



LUXEMBOURG

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

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

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

IN 2007

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: **Luxembourg**

Reporting Year: **2007**

Institutions and laboratories involved in reporting and monitoring:

Laboratory name	Description	Contribution
LMVE	Laboratoire de Médecine Vétérinaire de l'Etat	Diagnosis of pathogens in animal health zoonotic agents microbiology in food of animal origin
LNS	Laboratoire National de Santé (Human Health Laboratory)	Diagnosis of human pathogens zoonotic agents by humans microbiology in food from other than from animal origin
EPIFOOD	Laboratoire National de Santé	Research Project initiated from the "Fonds National de Recherche", but executed by the LNS in order to make a link between animal and human agents. This project is now finished

PREFACE

This report is submitted to the European Commission in accordance with Article 9 of Council Directive 2003/99/EC¹. 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 Luxembourg during the year 2007. 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.

¹ 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:

Statec: Jean-Paul Hoffmann

The data are those of 2006

2. INFORMATION ON SPECIFIC ZOOSES 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****2.1.2. Salmonellosis in humans****2.1.3. Salmonella in foodstuffs****Table Salmonella in poultry meat and products thereof**

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Typhimurium var. Copenhagen	S. Blockley	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	S. enterica, monophasic	S. Hadar	S. Infantis	S. Javiana	S. Paratyphi B var. Java
Meat from broilers (Gallus gallus) fresh	LMVE+	single	25 g	254	17	1	1	4	5		3	1	1	1	
meat preparation intended to be eaten cooked	LMVE	single	25 g	13	4				1						3
meat products cooked, ready-to-eat	LMVE	single	25 g	11	0										
Meat from turkey fresh	LMVE	single	25 g	7	0										
meat preparation intended to be eaten cooked	LMVE	single	25 g												

[illegible]

(1) : one preparation was contaminated by 2 strains:

S. typhimurium

-S. paratyphi B var Java

Table Salmonella in red meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Senftenberg	S. Rissen	S. Derby	S. Infantis	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	S. enterica, monophasic	S. Virchow
Meat from pig	LMVE+EPI	single	25 g	39	2						1		1	
fresh														
minced meat	LMVE	single	25 g	7	1			1						
intended to be eaten raw														
- at retail														
intended to be eaten cooked	LMVE	single	25 g	2	0									
- at retail														
meat preparation														
intended to be eaten cooked	LMVE+EPI	single	25 g	62	0									
- at retail														
meat products														
raw but intended to be eaten cooked	LMVE	single	25 g	28	1			1						
- at retail														
cooked, ready-to-eat														

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- at retail intended to be eaten cooked	LMVE+EPI		single	25 g	110	2						1				1
	LMVE		single	25 g	39	2										2
meat preparation intended to be eaten cooked																
	LMVE+EPI		single	25 g	175	10	1	1	1	2	1	2				3
meat products - at retail																
	LMVE		single	25 g	172	3						1				2
Meat from other animal species or not specified meat preparation intended to be eaten cooked																
	LMVE		single	25 g	34	1										1

(1) : it is mixed meat from bovine and from ovine origin

Table Salmonella in other food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	S. enterica, monophasic
Eggs									
table eggs									
- at retail	EPIFOOD+L	single	25 g	258	1				1
Infant formula									
dried									
intended for infants below 6 months	LNS	single	25 g	51	0				

2.1.4. Salmonella in animals**Table Salmonella in other poultry**

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Gallus gallus (fowl)							
laying hens							
during production period	LMVE	flock	8	2	2		

Table Salmonella in other animals

	Source of information		Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Derby	S. Haifa	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	S. Livingstone	S. Eboko	S. Typhimurium var. Copenhagen	S. Senftenberg	S. Stourbridge	S. enterica, monophasic	S. Agona	S. Anatum	S. Thompson	S. Desselau
	LMVE+I	animal	300	9	1								5		1	2				
Cattle (bovine animals)	LMVE	animal	3	0																
Sheep																				
Pigs																				
fattening pigs	LMVE+I	herd	55	30	2				22				5			1				
- at slaughterhouse - animal sample - Monitoring (fattening pigs)	LMVE+I	animal	3014	153	15				50			5	2	42	6	29	1	1	1	1

