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 2011

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: Latvia

Reporting Year: 2011

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.
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	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 2011 .

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: 01.01.2012.

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	33998		92668		380525		33998	
Deer	farmed - in total	343		310		10612		343	
Ducks	- in total	14				360		14	
Gallus gallus (fowl)	breeding flocks for meat production line - in total	20				250211		20	
	laying hens	42				2024452		42	
	broilers	56				979558		56	
	- in total	118		14784099		3254221		118	
Geese	- in total	11				100		11	
Goats	- in total	2855		25		13454		2855	
Pigs	- in total	1319		330901		291919		1319	
Sheep	- in total	4360		11285		79807		4360	
Solipeds, domestic	horses - in total	5569		519		11462		5569	

Table Susceptible animal populations

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 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.

B. 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.

C. 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.

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	1	1	
Meat from broilers (Gallus gallus) - fresh - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	350	9	8	1
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	80	5	5	
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	130	0		
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	20	5	5	
Meat from broilers (Gallus gallus) - fresh - at processing plant			HACCP and owns check	food sample > meat		Single	25g	297	5		
Meat from broilers (Gallus gallus) - fresh - at retail			HACCP and owns check	food sample > meat		Single	25g	4	0		
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at processing plant			HACCP and owns check	food sample > meat		Single	25g	3	0		
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at processing plant			HACCP and owns check	food sample > meat		Single	25g	8	0		
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail			HACCP and owns check	food sample > meat		Single	25g	2	0		

Table Salmonella in poultry meat and products thereof

	Source of information	Sampling strategy	Sampler	Sample type	Sample Origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - at processing plant			HACCP and owns check	food sample > meat		Single	25g	4	0		
Meat from turkey - fresh - at processing plant			HACCP and owns check	food sample > meat		Single	25g	1	0		

	Salmonella spp., unspecified	S. Virchow
Meat from broilers (Gallus gallus) - carcase - at slaughterhouse - Surveillance		
Meat from broilers (Gallus gallus) - fresh - at retail - Surveillance		
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail - Surveillance		
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 broilers (Gallus gallus) - fresh - at processing plant		5
Meat from broilers (Gallus gallus) - fresh - at retail		

Table Salmonella in poultry meat and products thereof

	Salmonella spp., unspecified	S. Virchow
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at processing plant		
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at processing plant		
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail		
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - at processing plant		
Meat from turkey - fresh - at processing plant		

Footnote:

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Table Salmonella in milk and dairy products

	Source of information	Sampling strategy	Sampler	Sample type	Sample Origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Dairy products (excluding cheeses) - milk powder and whey powder - at processing plant - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	25	0		
Cheeses made from cows' milk - curd - at retail - domestic production - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	25	0		
Cheeses made from cows' milk - soft and semi-soft - made from raw or low heat-treated milk - at processing plant			HACCP and owns check	food sample		Single	25g	28	0		
Cheeses made from cows' milk - unspecified - made from pasteurised milk - at retail - domestic production - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	45	0		
Dairy products (excluding cheeses) - butter - made from pasteurised milk - at processing plant			HACCP and owns check	food sample		Single	25g	25	0		
Dairy products (excluding cheeses) - butter - made from pasteurised milk - at retail - domestic production - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	25	0		
Dairy products (excluding cheeses) - ice-cream - made from raw or low heat-treated milk - at processing plant			HACCP and owns check	food sample		Single	25g	16	0		
Dairy products (excluding cheeses) - milk powder and whey powder - at processing plant			HACCP and owns check	food sample		Single	25g	13	0		
Dairy products (excluding cheeses) - yoghurt - at retail - domestic production - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	25	0		
Dairy products, unspecified - at processing plant			HACCP and owns check	food sample		Single	25g	169	0		
Milk, cows' - pasteurised milk - at processing plant			HACCP and owns check	food sample		Single	25g	16	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' - raw milk for manufacture - at processing plant			HACCP and owns check	food sample		Single	25ml	7	0		
Milk, goats' - raw milk for manufacture - intended for manufacture of raw or low heat-treated products - at processing plant			HACCP and owns check	food sample		Single	25ml	5	0		

	Salmonella spp., unspecified
Dairy products (excluding cheeses) - milk powder and whey powder - at processing plant - Surveillance	
Cheeses made from cows' milk - curd - at retail - domestic production - Surveillance	
Cheeses made from cows' milk - soft and semi-soft - made from raw or low heat-treated milk - at processing plant	
Cheeses made from cows' milk - unspecified - made from pasteurised milk - at retail - domestic production - Surveillance	
Dairy products (excluding cheeses) - butter - made from pasteurised milk - at processing plant	
Dairy products (excluding cheeses) - butter - made from pasteurised milk - at retail - domestic production - Surveillance	

Table Salmonella in milk and dairy products

	Salmonella spp., unspecified
Dairy products (excluding cheeses) - ice-cream - made from raw or low heat-treated milk - at processing plant	
Dairy products (excluding cheeses) - milk powder and whey powder - at processing plant	
Dairy products (excluding cheeses) - yoghurt - at retail - domestic production - Surveillance	
Dairy products, unspecified - at processing plant	
Milk, cows' - pasteurised milk - at processing plant	
Milk, cows' - raw milk for manufacture - at processing plant	
Milk, goats' - raw milk for manufacture - intended for manufacture of raw or low heat-treated products - at processing plant	

Footnote:

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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 - raw material (liquid egg) for egg products - at processing plant - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	45	0		
Fishery products, unspecified - cooked - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	45	0		
Fish - smoked - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	125	0		
Beverages, alcoholic - at processing plant			HACCP and owns check	food sample		Single	25ml	10	0		
Beverages, non-alcoholic - soft drinks - at processing plant			HACCP and owns check	food sample		Single	25ml	6	0		
Egg products			HACCP and owns check	food sample		Single	25g	1	0		
Eggs - table eggs - at processing plant			HACCP and owns check	food sample		Single	25g	15	0		
Fish - cooked - at processing plant			HACCP and owns check	food sample		Single	25g	148	0		
Fish - raw - chilled - at processing plant			HACCP and owns check	food sample		Single	25g	230	0		
Fish - raw - frozen - at processing plant			HACCP and owns check	food sample		Single	25g	24	0		
Fish - smoked - at processing plant			HACCP and owns check	food sample		Single	25g	11	0		
Juice - fruit juice			HACCP and owns check	food sample		Single	25ml	10	0		
Juice - fruit juice - unpasteurised - at processing plant			HACCP and owns check	food sample		Single	25ml	13	0		
Juice - vegetable juice - unpasteurised - at processing plant			HACCP and owns check	food sample		Single	25ml	4	0		
Molluscan shellfish - at retail			HACCP and owns check	food sample		Single	25g	182	0		

Table Salmonella in other food

	Source of information	Sampling strategy	Sampler	Sample type	Sample Origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Other food of non-animal origin			HACCP and owns check	food sample		Single	25g	58	0		
Roe - at retail			HACCP and owns check	food sample		Single	25g	9	0		
Vegetables - at processing plant			HACCP and owns check	food sample		Single	25g	69	0		

	Salmonella spp., unspecified
Eggs - raw material (liquid egg) for egg products - at processing plant - Surveillance	
Fishery products, unspecified - cooked - at retail - Surveillance	
Fish - smoked - at retail - Surveillance	
Beverages, alcoholic - at processing plant	
Beverages, non-alcoholic - soft drinks - at processing plant	
Egg products	
Eggs - table eggs - at processing plant	
Fish - cooked - at processing plant	
Fish - raw - chilled - at processing plant	
Fish - raw - frozen - at processing plant	
Fish - smoked - at processing plant	

Table Salmonella in other food

	Salmonella spp., unspecified
Juice - fruit juice	
Juice - fruit juice - unpasteurised - at processing plant	
Juice - vegetable juice - unpasteurised - at processing plant	
Molluscan shellfish - at retail	
Other food of non-animal origin	
Roe - at retail	
Vegetables - at processing plant	

Footnote:

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Table Salmonella in red meat and products thereof

