - at slaughterhouse - Surveillance	FVS				Domestic	Animal	Latvija	416	0		

	Echinococcus spp., unspecified
Cattle (bovine animals) - at slaughterhouse - Surveillance	
Sheep - at slaughterhouse - Surveillance	
Goats - at slaughterhouse - Surveillance	
Pigs - at slaughterhouse - Surveillance	
Solipeds, domestic - horses - at slaughterhouse - Surveillance	

Table Echinococcus in animals

Footnote:

FVS - Food and veterinary service

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 2012, 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 - at farm - Clinical investigations			Industry sampling	animal sample > blood	Domestic	Latex agglutination test (LAT)	Animal	18	3	3	
Dogs - Clinical investigations			Industry sampling	animal sample > blood	Domestic	Latex agglutination test (LAT)	Animal	53	2	2	
Cats - Clinical investigations			Industry sampling	animal sample > blood	Domestic	Latex agglutination test (LAT)	Animal	68	6	6	
Cats - pet animals - Clinical investigations			Industry sampling	animal sample > blood	Domestic	ELISA	Animal	15	4	4	
Cattle (bovine animals) - at farm - Clinical investigations			Industry sampling	animal sample > blood	Domestic	Latex agglutination test (LAT)	Animal	12	0		
Dogs - pet animals - Clinical investigations			Industry sampling	animal sample > blood	Domestic	ELISA	Animal	5	0		
Other animals - at zoo - Clinical investigations			Industry sampling	animal sample > blood	Domestic	Latex agglutination test (LAT)	Animal	2	0		
Pigs - at farm - Clinical investigations			Industry sampling	animal sample > blood	Domestic	Latex agglutination test (LAT)	Animal	5	0		
Sheep - at farm - Clinical investigations			Industry sampling	animal sample > blood	Domestic	ELISA	Animal	9	2	2	

Footnote:

Table Toxoplasma in animals

In this table "clinical investigation"- mean that all samples were taken and sent by private veterinarians. In those cases all costs are 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 2012, 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)	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	14	1	1	
Solipeds, domestic	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	1	0		
Dogs - stray dogs	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	6	0		
Cats - stray cats	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	20	0		
Foxes - wild - Monitoring	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	123	0		
Raccoon dogs - wild - Monitoring	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	56	0		
Badgers - wild	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	6	0		
Beavers - wild	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	1	0		
Cats - pet animals	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	19	0		
Deer - wild - roe deer	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	6	0		
Dogs - pet animals	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	17	1	1	

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
Marten - wild	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	6	0		
Minks - wild	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	1	0		
Other animals - wild	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	1	0		
Polecats - wild	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	7	0		
Rats - wild	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	1	0		
Squirrels - wild	FVS	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	Latvija	1	0		

	EBLV-2	Lyssavirus (unspecified virus)
Cattle (bovine animals)		
Solipeds, domestic		
Dogs - stray dogs		
Cats - stray cats		
Foxes - wild - Monitoring		
Raccoon dogs - wild - Monitoring		

Table Rabies in animals

	EBLV-2	Lyssavirus (unspecified virus)
Badgers - wild		
Beavers - wild		
Cats - pet animals		
Deer - wild - roe deer		
Dogs - pet animals		
Marten - wild		
Minks - wild		
Other animals - wild		
Polecats - wild		
Rats - wild		
Squirrels - wild		

Footnote:

FVS - Food and veterinary service

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 2012, 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) - at farm - Clinical investigations	FVS	Suspect sampling	Official sampling	animal sample > blood	Domestic	ELISA	Animal	336	49	49	
Sheep - at farm - Clinical investigations	FVS	Suspect sampling	Official sampling	animal sample > blood	Domestic	ELISA	Animal	15	0		
Goats - at farm - Clinical investigations	FVS	Suspect sampling	Official sampling	animal sample > blood	Domestic	ELISA	Animal	2	0		

Footnote:

FVS - Food and veterinary service

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	
Fluoroquinolones	Ciprofloxacin		0.03	
Penicillins	Ampicillin		8	
Quinolones	Nalidixic acid		16	
Sulfonamides	Sulfonamides		256	

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 <=
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	
Fluoroquinolones	Ciprofloxacin		0.03	
Penicillins	Ampicillin		8	
Quinolones	Nalidixic acid		16	
Sulfonamides	Sulfonamides		256	
Tetracyclines	Tetracycline		8	
Trimethoprim	Trimethoprim		2	

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	
Fluoroquinolones	Ciprofloxacin		0.03	
Penicillins	Ampicillin		8	
Quinolones	Nalidixic acid		16	
Sulfonamides	Sulfonamides		256	
Tetracyclines	Tetracycline		8	
Trimethoprim	Trimethoprim		2	