Footnote**Remark:**

Fattening pigs were sampled at slaughterhouse and feces, ileo-cecal lymph nodes and carcass swab samples were taken

Lymph nodes and carcass swabs were partly taken in the framework of the slaughter pig base line survey

In this report, all sampling techniques are put together and summerized in fattening pig herds

30 herds were positive for salmonella, but in one herd more than one salmonella type was isolated

The strains indicated in the report refer to the principal strain of an herd

The salmonella isolated refer to the animals and not to the herds

So 153 strains of salmonella were isolated among the animals of the 30 herds

S.typhimurium 50
S.tm.var Cop. 42
S.mono ent 29
S.derby 15
S.Senfenberg 6
S.Livingstone 5
S.eboko 2
S.anatum 1
S.agona 1
S.thompson 1
S. dessau 1
153

In one case 2 strains of Salmonella were isolated on one pig!!

2.1.5. Salmonella in feedingstuffs

Table Salmonella in other feed matter

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Feed material of cereal grain origin								
other cereal grain derived	official control	batch	25 g	1	0	0	0	0
Feed material of oil seed or fruit origin								
rape seed derived	official control	batch	25 g	4	0	0	0	0
soya (bean) derived	official control	batch	25 g	22	1	0	0	1

Table Salmonella in compound feedingstuffs

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Typhimurium	S. Enteritidis	Salmonella spp., unspecified
Compound feedingstuffs for cattle								
final product	official control	batch	25 g	39	0	0	0	0
Compound feedingstuffs for pigs								
final product	official control	batch	25 g	56	2	1	0	1
Compound feedingstuffs for poultry (non specified)								
final product	official control	batch	25 g	5	0	0	0	0
Compound feedingstuffs for poultry - laying hens								
final product	official control	batch	25 g	4	0	0	0	0
Compound feedingstuffs for poultry - broilers								
final product	official control	batch	25 g	5	0	0	0	0
Compound feedingstuffs for sheep								
- in total - Survey	official control	batch	25 g	2	0	0	0	0

2.1.6. Salmonella serovars and phagetype distribution

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

Table Salmonella serovars in food

Serovars	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Other poultry		Other products of animal origin		Meat from bovine animals and pig	
	M	C	M	C	M	C	M	C	M	C	M	C
Sources of isolates (*)												
Number of isolates in the laboratory	N=		4								17	
Number of isolates serotyped	N=	0	4	0	21	0	0	0	0	0	17	0
Number of isolates per type												
S. Blockley					1							
S. Derby			2									
S. Enteritidis					4							
S. Hadar					1							
S. Infantis					1							
S. Javiana					1							
S. Rissen											1	
S. Senftenberg											1	
S. Typhimurium			1		6						3	
S. Virchow											1	
S. Paratyphi B var. Java					3						3	
S. Typhimurium var. Copenhagen					1							
S. enterica, monophasic			1		3						8	

Footnote

(*) M : Monitoring, C : Clinical

2.1.7. Antimicrobial resistance in Salmonella isolates

Antimicrobial resistance is the ability of certain microorganisms to survive or grow in the presence of a given concentration of antimicrobial agent that usually would kill or inhibit the microorganism species in question. Antimicrobial resistant Salmonella strains may be transferred from animals or foodstuffs to humans.