	Source of information	Sampling strategy	Sampler	Sample type	Sample Origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Meat from pig - meat preparation - intended to be eaten cooked - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	25g	150	0		
Meat from bovine animals - minced meat - intended to be eaten cooked - at retail - Surveillance		Objective sampling	Official sampling	food sample		Single	10g	25	0		
All foodstuffs - at retail - domestic production - Surveillance [1)]		Objective sampling	Official sampling	food sample		Single	25g	320	0		
Meat from bovine animals - carcase - at slaughterhouse			HACCP and owns check	food sample > carcass swabs		Single	100cm2	365	0		
Meat from bovine animals - carcase - at slaughterhouse			HACCP and owns check	food sample > carcass swabs		Single	400cm2	3	0		
Meat from bovine animals - fresh - at processing plant			HACCP and owns check	food sample > meat		Single	25g	42	0		
Meat from bovine animals - meat products - raw but intended to be eaten cooked - at retail			HACCP and owns check	food sample > meat		Single	25g	10	0		
Meat from deer (venison) - meat products - raw but intended to be eaten cooked			HACCP and owns check	food sample > meat		Single	25g	2	0		
Meat from pig - carcase - at slaughterhouse			HACCP and owns check	food sample > carcass swabs		Single	100cm2	206	0		
Meat from pig - carcase - at slaughterhouse			HACCP and owns check	food sample > carcass swabs		Single	400cm2	11	0		
Meat from pig - fresh - at processing plant			HACCP and owns check	food sample > meat		Single	25g	7	0		
Meat from pig - meat products - cooked, ready-to-eat - at processing plant			HACCP and owns check	food sample > meat		Single	25g	108	1	1	

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 - minced meat - intended to be eaten cooked - at processing plant			HACCP and owns check	food sample > meat		Single	10g	137	0		
Meat from pig - minced meat - intended to be eaten cooked - at processing plant			HACCP and owns check	food sample > meat		Single	25g	6	0		
Meat from pig - minced meat - intended to be eaten cooked - chilled - at retail - domestic production - Surveillance		Objective sampling	Official sampling	food sample		Single	10g	30	0		
Meat from rabbit - meat products - raw but intended to be eaten cooked - at processing plant			HACCP and owns check	food sample > meat		Single	25g	1	0		
Meat from sheep - carcase - at slaughterhouse			HACCP and owns check	food sample > carcass swabs		Single	100cm2	1	0		
Meat from sheep - carcase - at slaughterhouse			HACCP and owns check	food sample > carcass swabs		Single	400cm2	4	0		
Meat, mixed meat - meat products - cooked, ready-to-eat - at processing plant			HACCP and owns check	food sample > meat		Single	25g	421	0		
Meat, mixed meat - meat products - raw but intended to be eaten cooked - at processing plant			HACCP and owns check	food sample > meat		Single	25g	152	0		

	Salmonella spp., unspecified
Meat from pig - meat preparation - intended to be eaten cooked - at retail - Surveillance	

Table Salmonella in red meat and products thereof

	Salmonella spp., unspecified
Meat from bovine animals - minced meat - intended to be eaten cooked - at retail - Surveillance	
All foodstuffs - at retail - domestic production - Surveillance [1)]	
Meat from bovine animals - carcase - at slaughterhouse	
Meat from bovine animals - carcase - at slaughterhouse	
Meat from bovine animals - fresh - at processing plant	
Meat from bovine animals - meat products - raw but intended to be eaten cooked - at retail	
Meat from deer (venison) - meat products - raw but intended to be eaten cooked	
Meat from pig - carcase - at slaughterhouse	
Meat from pig - carcase - at slaughterhouse	
Meat from pig - fresh - at processing plant	
Meat from pig - meat products - cooked, ready-to-eat - at processing plant	
Meat from pig - minced meat - intended to be eaten cooked - at processing plant	
Meat from pig - minced meat - intended to be eaten cooked - at processing plant	

Table Salmonella in red meat and products thereof

	Salmonella spp., unspecified
Meat from pig - minced meat - intended to be eaten cooked - chilled - at retail - domestic production - Surveillance	
Meat from rabbit - meat products - raw but intended to be eaten cooked - at processing plant	
Meat from sheep - carcase - at slaughterhouse	
Meat from sheep - carcase - at slaughterhouse	
Meat, mixed meat - meat products - cooked, ready-to-eat - at processing plant	
Meat, mixed meat - meat products - raw but intended to be eaten cooked - at processing plant	

Comments:

[1)] mixed meat products

Footnote:

LVS NE ISO 6579:2003+AC:2006

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

Other: rinses from the internal surfaces of the container and dead chickens

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

Other: pooled faecal samples

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

Other:pooled faecal samples or 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 (EC) No 646/2007 of 12 June 2007 implementing Regulation (EC) No 2160/2003 of the European Parliament and of the Council as regards a Community target for the reduction of the prevalence of Salmonella enteritidis and Salmonella typhimurium in broilers and repealing Regulation (EC) No 1091/2005
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 (EC) No 1168/2006 of 31 July 2006 implementing Regulation (EC) No 2160/2003 as regards a Community target for the reduction of the prevalence of certain salmonella serotypes in laying hens of Gallus gallus and amending Regulation (EC) No 1003/2005.
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

Other: 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

Other: rinses from the internal surfaces of the container and dead chickens

Laying hens: Rearing period

Other: pooled faecal samples

Laying hens: Production period

Other: 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 ducks - breeding flocks and meat production flocks

Additional information

Look at Salmonella spp. in animal

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

Additional information

Look at Salmonella spp. in animal

G. 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.

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

Additional information

There is no registered commercial turkey flocks 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) - breeding flocks for broiler production line - adult - at farm - Control and eradication programmes	20	Control and eradication programmes						Flock	20	0	
Gallus gallus (fowl) - breeding flocks for broiler production line - day-old chicks - at farm - Control and eradication programmes	20	Control and eradication programmes						Flock	20	0	
Gallus gallus (fowl) - breeding flocks for broiler production line - during rearing period - at farm - Control and eradication programmes	18	Control and eradication						Flock	18	0	

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

Table Salmonella in other birds

	Source of information	Sampling strategy	Sampler	Sample type	Sample Origin	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Quails - at farm - Monitoring		Objective sampling	Official and industry sampling	animal sample > faeces		Flock	28	1	1		
Pheasants - Monitoring		Objective sampling	Official and industry sampling	animal sample > faeces		Flock	4	0			
Ostriches - farmed - at farm - Monitoring		Objective sampling	Official and industry sampling	animal sample > faeces		Flock	4	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:-
Sheep - at farm - Monitoring		Suspect sampling	Official and industry sampling	animal sample > organ/tissue		Animal	1	0			
Solipeds, domestic - horses - at farm - Monitoring		Suspect sampling	Industry sampling	animal sample > organ/tissue		Animal	3	0			
Cats - pet animals - Clinical investigations		Suspect sampling	Not applicable	animal sample > faeces		Animal	10	0			
Cats - pet animals - Clinical investigations		Suspect sampling	Not applicable	animal sample > organ/tissue		Animal	4	0			
Cattle (bovine animals) - at farm - Unspecified		Suspect sampling	Official and industry sampling	animal sample > organ/tissue		Animal	8	0			
Cattle (bovine animals) - mixed herds - at farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample > faeces		Animal	10	0			
Cattle (bovine animals) - mixed herds - at farm - Unspecified		Suspect sampling	Industry sampling	animal sample > organ/tissue		Animal	20	0			
Dogs - pet animals - Clinical investigations		Suspect sampling	Not applicable	animal sample > organ/tissue		Animal	6	0			
Dogs - pet animals - Clinical investigations		Suspect sampling	Not applicable	animal sample > faeces		Animal	15	1			
Minks - farmed - at farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample > organ/tissue		Animal	15	0			
Other animals - at zoo - Unspecified		Unspecified	HACCP and owns check	animal sample > faeces		Animal	17	2		2	

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:-
Pigs - at farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample > faeces		Animal	6	0			
Pigs - at farm - Clinical investigations		Suspect sampling	Official and industry sampling	animal sample > organ/tissue		Animal	16	0			
Pigs - at farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample > organ/tissue		Animal	67	9		2	
Sheep - meat production animals - at farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample > organ/tissue		Animal	9	0			
Solipeds, domestic - horses - at farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample > organ/tissue		Animal	3	0			

	Salmonella spp., unspecified	S. Bareilly	S. Derby
Sheep - at farm - Monitoring			
Solipeds, domestic - horses - at farm - Monitoring			
Cats - pet animals - Clinical investigations			
Cats - pet animals - Clinical investigations			
Cattle (bovine animals) - at farm - Unspecified			
Cattle (bovine animals) - mixed herds - at farm - Clinical investigations			

Table Salmonella in other animals

	Salmonella spp., unspecified	S. Bareilly	S. Derby
Cattle (bovine animals) - mixed herds - at farm - Unspecified			
Dogs - pet animals - Clinical investigations			
Dogs - pet animals - Clinical investigations			1
Minks - farmed - at farm - Clinical investigations			
Other animals - at zoo - Unspecified			
Pigs - at farm - Clinical investigations			
Pigs - at farm - Clinical investigations			
Pigs - at farm - Clinical investigations		7	
Sheep - meat production animals - at farm - Clinical investigations			
Solipeds, domestic - horses - at farm - Clinical investigations			