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	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		32	

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

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		2	

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	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	

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	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	

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	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		1	
Tetracyclines	Tetracycline		2	

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	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		1	
Tetracyclines	Tetracycline		2	

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	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		1	
Tetracyclines	Tetracycline		2	

4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS

4.1 ENTEROBACTER SAKAZAKII

4.1.1 General evaluation of the national situation

4.2 HISTAMINE

4.2.1 General evaluation of the national situation

4.3 STAPHYLOCOCCAL ENTEROTOXINS

4.3.1 General evaluation of the national situation

5. FOODBORNE

Foodborne outbreaks are incidences of two or more human cases of the same disease or infection where the cases are linked or are probably linked to the same food source. Situation, in which the observed human cases exceed the expected number of cases and where a same food source is suspected, is also indicative of a foodborne outbreak.

A. Foodborne outbreaks

System in place for identification, 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, organise preventive and control measures.

Description of the types of outbreaks covered by the reporting:

In 2012, there were 477 food-borne (or household contact possibly related to food implication) outbreaks with 2 and more cases, including 48 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

Alltogether 1645 cases, including 1 strong evidence outbreak with 16 cases, related to histamine poisoning.

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

Among all outbreaks 5.4% were due to Salmonella spp., 39.9% - due to Rotavirus, 24.3% - due to Norovirus, 2.3% - due to Trichinella, 24.5% were of unknown aethyology, and the rest related to other pathogens. Like previous years salmonelosis was caused mainly by improperly prepared broiler/egg products, in two cases by other meet products.

Descriptions of single outbreaks of special interest

In the end of September a group of foreign tourists from a Nordic country visited an event, organized in a hotel near beach. They had eaten egg/chicken products, salads, and butterfish. Laboratory analyses of the products showed zero contamination with Salmonella, Staphylococcus etc., however buterrfish tests revealed preceeded permitted histamine level for 4-8 times.

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	7	1	0	0	1
Salmonella - S. Enteritidis	25	167	45	0	0	25
Salmonella - Other serovars	0	0	0	0	0	0
Campylobacter	0	0	0	0	0	0
Listeria - Listeria monocytogenes	0	0	0	0	0	0
Listeria - Other Listeria	0	0	0	0	0	0
Yersinia	1	2	0	0	0	1
Escherichia coli, pathogenic - Verotoxigenic E. coli (VTEC)	0	0	0	0	0	0
Bacillus - B. cereus	0	0	0	0	0	0
Bacillus - Other Bacillus	0	0	0	0	0	0
Staphylococcal enterotoxins	1	18	15	0	0	1
Clostridium - Cl. botulinum	0	0	0	0	0	0
Clostridium - Cl. perfringens	0	0	0	0	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	1	2	2	0	0	1
Other Bacterial agents - Brucella	0	0	0	0	0	0
Other Bacterial agents - Shigella	2	4	2	0	0	2
Other Bacterial agents - Other Bacterial agents	6	13	0	0	0	6
Parasites - Trichinella	11	41	33	0	0	11
Parasites - Giardia	0	0	0	0	0	0
Parasites - Cryptosporidium	0	0	0	0	0	0
Parasites - Anisakis	0	0	0	0	0	0
Parasites - Other Parasites	0	0	0	0	0	0
Viruses - Norovirus	116	480	19	0	0	116
Viruses - Hepatitis viruses	2	6	1	0	0	2
Viruses - Other Viruses	193	613	85	0	0	193
Other agents - Histamine	0	0	0	0	1	1
Other agents - Marine biotoxins	0	0	0	0	0	0
Other agents - Other Agents	0	0	0	0	0	0

	Weak evidence or no vehicle outbreaks					
	Number of outbreaks	Human cases	Hospitalized	Deaths	Strong evidence Number of Outbreaks	Total number of outbreaks
Unknown agent	117	276	unknown	0	0	117

Other viruses - 176 rotavirus outbreaks (463 human cases), 15 mixed rota/noro/adeno(2)virus outbreaks (146 cases), and 2 astrovirus enteritis (4).

Other bacterial agents - Proteus vulgaris; Proteus mirabilis; Hafnia alveii; Klebsiella oxytoca; Citrobacter cloacae.

Table Foodborne Outbreaks: detailed data for Other agents

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Histamine

	Value
FBO Code	
Number of outbreaks	1
Number of human cases	16
Number of hospitalisations	unknown
Number of deaths	0
Food vehicle	Fish and fish products
More food vehicle information	Histamine preceeds normative 4-8 times in the consumed butterfish
Nature of evidence	Detection of causative agent in food vehicle or its component - Detection of indistinguishable causative agent in humans
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of food vehicle	Intra EU trade
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	