Table Antimicrobial susceptibility testing of S. Enteritidis in animals

n = Number of resistant isolates												
S. Enteritidis												
	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring programme					no							
Number of isolates available in the laboratory					2							
Antimicrobials:	N	n	N	n	N	n	N	n	N	n	N	n
Aminoglycosides												
Gentamicin					2	0						
Streptomycin					2	0						
Amphenicols												
Chloramphenicol					2	0						
Penicillins												
Ampicillin					2	0						
Sulfonamides												
Sulfonamide					1	1						
Tetracyclines												
Tetracyclin					2	0						

Footnote

The strain is not multiresisten

Table Antimicrobial susceptibility testing of S.Typhimurium in animals

n = Number of resistant isolates													
S. Typhimurium													
	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers		
Isolates out of a monitoring programme			no										
Number of isolates available in the laboratory			10										
Antimicrobials:	N	n	N	n	N	n	N	n	N	n	N	n	
Aminoglycosides													
Gentamicin			9	1									
Streptomycin			0	10									
Amphenicols													
Chloramphenicol			2	8									
Cephalosporins													
Cefotaxim			7	0									
Fluoroquinolones													
Ciprofloxacin			7	0									
Penicillins													
Ampicillin			1	9									
Quinolones													
Nalidixic acid			3	4									
Sulfonamides													
Sulfonamide			0	10									
Tetracyclines													
Tetracyclin			1	9									
Trimethoprim			7	0									

Footnote

The strains are quite multiresistant because of multiple employee of antibiotics

Table Antimicrobial susceptibility testing of Salmonella spp. in food

n = Number of resistant isolates								
Salmonella spp.	Meat from pig		Meat from broilers (Gallus gallus)		Meat from other poultry species		Meat from bovine animals	
	no							
	27							
Antimicrobials:	N	n	N	n	N	n	N	n
Aminoglycosides								
Gentamicin	27	0						
Amphenicols								
Chloramphenicol	17	10						
Penicillins								
Ampicillin	12	15						
Tetracyclines								
Tetracyclin	9	18						

Table Breakpoints for antibiotic resistance testing in Animals

Test Method Used

Disc diffusion

Standards used for testing

NCCLS

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ ml)			Range tested concentration (microg/ ml)		Disk content microg	Breakpoint Zone diameter (mm)		
		Susceptible ≤	Intermediate	Resistant ≥	lowest	highest		Susceptible ≥	Intermediate	Resistant ≤
Amphenicols										
Chloramphenicol							30	18	13	12
Florfenicol							30	20	17	16
Tetracyclines										
Tetracyclin							30	15	12	10
Fluoroquinolones										
Ciprofloxacin							5	21	16	15
Enrofloxacin							10	23	17	16
Quinolones										
Nalidixic acid							30	19	14	13
Trimethoprim							5	16	11	10
Sulfonamides										
Sulfonamide							240	23	20	19
Aminoglycosides										
Streptomycin							10	15	12	11
Gentamicin							10	15	13	12
Neomycin							120	25	21	20
Kanamycin							30	18	14	13
Trimethoprim + sulfonamides										
Cephalosporins										
Cefazolin							60	23	20	19
Cefotaxim							30	23	15	14
3rd generation cephalosporins										
Penicillins										
Ampicillin							10	17	14	13

Table Breakpoints for antibiotic resistance testing in Food

Test Method Used

Disc diffusion

Standards used for testing

NCCLS

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ ml)			Range tested concentration (microg/ ml)		Disk content microg	Breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest		Susceptible >=	Intermediate	Resistant <=
Amphenicols										
Chloramphenicol							30	18	13	12
Florfenicol							30	20	17	16
Tetracyclines										
Tetracyclin							30	15	12	10
Fluoroquinolones										
Ciprofloxacin							5	21	16	15
Enrofloxacin							10	23	17	16
Quinolones										
Nalidixic acid							30	19	14	13
Trimethoprim							5	16	11	10
Sulfonamides										
Sulfonamide							240	23	20	19
Aminoglycosides										
Streptomycin							10	15	12	11
Gentamicin							10	15	13	12
Neomycin							120	25	21	20
Kanamycin							30	18	14	13
Trimethoprim + sulfonamides										
Cephalosporins										
Cefazolin							60	23	20	19
Cefotaxim							30	23	15	14
3rd generation cephalosporins										
Penicillins										
Ampicillin							10	17	14	13

2.2. CAMPYLOBACTERIOSIS**2.2.1. General evaluation of the national situation****2.2.2. Campylobacteriosis in humans****2.2.3. Campylobacter in foodstuffs****Table Campylobacter in poultry meat**