Table Salmonella in other poultry

	No of flocks under control programme	Source of information	Sampling strategy	Sampler	Sample type	Sample Origin	Target Verification	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis
Gallus gallus (fowl) - laying hens - day-old chicks - Control and eradication programmes			Objective sampling	Official and industry sampling	animal sample > organ/tissue			Flock	7	0	
Gallus gallus (fowl) - laying hens - during rearing period - Control and eradication programmes			Objective sampling	Official and industry sampling	animal sample > faeces			Flock	50	1	1
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes			Census	Official and industry sampling	animal sample > faeces		yes	Flock	370	9	4
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes			Census	Official and industry sampling	animal sample > faeces		yes	Flock	185	5	3
Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes			Census	Official and industry sampling	animal sample > faeces		yes	Flock	2	0	
Ducks - meat production flocks			Census	Official and industry sampling	animal sample > faeces			Flock	7	1	
Geese - meat production flocks			Census	Official and industry sampling	animal sample > faeces			Flock	8	0	

	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Bovismorbificans	S. Goldcoast	S. Indiana	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							

Table Salmonella in other poultry

	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Bovismorbificans	S. Goldcoast	S. Indiana	S. Infantis
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	2			1			2
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	1					1	
Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes							
Ducks - meat production flocks					1		
Geese - meat production flocks							

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 - process control - at feed mill - Surveillance			HACCP and owns check	feed sample		Single	25g	2	0		
Compound feedingstuffs for cattle - final product - at feed mill - Surveillance			Official sampling	feed sample		Batch	25g	10	0		
Compound feedingstuffs for pigs - final product - at feed mill - Surveillance			Official sampling	feed sample		Batch	25g	50	0		
Compound feedingstuffs for poultry (non specified) - final product - at feed mill - Surveillance			Official sampling	feed sample		Batch	25g	30	0		
Compound feedingstuffs for poultry - breeders - final product - at feed mill - Surveillance			Official sampling	feed sample		Batch	25g	15	0		
Compound feedingstuffs for poultry - laying hens - final product - at feed mill - Surveillance			Official sampling	feed sample		Batch	25g	140	1		
Compound feedingstuffs for poultry - broilers - final product - at feed mill - Surveillance			Official sampling	feed sample		Batch	25g	15	0		
Complementary feedingstuffs - final product - in total			HACCP and owns check	feed sample		Single	25g	20	1		
Complementary feedingstuffs - final product - in total - Surveillance			Official sampling	feed sample		Batch	25g	50	0		
Compound feedingstuffs for cattle - final product - in total			HACCP and owns check	feed sample		Single	25g	2	0		

Table Salmonella in compound feedingstuffs

	Source of information	Sampling strategy	Sampler	Sample type	Sample Origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Compound feedingstuffs for fish - final product - in total			HACCP and owns check	feed sample		Single	25g	1	0		
Compound feedingstuffs for fur animal - final product - in total - Surveillance			Official sampling	feed sample		Batch	25g	5	0		
Compound feedingstuffs for pigs - final product - in total			HACCP and owns check	feed sample		Single	25g	31	0		
Compound feedingstuffs for poultry - breeders - final product - in total			HACCP and owns check	feed sample		Single	25g	9	0		
Compound feedingstuffs for poultry - broilers - final product - in total			HACCP and owns check	feed sample		Single	25g	38	0		
Compound feedingstuffs for poultry - laying hens - final product - in total			HACCP and owns check	feed sample		Single	25g	21	0		
Compound feedingstuffs for sheep - final product - in total			Official sampling	feed sample		Batch	25g	5	0		
Pet food - final product - in total			HACCP and owns check	feed sample		Single	25g	28	0		
Pet food - final product - in total - Surveillance			Official sampling	feed sample		Batch	25g	25	0		

	Salmonella spp., unspecified	S. Derby	S. Virchow
Compound feedingstuffs for cattle - process control - at feed mill - Surveillance			
Compound feedingstuffs for cattle - final product - at feed mill - Surveillance			

Table Salmonella in compound feedingstuffs

	Salmonella spp., unspecified	S. Derby	S. Virchow
Compound feedingstuffs for pigs - final product - at feed mill - Surveillance			
Compound feedingstuffs for poultry (non specified) - 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			1
Compound feedingstuffs for poultry - broilers - final product - at feed mill - Surveillance			
Complementary feedingstuffs - final product - in total		1	
Complementary feedingstuffs - final product - in total - Surveillance			
Compound feedingstuffs for cattle - final product - in total			
Compound feedingstuffs for fish - final product - in total			
Compound feedingstuffs for fur animal - final product - in total - Surveillance			
Compound feedingstuffs for pigs - final product - in total			
Compound feedingstuffs for poultry - breeders - final product - in total			

Table Salmonella in compound feedingstuffs

	Salmonella spp., unspecified	S. Derby	S. Virchow
Compound feedingstuffs for poultry - broilers - final product - in total			
Compound feedingstuffs for poultry - laying hens - final product - in total			
Compound feedingstuffs for sheep - final product - in total			
Pet food - final product - in total			
Pet food - final product - in total - Surveillance			

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 meal - at feed mill - Surveillance			Official sampling	feed sample		Batch	25g	5	0		
Feed material of land animal origin - poultry offal meal - at feed mill - Surveillance			Official sampling	feed sample		Batch	25g	0	0		
Feed material of marine animal origin - fish meal - at feed mill - Surveillance			Official sampling	feed sample		Batch	25g	0	0		
Feed material of land animal origin - meat and bone meal			HACCP and owns check	feed sample		Single	25g	22	0		
Feed material of land animal origin - meat meal			HACCP and owns check	feed sample		Single	25g	30	3		
Feed material of land animal origin - poultry offal meal			HACCP and owns check	feed sample		Single	25g	34	6		
Feed material of marine animal origin - fish meal			HACCP and owns check	feed sample		Single	25g	701	9		
Feed material of marine animal origin - fish oil			HACCP and owns check	feed sample		Single	25g	38	0		
Feed material of marine animal origin - fish silage			HACCP and owns check	feed sample		Single	25g	2	0		

	Salmonella spp., unspecified	S. Anatum	S. Bareilly	S. Bredeney	S. Infantis	S. Kedougou	S. Livingstone	S. Senftenberg	S. Tennessee
Feed material of land animal origin - meat meal - at feed mill - Surveillance									

Table Salmonella in feed material of animal origin

	Salmonella spp., unspecified	S. Anatum	S. Bareilly	S. Bredeney	S. Infantis	S. Kedougou	S. Livingstone	S. Senftenberg	S. Tennessee
Feed material of land animal origin - poultry offal meal - at feed mill - Surveillance									
Feed material of marine animal origin - fish meal - at feed mill - Surveillance									
Feed material of land animal origin - meat and bone meal									
Feed material of land animal origin - meat meal							3		
Feed material of land animal origin - poultry offal meal		1	1		1		2	1	
Feed material of marine animal origin - fish meal				1		3			5
Feed material of marine animal origin - fish oil									
Feed material of marine animal origin - fish silage									

Table Salmonella in other feed matter

	Source of information	Sampling strategy	Sampler	Sample type	Sample Origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Feed material of oil seed or fruit origin - soya (bean) derived - at feed mill - Surveillance			Official sampling	feed sample		Batch	25g	15	0		
Feed material of oil seed or fruit origin - sunflower seed derived - at feed mill - Surveillance			Official sampling	feed sample		Batch	25g	5	5		
Feed material of cereal grain origin - barley derived			HACCP and owns check	feed sample		Single	25g	1	0		
Feed material of cereal grain origin - maize derived			HACCP and owns check	feed sample		Single	25g	10	0		
Feed material of cereal grain origin - other cereal grain derived			HACCP and owns check	feed sample		Single	25g	1	0		
Feed material of cereal grain origin - wheat derived			HACCP and owns check	feed sample		Single	25g	10	0		
Feed material of oil seed or fruit origin - rape seed derived			HACCP and owns check	feed sample		Single	25g	3	0		
Feed material of oil seed or fruit origin - soya (bean) derived			HACCP and owns check	feed sample		Single	25g	25	0		
Feed material of oil seed or fruit origin - sunflower seed derived			HACCP and owns check	feed sample		Single	25g	10	0		
Other feed material - legume seeds and similar products			HACCP and owns check	feed sample		Single	25g	1	0		
Other feed material - vegetable			HACCP and owns check	feed sample		Single	25g	4	0		

Table Salmonella in other feed matter

	Salmonella spp., unspecified	S. Agona
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		5
Feed material of cereal grain origin - barley derived		
Feed material of cereal grain origin - maize derived		
Feed material of cereal grain origin - other cereal grain derived		
Feed material of cereal grain origin - wheat derived		
Feed material of oil seed or fruit origin - rape seed derived		
Feed material of oil seed or fruit origin - soya (bean) derived		
Feed material of oil seed or fruit origin - sunflower seed derived		
Other feed material - legume seeds and similar products		
Other feed material - vegetable		

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							9						17
Number of isolates serotyped	0	0	0	0	0	0	9	0	0	0	0	0	17
Number of isolates per serovar													
S. Bareilly							7						
S. Bovismorbificans													1
S. Derby													
S. Enteritidis													9
S. Goldcoast													1
S. Indiana													1

Table Salmonella serovars in animals

Serovar / Sources of isolates	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Number of isolates in the laboratory							9						17
Number of isolates serotyped	0	0	0	0	0	0	9	0	0	0	0	0	17
Number of isolates per serovar													
S. Infantis													2
S. Typhimurium							2						3

Serovar / Sources of isolates	Other poultry			Other animals			
	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory						3	
Number of isolates serotyped	0	0	0	0	0	3	0
Number of isolates per serovar							
S. Bareilly							
S. Bovismorbificans							
S. Derby						1	
S. Enteritidis							

Table Salmonella serovars in animals

Serovar	Other poultry			Other animals			
Sources of isolates	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory						3	
Number of isolates serotyped	0	0	0	0	0	3	0
Number of isolates per serovar							
S. Goldcoast							
S. Indiana							
S. Infantis							
S. Typhimurium						2	

Table Salmonella serovars in feed

Serovar	Compound feedingstuffs for pigs		Complementary feedingstuffs - final product		Compound feedingstuffs for poultry - laying hens - final product		Feed material of land animal origin - meat meal		Feed material of land animal origin - poultry offal meal		Feed material of marine animal origin - fish meal		Feed material of oil seed or fruit origin - sunflower seed derived
Sources of isolates	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring
Number of isolates in the laboratory								3		6		9	5
Number of isolates serotyped	0	0	0	1	1	0	0	3	0	6	0	9	5
Number of isolates per serovar													
S. Agona													5
S. Anatum										1			
S. Bareilly										1			
S. Bredeney												1	
S. Derby				1									
S. Infantis										1			
S. Kedougou												3	
S. Livingstone								3		2			
S. Senftenberg										1			

Table Salmonella serovars in feed

Serovar	Compound feedingstuffs for pigs		Complementary feedingstuffs - final product		Compound feedingstuffs for poultry - laying hens - final product		Feed material of land animal origin - meat meal		Feed material of land animal origin - poultry offal meal		Feed material of marine animal origin - fish meal		Feed material of oil seed or fruit origin - sunflower seed derived
Sources of isolates	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring
Number of isolates in the laboratory								3		6		9	5
Number of isolates serotyped	0	0	0	1	1	0	0	3	0	6	0	9	5
Number of isolates per serovar													
S. Tennessee												5	
S. Virchow					1								

Serovar	Feed material of oil seed or fruit origin - sunflower seed derived
Sources of isolates	Clinical
Number of isolates in the laboratory	
Number of isolates serotyped	0
Number of isolates per serovar	
S. Agona	
S. Anatum	

Table Salmonella serovars in feed

Serovar	Feed material of oil seed or fruit origin - sunflower seed derived
Sources of isolates	Clinical
Number of isolates in the laboratory	
Number of isolates serotyped	0
Number of isolates per serovar	
S. Bareilly	
S. Bredeney	
S. Derby	
S. Infantis	
S. Kedougou	
S. Livingstone	
S. Senftenberg	
S. Tennessee	
S. Virchow	

Table Salmonella serovars in feed

Footnote:

Monitoring - official sampling, Clinical -HACCP

Table Salmonella serovars in food

Serovar / Sources of isolates	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Meat from other poultry species		Other products of animal origin	
	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance
Number of isolates in the laboratory				1	20	5				
Number of isolates serotyped	0	0	0	1	20	5	0	0	0	0
Number of isolates per serovar										
S. Enteritidis				1	19					
S. Typhimurium					1					
S. Virchow						5				

Table Salmonella Enteritidis phagetypes in animals

Phagetype / Sources of isolates	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Number of isolates in the laboratory										1			3
Number of isolates phagetyped	0	0	0	0	0	0	0	0	0	1	0	0	3
Number of isolates per phagetype													
PT 6a										1			1
PT 7													2

Phagetype / Sources of isolates	Other poultry		
	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory			
Number of isolates phagetyped	0	0	0
Number of isolates per phagetype			
PT 6a			
PT 7			

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					22					
Number of isolates phagetyped	0	0	0	0	22	0	0	0	0	0
Number of isolates per phagetype										
PT 1					3					
PT 13a					1					
PT 14b					5					
PT 21					3					
PT 6					10					

Table Salmonella Typhimurium phagetypes in animals

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

Phagetype / Sources of isolates	Other poultry		
	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory			
Number of isolates phagetyped	0	0	0
Number of isolates per phagetype			
Other			

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	
Sources of isolates	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance
Number of isolates in the laboratory					1					
Number of isolates phagetyped	0	0	0	0	1	0	0	0	0	0
Number of isolates per phagetype										
Other					1					

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 S. Agona in Feed material of oil seed or fruit origin - sunflower seed derived - at feed mill - Control and eradication programmes - Official sampling - feed sample - quantitative data [Dilution method]

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

S. Agona	Feed material of oil seed or fruit origin - sunflower seed derived - at feed mill - Control and eradication programmes																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	5																								
Antimicrobials:	Cut-off value	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides - Gentamicin	2	5	0						5															0.25	32
Aminoglycosides - Streptomycin	16	5	0											5										2	128
Amphenicols - Chloramphenicol	16	5	0											5										2	64
Amphenicols - Florfenicol																								2	64
Cephalosporins - Cefotaxime	0.5	5	0					5																0.06	4
Fluoroquinolones - Ciprofloxacin	0.06	5	0			5																		0.008	8
Penicillins - Ampicillin	8	5	0								5													0.5	32
Quinolones - Nalidixic acid	16	5	0										5											4	64
Sulfonamides	256	5	0												5									8	1024
Tetracyclines - Tetracycline	8	5	0									5												1	64
Trimethoprim	2	5	0							5														0.5	32

Table Antimicrobial susceptibility testing of S. Enteritidis in Meat from broilers (Gallus gallus) - carcase - at slaughterhouse - Official sampling - food sample - neck skin - quantitative data [Dilution method]

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

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

Table Antimicrobial susceptibility testing of S. Enteritidis in Meat from broilers (Gallus gallus) - fresh - at retail - Official sampling - food sample - meat - 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 - at retail																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	8																								
Antimicrobials:	Cut-off value	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides - Gentamicin	2	8	0							8														0.25	32
Aminoglycosides - Streptomycin	16	8	0									8												2	128
Amphenicols - Chloramphenicol	16	8	0											8										2	64
Amphenicols - Florfenicol		8	8										5	3										2	64
Cephalosporins - Cefotaxime	0.5	8	0				2	6																0.06	4
Fluoroquinolones - Ciprofloxacin	0.06	8	3			5			3															0.008	8
Penicillins - Ampicillin	8	8	0									8												0.5	32
Quinolones - Nalidixic acid	16	8	3										5				3							4	64
Sulfonamides	256	8	0													3	5							8	1024
Tetracyclines - Tetracycline	8	8	0									8												1	64
Trimethoprim	2	8	0							8														0.5	32

Table Antimicrobial susceptibility testing of S. Typhimurium in Meat from broilers (Gallus gallus) - fresh - at retail - Official sampling - food sample - meat - 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	1																								
Antimicrobials:	Cut-off value	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides - Gentamicin	2	1	0						1															0.25	32
Aminoglycosides - Streptomycin	16	1	1													1								2	128
Amphenicols - Chloramphenicol	16	1	1														1							2	64
Amphenicols - Florfenicol		1	1										1											2	64
Cephalosporins - Cefotaxime	0.5	1	0						1															0.06	4
Fluoroquinolones - Ciprofloxacin	0.06	1	1						1															0.008	8
Penicillins - Ampicillin	8	1	1													1								0.5	32
Quinolones - Nalidixic acid	16	1	1														1							4	64
Sulfonamides	256	1	1																		1			8	1024
Tetracyclines - Tetracycline	8	1	1														1							1	64
Trimethoprim	2	1	1													1								0.5	32

Table Antimicrobial susceptibility testing of S. Enteritidis in Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail - Official sampling - food sample - meat - 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 - intended to be eaten cooked - at retail																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	5																								
Antimicrobials:	Cut-off value	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides - Gentamicin	2	5	0						5															0.25	32
Aminoglycosides - Streptomycin	16	5	0									5												2	128
Amphenicols - Chloramphenicol	16	5	0										5											2	64
Amphenicols - Florfenicol		5	5										5											2	64
Cephalosporins - Cefotaxime	0.5	5	0				5																	0.06	4
Fluoroquinolones - Ciprofloxacin	0.06	5	0			5																		0.008	8
Penicillins - Ampicillin	8	5	0									5												0.5	32
Quinolones - Nalidixic acid	16	5	0										5											4	64
Sulfonamides	256	5	0														5							4	1024
Tetracyclines - Tetracycline	8	5	0									5												1	64
Trimethoprim	2	5	0							5														0.5	32

Table Antimicrobial susceptibility testing of S. Enteritidis in Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - at retail - Official sampling - food sample - meat - quantitative data [Dilution method]

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

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

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - Official and industry sampling - animal sample - faeces - 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 - Control and eradication programmes																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	5																								
Antimicrobials:	Cut-off value	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides - Gentamicin	2	5	0						4	1														0.25	32
Aminoglycosides - Streptomycin	16	5	0									3	2											2	128
Amphenicols - Chloramphenicol	16	5	0										4	1										2	64
Amphenicols - Florfenicol		5	5										5											2	64
Cephalosporins - Cefotaxime	0.5	5	0				3		2															0.06	4
Fluoroquinolones - Ciprofloxacin	0.06	5	0			5																		0.008	8
Penicillins - Ampicillin	8	5	0								2	3												0.5	32
Quinolones - Nalidixic acid	16	5	0										5											4	64
Sulfonamides	256	5	0													2	3							8	1024
Tetracyclines - Tetracycline	8	5	0									5												1	64
Trimethoprim	2	5	0							5														0.5	32

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

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

S. Typhimurium	Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes																							
Isolates out of a monitoring program (yes/no)	yes																							
Number of isolates available in the laboratory	2																							
Antimicrobials:	Cut-off value	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides - Gentamicin	2	2	0						1	1														0.25	32
Aminoglycosides - Streptomycin	16	2	0											2										2	128
Amphenicols - Chloramphenicol	16	2	0										2											2	64
Amphenicols - Florfenicol		2	2										2											2	64
Cephalosporins - Cefotaxime	0.5	2	0					2																0.06	4
Fluoroquinolones - Ciprofloxacin	0.06	2	0			2																		0.008	8
Penicillins - Ampicillin	8	2	0									2												0.5	32
Quinolones - Nalidixic acid	16	2	0										2											4	64
Sulfonamides	256	2	0													1	1							8	1024
Tetracyclines - Tetracycline	8	2	0									2												1	64
Trimethoprim	2	2	0							2														0.5	32

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

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

S. Typhimurium	Gallus gallus (fowl) - broilers - before slaughter - at farm - 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	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides - Gentamicin	2	1	0						1															0.25	32
Aminoglycosides - Streptomycin	16	1	0											1										2	128
Amphenicols - Chloramphenicol	16	1	0											1										2	64
Amphenicols - Florfenicol		1	1										1											2	64
Cephalosporins - Cefotaxime	0.5	1	0				1																	0.06	4
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																		0.008	8
Penicillins - Ampicillin	8	1	0								1													0.5	32
Quinolones - Nalidixic acid	16	1	0										1											4	64
Sulfonamides	256	1	1																		1			8	1024
Tetracyclines - Tetracycline	8	1	0									1												1	64
Trimethoprim	2	1	0							1														0.5	32

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

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

S. Infantis	Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes																							
Isolates out of a monitoring program (yes/no)	yes																							
Number of isolates available in the laboratory	2																							
Antimicrobials:	Cut-off value	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides - Gentamicin	2	2	0						1	1														0.25	32
Aminoglycosides - Streptomycin	16	2	0											2										2	128
Amphenicols - Chloramphenicol	16	2	0											2										2	64
Amphenicols - Florfenicol		2	2										1	1										2	64
Cephalosporins - Cefotaxime	0.5	2	0					2																0.06	4
Fluoroquinolones - Ciprofloxacin	0.06	2	0		1	1																		0.008	8
Penicillins - Ampicillin	8	2	0								1	1												0.5	32
Quinolones - Nalidixic acid	16	2	0										2											4	64
Sulfonamides	256	2	0													1	1							8	1024
Tetracyclines - Tetracycline	8	2	0									2												1	64
Trimethoprim	2	2	0							2														0.5	32

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

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

S. Bovismorbificans	Gallus gallus (fowl) - laying hens - adult - at farm - 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	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides - Gentamicin	2	1	0						1															0.25	32
Aminoglycosides - Streptomycin	16	1	0											1										2	128
Amphenicols - Chloramphenicol	16	1	0											1										2	64
Amphenicols - Florfenicol		1	1										1											2	64
Cephalosporins - Cefotaxime	0.5	1	0					1																0.06	4
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																		0.008	8
Penicillins - Ampicillin	8	1	0								1													0.5	32
Quinolones - Nalidixic acid	16	1	0										1											4	64
Sulfonamides	256	1	0													1								8	1024
Tetracyclines - Tetracycline	8	1	0								1													1	64
Trimethoprim	2	1	0							1														0.5	32

Table Antimicrobial susceptibility testing of S. Goldcoast in Ducks - meat production flocks - at farm - Control and eradication programmes - Official and industry sampling - animal sample - faeces - quantitative data [Dilution method]

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

S. Goldcoast	Ducks - meat production flocks - at farm - 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	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides - Gentamicin	2	1	0						1															0.25	32
Aminoglycosides - Streptomycin	16	1	1															1						2	128
Amphenicols - Chloramphenicol	16	1	0										1											2	64
Amphenicols - Florfenicol		1	1										1											2	64
Cephalosporins - Cefotaxime	0.5	1	0				1																	0.06	4
Fluoroquinolones - Ciprofloxacin	0.06	1	0		1																			0.008	8
Penicillins - Ampicillin	8	1	1													1								0.5	32
Quinolones - Nalidixic acid	16	1	0										1											4	64
Sulfonamides	256	1	1																		1			8	1024
Tetracyclines - Tetracycline	8	1	1														1							1	64
Trimethoprim	2	1	1													1								0.5	32

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

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

S. Indiana	Gallus gallus (fowl) - broilers - before slaughter - at farm - 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	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides - Gentamicin	2	1	0						1															0.25	32
Aminoglycosides - Streptomycin	16	1	1															1						2	128
Amphenicols - Chloramphenicol	16	1	0										1											2	64
Amphenicols - Florfenicol		1	1										1											2	64
Cephalosporins - Cefotaxime	0.5	1	0				1																	0.06	4
Fluoroquinolones - Ciprofloxacin	0.06	1	0		1																			0.008	8
Penicillins - Ampicillin	8	1	1													1								0.5	32
Quinolones - Nalidixic acid	16	1	0										1											4	64
Sulfonamides	256	1	1																		1			8	1024
Tetracyclines - Tetracycline	8	1	1														1							1	64
Trimethoprim	2	1	1													1								0.5	32

Table Antimicrobial susceptibility testing of S. Typhimurium in Pigs - at farm - Clinical investigations - Industry sampling - animal sample - organ/tissue - quantitative data [Dilution method]

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

S. Typhimurium	Pigs - at farm - Clinical investigations																								
Isolates out of a monitoring program (yes/no)	no																								
Number of isolates available in the laboratory	1																								
Antimicrobials:	Cut-off value	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides - Gentamicin	2	1	0								1													0.25	32
Aminoglycosides - Streptomycin	16	1	0												1									2	128
Amphenicols - Chloramphenicol	16	1	0											1										2	64
Amphenicols - Florfenicol		1	1										1											2	64
Cephalosporins - Cefotaxime	0.5	1	0				1																	0.06	4
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																		0.008	8
Penicillins - Ampicillin	8	1	0								1													0.5	32
Quinolones - Nalidixic acid	16	1	0										1											4	64
Sulfonamides	256	1	0														1							8	1024
Tetracyclines - Tetracycline	8	1	0									1												1	64
Trimethoprim	2	1	0							1														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	NON-EFSA	16	
Amphenicols	Chloramphenicol	EFSA	16	
Cephalosporins	Cefotaxime	EFSA	0.5	
Fluoroquinolones	Ciprofloxacin	EFSA	0.06	
Penicillins	Ampicillin	NON-EFSA	8	
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	NON-EFSA	16	
Amphenicols	Chloramphenicol	EFSA	16	
Cephalosporins	Cefotaxime	EFSA	0.5	
Fluoroquinolones	Ciprofloxacin	EFSA	0.06	
Penicillins	Ampicillin	NON-EFSA	8	
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	NON-EFSA	16	
Amphenicols	Chloramphenicol	EFSA	16	
Cephalosporins	Cefotaxime	EFSA	0.5	
Fluoroquinolones	Ciprofloxacin	EFSA	0.06	
Penicillins	Ampicillin	NON-EFSA	8	
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).

In 2009 and 2010,and 2011 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
Cattle (bovine animals) - calves (under 1 year) - at slaughterhouse - Monitoring		Suspect sampling	Industry sampling	animal sample > faeces		Animal	8	0			
Pigs - breeding animals - at farm - Monitoring		Suspect sampling	Industry sampling	animal sample > faeces		Animal	5	1	1		
Dogs		Suspect sampling		animal sample > faeces		Animal	15	0			
Cats		Suspect sampling		animal sample > faeces		Animal	7	0			
Cattle (bovine animals) - calves (under 1 year) - dairy calves - at farm - Clinical investigations		Suspect sampling	HACCP and owns check	animal sample > faeces		Animal	8	0			
Other animals - at zoo - Clinical investigations		Suspect sampling	HACCP and owns check	animal sample > faeces		Animal	10	0			
Pigeons - Clinical investigations		Suspect sampling	HACCP and owns check	animal sample > faeces		Animal	2	0			
Pigs - at farm - Clinical investigations		Suspect sampling	HACCP and owns check	animal sample > organ/tissue		Animal	2	0			
Pigs - at farm - Clinical investigations		Suspect sampling	HACCP and owns check	animal sample > faeces		Animal	3	1	1		

Table Campylobacter in animals

	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Cattle (bovine animals) - calves (under 1 year) - at slaughterhouse - Monitoring		
Pigs - breeding animals - at farm - Monitoring		
Dogs		
Cats		
Cattle (bovine animals) - calves (under 1 year) - dairy calves - at farm - Clinical investigations		
Other animals - at zoo - Clinical investigations		
Pigeons - Clinical investigations		
Pigs - at farm - Clinical investigations		
Pigs - at farm - Clinical investigations		

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.

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.

Additional information

In the year 2011 L. monocytogenes were controled in the framework of EU Coordinated programme.

2.3.2 Listeria in foodstuffs

Table Listeria monocytogenes in milk and dairy products

	Source of information	Sampling strategy	Sampler	Sample type	Sample Origin	Sampling unit	Sample weight	Units tested	Total units positive for L. monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk - at processing plant		Census	HACCP and owns check	food sample		Single	25g	90	0	79	0
Dairy products (excluding cheeses) - butter - made from pasteurised milk - at processing plant		Census	HACCP and owns check	food sample		Single	25g	15	0	15	0
Dairy products (excluding cheeses) - cream - made from pasteurised milk - at processing plant		Census	HACCP and owns check	food sample		Single	25g	20	0	0	0
Dairy products (excluding cheeses) - dairy products, not specified		Census	HACCP and owns check	food sample		Single	25g	406	0	386	0
Dairy products (excluding cheeses) - ice-cream		Census	HACCP and owns check	food sample		Single	25g	33	0	28	0
Milk, cows' - pasteurised milk		Census	HACCP and owns check	food sample > milk		Single	25g	27	0	22	0
Milk, cows' - raw milk - at farm		Census	HACCP and owns check	food sample > milk		Single	25g	3	0	3	0
Milk, sheep's - raw milk		Census	HACCP and owns check	food sample > milk		Single	25g	10	0	5	0

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk - at processing plant	11	0	

Table Listeria monocytogenes in milk and dairy products

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Dairy products (excluding cheeses) - butter - made from pasteurised milk - at processing plant	0	0	
Dairy products (excluding cheeses) - cream - made from pasteurised milk - at processing plant	20	0	
Dairy products (excluding cheeses) - dairy products, not specified	20	0	
Dairy products (excluding cheeses) - ice-cream	5	0	
Milk, cows' - pasteurised milk	5	0	
Milk, cows' - raw milk - at farm	0	0	
Milk, sheep's - raw milk	5	0	

Footnote:

Use LVS ISO 11290-1+A:2007 or LVS ISO 11290-2+A:2007

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
Fish - raw - at processing plant		Census	HACCP and owns check	food sample		Single	25g	62	7	37	7
Fish - raw - frozen		Census	HACCP and owns check	food sample		Single	25g	59	1	59	1
Fish - smoked - at processing plant		Census	HACCP and owns check	food sample		Single	25g	57	0	57	0
Fishery products, unspecified - ready-to-eat - in total		Census	HACCP and owns check	food sample		Single	25g	97	2	65	1
Meat from bovine animals - fresh - at processing plant		Census	HACCP and owns check	food sample > meat		Single	25g	13	3	13	3
Meat from broilers (Gallus gallus) - fresh - at processing plant		Census	HACCP and owns check	food sample > meat		Single	25g	290	0	245	0
Meat from pig - fresh - at processing plant		Census	HACCP and owns check	food sample > meat		Single	25g	26	2	16	1
Meat from pig - meat products - at processing plant		Census	HACCP and owns check	food sample > meat		Single	25g	5	0	5	0
Meat from pig - meat products - cooked, ready-to-eat - at processing plant		Census	HACCP and owns check	food sample > meat		Single	25g	34	0	34	0
Meat, mixed meat - meat products - cooked, ready-to-eat		Census	HACCP and owns check	food sample > meat		Single	25g	213	6	127	6
Other food		Census	HACCP and owns check	food sample		Single	25g	99	0	29	0
Vegetables - pre-cut - ready-to-eat		Census	HACCP and owns check	food sample		Single	25g	16	0	15	0
Vegetables - products		Census	HACCP and owns check	food sample		Single	25g	1	0	1	0

Table Listeria monocytogenes in other foods

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Fish - raw - at processing plant	25	0	
Fish - raw - frozen	0	0	
Fish - smoked - at processing plant	0	0	
Fishery products, unspecified - ready-to-eat - in total	32	1	
Meat from bovine animals - fresh - at processing plant	0	0	
Meat from broilers (Gallus gallus) - fresh - at processing plant	45	0	
Meat from pig - fresh - at processing plant	10	1	
Meat from pig - meat products - at processing plant	0	0	
Meat from pig - meat products - cooked, ready-to-eat - at processing plant	0	0	
Meat, mixed meat - meat products - cooked, ready-to-eat	86	0	
Other food	70	0	
Vegetables - pre-cut - ready-to-eat	1	0	
Vegetables - products	0	0	

Footnote:

Use LVS ISO 11290-1+A:2007 or LVS ISO 11290-2+A:2007

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) - at farm - Monitoring		Suspect sampling		animal sample > organ/tissue		Animal	10	0		
Cattle (bovine animals) - dairy cows - at farm - Monitoring		Suspect sampling	Official sampling	animal sample > foetus/stillbirth		Animal	48	12	11	1
Sheep - at farm - Monitoring		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	8	3	3	
Pigs - at farm - Monitoring		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	5	2	2	
Cattle (bovine animals) - unspecified - at farm - Clinical investigations		Suspect sampling	HACCP and owns check	animal sample > organ/tissue		Animal	15	0		
Minks - farmed - at farm - Clinical investigations		Suspect sampling	HACCP and owns check	animal sample > organ/tissue		Animal	9	1		1
Sheep - animals over 1 year - at farm - Clinical investigations		Suspect sampling	HACCP and owns check	animal sample > organ/tissue		Animal	9	0		
Solipeds, domestic - horses - Clinical investigations		Suspect sampling	Official sampling	animal sample > foetus/stillbirth		Animal	2	0		

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 2011, 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 2008 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 bovine animals - in total	HACCP	Census	HACCP and owns check	food sample > meat		ISO 16654:2001	Single	25g	6	0	
Meat from broilers (Gallus gallus) - fresh - unspecified	HACCP	Census	HACCP and owns check	food sample > meat		ISO 16654:2001	Single	25g	2	0	
Meat from pig - in total	HACCP	Census	HACCP and owns check	food sample > meat		ISO 16654:2001	Single	25g	28	0	

	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Meat from bovine animals - in total		
Meat from broilers (Gallus gallus) - fresh - unspecified		
Meat from pig - in total		

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		Suspect sampling	Industry sampling	animal sample			Animal	indefinite	328	2	1
Cats - Clinical investigations		Suspect sampling	Industry sampling	animal sample			Animal	indefinite	96	3	
Cattle (bovine animals) - at farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample			Animal	indefinite	90	5	
Gallus gallus (fowl) - at farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample			Animal	indefinite	13	3	
Other animals - exotic pet animals - Clinical investigations		Suspect sampling	Industry sampling	animal sample			Animal	indefinite	26	1	
Pigs - at farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample			Animal	indefinite	88	4	
Rabbits - pet animals - Clinical investigations		Suspect sampling	Industry sampling	animal sample			Animal	indefinite	13	1	
Sheep - at farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample			Animal	indefinite	17	5	
Zoo animals, all - at zoo - Clinical investigations		Suspect sampling	Industry sampling	animal sample			Animal	indefinite	14	1	

	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 O145	Verotoxigenic E. coli (VTEC) - VTEC O26
Dogs - Clinical investigations	1					1
Cats - Clinical investigations	3		1			2

Table VT E. coli in animals

	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 O145	Verotoxigenic E. coli (VTEC) - VTEC O26
Cattle (bovine animals) - at farm - Clinical investigations	5		3			2
Gallus gallus (fowl) - at farm - Clinical investigations	3		2			1
Other animals - exotic pet animals - Clinical investigations	1		1			
Pigs - at farm - Clinical investigations	4		2	1	1	
Rabbits - pet animals - Clinical investigations	1		1			
Sheep - at farm - Clinical investigations	5		4			1
Zoo animals, all - at zoo - Clinical investigations	1		1			

Footnote:

Bacteriological investigation, E.coli serotyping, but not detect VT1, VT2 and aea gene. Case of disease (faeces, various exudates, tissue) investigations of E.coli used direct inoculation on solid media: Blood agar, EMB and MacConkey agar. Sample weight not defined.

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 2011, 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 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. In case of bovine animal intra-Community trade, each animal from 6 weeks of age for breeding or production purposes had to be subjected to an intradermal tuberculin test before movement also.

Type of specimen taken

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 animals positive in the intradermal test:Classical bacteriology - OIE Manual, 2004, chapter 2.3.3.B.1.a),b)

Vaccination policy

Vaccination is prohibited.

Measures in case of the positive findings or single cases

If the result of the intradermal test is positive, the test has to be repeated. In case the second test also has a positive result, the animal has to be slaughtered within 30 days, and the diagnosis is confirmed by isolating Mycobacteria from the tissues. The herd is placed under restriction and has to be tested repeatedly.

Notification system in place

The Veterinary Surveillance Department of the Food and Veterinary Service is responsible for organization of the control of infectious animal diseases including zoonoses.
Surveillance and control of zoonotic diseases in animals is regulated by a number of special EU acts and national legislation. The general and basic national acts are the following:

- Law on Food Surveillance Circulation,

- Law on Veterinary Medicine,

- Regulation of the Cabinet of Ministers Nr. 298, 21 April 2006 "Procedures for prevention and combat of such infectious diseases as to which both animals and humans are susceptible" determines how to carry out prophylaxis and control of certain zoonoses.

Also the Directive 2003/99/EK is implemented into national law by Regulation issued by the Cabinet of Ministers: Regulation of the Cabinet of Ministers Nr. 90, 31, January 2012 "Procedures for surveillance and exchange of information of such infectious diseases as to which both animals and humans are susceptible, and of the antimicrobial resistance of agents".

If an infection with a zoonotic agent is suspected, this shall be notified to regional office of the Food and Veterinary Service. The regional office then informs the Veterinary Surveillance Department. State veterinary inspectors carry out further epidemiological investigation, sampling and take appropriate measures to prevent spread of the disease or entering of the food chain by a zoonotic agent.

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 2011, 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

Intradermal tuberculin test is carried out on farm. Sows, breeding boars which are used for breeding on the own farm exclusively, and young sows are tested annually as follows: 10% of the herd, but not less than 10 animals. If the herd consists of 1-10 animals, all animals are tested.

Type of specimen taken

Intradermal tuberculin test

Case definition

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

Vaccination policy

Vaccination is prohibited.

Notification system in place

The Veterinary Surveillance Department of the Food and Veterinary Service is responsible for the organization of the control of infectious animal diseases including zoonoses.
Surveillance and control of zoonotic diseases in animals is regulated by a number of special EU acts and national legislation. The general and basic national acts are the following:

- Law on Food Surveillance Circulation,

- Law on Veterinary Medicine,

- Also the Directive 2003/99/EK is implemented into national law by Regulation issued by the Cabinet of Ministers: Regulation of the Cabinet of Ministers Nr. 90, 31, January 2012 "Procedures for surveillance and exchange of information of such infectious diseases as to which both animals and humans are susceptible, and of the antimicrobial resistance of agents".

If an infection with a zoonotic agent is suspected, this shall be notified to regional office of the Food and Veterinary Service. The regional office then informs the Veterinary Surveillance Department. State veterinary inspectors carry out further epidemiological investigation, sampling and take appropriate measures to prevent spread of the disease or entering of the food chain by a zoonotic agent.

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
Sheep		Convenience sampling	Official sampling			Animal	0	0			
Goats		Convenience sampling	Official sampling			Animal	0	0			
Pigs	Control programme	Convenience sampling	Official sampling			Animal	21595	0			

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

If present, the row "Total -1" refers to analogous data of the previous year.

Region	Total number of existing bovine		Officially free herds		Infected herds		Routine tuberculin testing		Number of tuberculin tests carried out before the introduction into the herds (Annex A(I)(2)(c) third indent (1) of Directive 64/432/EEC)	Number of animals with suspicious lesions of tuberculosis examined and submitted to histopathological and bacteriological	Number of animals detected positive in bacteriological examination
	Herds	Animals	Number of herds	%	Number of herds	%	Interval between routine tuberculin tests	Number of animals tested			
Latvija	33998	380525	33998	100	0	0			7485	5984	
Total : [1)]	33998	380525	33998	100	0	0	N.A.	0	7485	5984	0

Comments:

[1)] 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 has been free, but not officially free from bovine brucellosis since 1963.

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.

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 1774/2002 of the European Parliament and of the Council of 3 October 2002 laying down health rules concerning animal by-products not intended for human consumption.
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 2010, according to the national control programme, 5% of the total number of goats older than 6 month 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

See B. melitensis in sheep.

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 2010, according to the national control programme, 5% of the total number of sheep older than 6 month 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 annually. Sows, young sows and breeding boars that are used for breeding in the own herd are tested as follows: 10% of the animals annually, but not less than 10 animals. If the herd consists of 1-10 animals, all animals are tested.

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 1774/2002 of the European Parliament and of the Council of 3 October 2002 laying down health rules concerning animal by -products not intended for human consumption.
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
Pigs	bacteriology investigation	Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	2	0			
Deer - zoo animals - Unspecified	serologycal investigation	Unspecified	HACCP and owns check	animal sample > blood		Animal	48	0			
Pigs - at farm - Surveillance	serologycal investigation	Selective sampling	Official and industry sampling	animal sample > blood		Animal	33128	0			
Solipeds, domestic - horses - Unspecified	serologycal investigation	Unspecified	HACCP and owns check	animal sample > blood		Animal	16	0			

	Brucella spp., unspecified
Pigs	
Deer - zoo animals - Unspecified	
Pigs - at farm - Surveillance	
Solipeds, domestic - horses - Unspecified	

Table Ovine or Caprine Brucellosis in countries and regions that do not receive Community co-financing for eradication programme

If present, the row "Total -1" refers to analogous data of the previous year.

Region	Total number of existing		Officially free herds		Infected herds		Surveillance			Investigations of suspect cases				
	Herds	Animals	Number of herds	%	Number of herds	%	Number of herds tested	Number of animals tested	Number of infected herds	Number of animals tested with serological blood tests	Number of animals positive serologically	Number of animals examined microbio logically	Number of animals positive microbio logically	Number of suspended herds
Latvija	7215	93261	7215	100	0	0	1373	9273	0	0	0	0	0	0
Total : [1)]	7215	93261	7215	100	0	0	1373	9273	0	0	0	0	0	0

Comments:

[1)] N.A.

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

If present, the row "Total -1" refers to analogous data of the previous year.

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	33998	380525	33998	100	0	0	6332	22899	0	656	16867	0	90	0	0	0	0	0	0	0	0
Total : [1)]	33998	380525	33998	100	0	0	6332	22899	0	656	16867	0	90	0	0	0	0	0	0	0	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
Cattle (bovine animals)		Suspect sampling	HACCP and owns check	animal sample > faeces		Animal	8	0			
Pigs - breeding animals - at farm - Monitoring		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	7	0			
Poultry, unspecified		Suspect sampling	HACCP and owns check	animal sample > faeces		Animal	3	0			
Dogs		Suspect sampling	HACCP and owns check	animal sample > faeces		Animal	15	0			
Cats		Suspect sampling	HACCP and owns check	animal sample > faeces		Animal	7	0			
Pigs - unspecified - at farm - Clinical investigations		Suspect sampling	HACCP and owns check	animal sample > organ/tissue		Animal	15	0			
Pigs - unspecified - at farm - Clinical investigations		Suspect sampling	HACCP and owns check	animal sample > faeces		Animal	3	0			

	Y. enterocolitica - O:3	Y. enterocolitica - O:9	Y. enterocolitica - unspecified
Cattle (bovine animals)			

Table Yersinia in animals

	Y. enterocolitica - O:3	Y. enterocolitica - O:9	Y. enterocolitica - unspecified
Pigs - breeding animals - at farm - Monitoring			
Poultry, unspecified			
Dogs			
Cats			
Pigs - unspecified - at farm - Clinical investigations			
Pigs - unspecified - at farm - Clinical investigations			

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	T. britovi
Pigs - fattening pigs - raised under controlled housing conditions - at slaughterhouse - Surveillance [1)]			Official and industry sampling	animal sample > organ/tissue		Animal	330901	2			2
Solipeds, domestic - horses - at slaughterhouse - Surveillance			Official and industry sampling	animal sample > organ/tissue		Animal	519	0			
Wild boars - wild - Surveillance			Official and industry sampling	animal sample > organ/tissue		Animal	2282	32			32
Beavers - wild - from hunting - Survey				animal sample > organ/tissue		Animal	4	0		0	
Lynx - wild - Surveillance				animal sample > organ/tissue		Animal	1	1		1	

Comments:

[1)] official controlled housing conditions

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						Animal	Latvija	92668	0		
Sheep - at slaughterhouse - Surveillance						Animal	Latvija	11285	0		
Goats - at slaughterhouse - Surveillance						Animal	Latvija	25	0		
Pigs - at slaughterhouse - Surveillance						Animal	Latvija	330901	0		
Solipeds, domestic - horses - at slaughterhouse - Surveillance						Animal	Latvija	519	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

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 2011, 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		Suspect sampling	Industry sampling	animal sample > blood		Latex agglutination test (LAT)	Animal	57	33	33	
Goats - at farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample > blood		Latex agglutination test (LAT)	Animal	1	1	1	
Dogs - Clinical investigations		Suspect sampling	Industry sampling	animal sample > blood		Latex agglutination test (LAT)	Animal	54	13	13	
Cats - Clinical investigations		Suspect sampling	Industry sampling	animal sample > blood		Latex agglutination test (LAT)	Animal	75	18	18	
Cattle (bovine animals) - at farm - Clinical investigations		Suspect sampling	Industry sampling	animal sample > blood		Latex agglutination test (LAT)	Animal	22	4	4	

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.

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 2010, 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 - 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 State agency „Infectology Center of Latvia", 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)		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	13			
Sheep		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	2			
Goats		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latgale	1			
Solipeds, domestic [1)]		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	2	1	1	
Dogs - stray dogs		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	25			
Cats - stray cats		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	29			
Foxes - wild - Monitoring		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	221	0		
Raccoon dogs - wild - Monitoring		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	115	0		
Wolves - wild - Monitoring		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Pierīga	1	0		
Badgers - wild - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	4	0		
Beavers - wild - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Zemgale	1	0		

Table Rabies in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample Origin	Sampling unit	Region	Units tested	Total units positive for Lyssavirus (rabies)	Rabies virus (RABV)	EBLV-1
Cats - pet animals - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	22	0		
Deer - wild - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Vidzeme	1	0		
Deer - wild - roe deer - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	6	0		
Dogs - pet animals - in total - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	22	0		
Guinea pigs - pet animals - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Rīga	1	0		
Hamsters - pet animals - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Rīga	1	0		
Hedgehogs - wild - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Pierīga	1	0		
Lynx - wild - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Vidzeme	1	0		
Marten - wild - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	8	0		
Minks - wild - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Zemgale	1	0		
Polecats - wild - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	5	0		
Rats - pet animal - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Rīga	1	0		

Table Rabies in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample Origin	Sampling unit	Region	Units tested	Total units positive for Lyssavirus (rabies)	Rabies virus (RABV)	EBLV-1
Wild boars - wild - Clinical investigations		Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	Latvija	2	0		

	EBLV-2	Lyssavirus (unspecified virus)
Cattle (bovine animals)		
Sheep		
Goats		
Solipeds, domestic [1)]		
Dogs - stray dogs		
Cats - stray cats		
Foxes - wild - Monitoring		
Raccoon dogs - wild - Monitoring		
Wolves - wild - Monitoring		
Badgers - wild - Clinical investigations		
Beavers - wild - Clinical investigations		
Cats - pet animals - Clinical investigations		
Deer - wild - Clinical investigations		
Deer - wild - roe deer - Clinical investigations		

Table Rabies in animals

	EBLV-2	Lyssavirus (unspecified virus)
Dogs - pet animals - in total - Clinical investigations		
Guinea pigs - pet animals - Clinical investigations		
Hamsters - pet animals - Clinical investigations		
Hedgehogs - wild - Clinical investigations		
Lynx - wild - Clinical investigations		
Marten - wild - Clinical investigations		
Minks - wild - Clinical investigations		
Polecats - wild - Clinical investigations		
Rats - pet animal - Clinical investigations		
Wild boars - wild - Clinical investigations		

Comments:

[1)] domestic

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 2011, no control programme was existing in Latvia regarding Coxiella brunetii (Q fever) infections in animals and food.
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 - Monitoring		Objective sampling	HACCP and owns check	animal sample > blood		ELISA	Animal	295	15	15	
Sheep - at farm - Monitoring		Objective sampling	HACCP and owns check	animal sample > blood		ELISA	Animal	33	0		

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 the State Agency Infectology center of Latvia (LIC) 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 2011, there were 51 outbreaks with 5 and more cases.

National evaluation of the reported outbreaks in the country:

Trends in numbers of outbreaks and numbers of human cases involved

51outbreaks included altogether 665 case.

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

Among all outbreaks 41.5% were due to Salmonella spp., 10.6% - due to Rotavirus, 38.6% - due to Norovirus, 3.4% - due to Trichinella, 2.7% were of unknown aethyology, and the rest related to other pathogens. Like previous years salmonelosis was caused mainly by improperly prepared broiler/egg products.

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	0	0	0	0	0	0
Salmonella - S. Enteritidis	16	276	unknown	0	0	16
Salmonella - Other serovars	0	0	0	0	0	0
Campylobacter	0	0	0	0	0	0
Listeria - Listeria monocytogenes	0	unknown	unknown	unknown	0	0
Listeria - Other Listeria	0	unknown	unknown	unknown	0	0
Yersinia	0	unknown	unknown	unknown	0	0
Escherichia coli, pathogenic - Verotoxigenic E. coli (VTEC)	0	unknown	unknown	unknown	0	0
Bacillus - B. cereus	0	unknown	unknown	unknown	0	0
Bacillus - Other Bacillus	0	unknown	unknown	unknown	0	0
Staphylococcal enterotoxins	0	unknown	unknown	unknown	0	0
Clostridium - Cl. botulinum	0	unknown	unknown	unknown	0	0
Clostridium - Cl. perfringens	0	unknown	unknown	unknown	0	0

	Weak evidence or no vehicle outbreaks					
	Number of outbreaks	Human cases	Hospitalized	Deaths	Strong evidence Number of Outbreaks	Total number of outbreaks
Clostridium - Other Clostridia	0	unknown	unknown	unknown	0	0
Other Bacterial agents - Brucella	0	unknown	unknown	unknown	0	0
Other Bacterial agents - Shigella	0	unknown	unknown	unknown	0	0
Other Bacterial agents - Other Bacterial agents	0	unknown	unknown	unknown	0	0
Parasites - Trichinella	3	23	19	0	0	3
Parasites - Giardia	0	unknown	unknown	unknown	0	0
Parasites - Cryptosporidium	0	unknown	unknown	unknown	0	0
Parasites - Anisakis	0	unknown	unknown	unknown	0	0
Parasites - Other Parasites	0	unknown	unknown	unknown	0	0
Viruses - Norovirus	16	257	34	0	0	16
Viruses - Hepatitis viruses	3	20	18	0	0	3
Viruses - Other Viruses	10	71	40	0	0	10
Other agents - Histamine	0	unknown	unknown	unknown	0	0
Other agents - Marine biotoxins	0	unknown	unknown	unknown	0	0
Other agents - Other Agents	0	unknown	unknown	unknown	0	0

	Weak evidence or no vehicle outbreaks					
	Number of outbreaks	Human cases	Hospitalized	Deaths	Strong evidence Number of Outbreaks	Total number of outbreaks
Unknown agent	3	18	11	0	0	3