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for thermophilic Campylobacter spp.	C. coli	C. lari	C. upsaliensis	C. jejuni	Thermophilic Campylobacter spp., unspecified
Meat from broilers (Gallus gallus)										
fresh										
- at retail (1)	EPIFOOD	single	10 g	182	69	24			27	18

(1) : Tests done:
 -Culture
 Identification of the type: PCR

Table Campylobacter in other food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for thermophilic Campylobacter spp.	C. jejuni	C. coli	C. upsaliensis	C. lari	Thermophilic Campylobacter spp., unspecified
Meat from bovine animals										
fresh										
- at retail (1)	LMVE+EPI	single	10 g	62	0					
minced meat										
intended to be eaten raw										
- at retail	LMVE	single	10 g	44	0					
Meat from bovine animals and pig										
- at retail	LMVE	single	10 g	353	0					

(1) : LMVE

The test was done by VIDAS after enrichment

If positive: confirmation by culture

EPIFOOD:

-Culture

-Identification of the type: PCR

2.2.4. Campylobacter in animals

Table Campylobacter in animals

	Source of information	Sampling unit	Units tested	Total units positive for thermophilic Campylobacter spp.	C. jejuni	C. coli	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Cattle (bovine animals) (1)	EPIFOOD	animal	166	23	23	0			
Pigs	EPIFOOD	animal	5	0					

(1) : Tests done:
 -Culture
 Identification of the species: PCR

Footnote

All bovine were sampled at slaughterhouse
 The 166 animals came from 33 exploitations.
 10 farms were positive.
 Conclusion: Prevalence on herd level: 10/ 33 =30,3%

2.2.5. Antimicrobial resistance in Campylobacter isolates

2.3. LISTERIOSIS**2.3.1. General evaluation of the national situation****2.3.2. Listeriosis in humans****2.3.3. Listeria in foodstuffs****Table Listeria monocytogenes in other foods**

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for L.monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g	Units tested with enumeration method	> detection limit but ≤ 100 cfu/ g	L. monocytogenes > 100 cfu/ g
Meat from broilers (Gallus gallus)										
fresh (1)	LMVE	single	25 g	56	21	56	21	56		0
Meat from pig										
fresh (2)	LMVE	single	25 g	104	46	104	46	104		0
Meat from bovine animals										
fresh (3)	LMVE	single	25 g	158	55	158	55	158		0
Infant formula	LNS	single	25 g	43	0					
Meat from bovine animals and pig										
- at retail (4)	LMVE	single	25 g	350	155	350	155	350		4

(1) : Methods of detection and enumeration:

Detection: BRD:07/ 04-09/ 98

Enumeration:BRD:07/ 05-09/ 01

(2) : Methods of detection and enumeration:

Detection: BRD:07/ 04-09/ 98

Enumeration:BRD:07/ 05-09/ 01

(3) : Methods of detection and enumeration:

Detection: BRD:07/ 04-09/ 98

Enumeration:BRD:07/ 05-09/ 01

(4) : Methods of detection and enumeration:

Detection: BRD:07/ 04-09/ 98

Enumeration:BRD:07/ 05-09/ 01

2.3.4. Listeria in animals

2.4. E. COLI INFECTIONS**2.4.1. General evaluation of the national situation****2.4.2. E. Coli Infections in humans****2.4.3. Escherichia coli, pathogenic in foodstuffs****2.4.4. Escherichia coli, pathogenic in animals****Table VT E. coli in animals**

	Source of information	Sampling unit	Sample weight	Units tested	Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC) - VTEC O157	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Cattle (bovine animals)	EPIFOOD	animal	25 g	240	53	53		

2.5. TUBERCULOSIS, MYCOBACTERIAL DISEASES

2.5.1. General evaluation of the national situation

2.5.2. Tuberculosis, Mycobacterial Diseases in humans

2.5.3. Mycobacterium in animals

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

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 examinations	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			
Luxembourg (Grand-Duché)	1520	183640	1520	100	0	0				0	0
Total	1520	183640	1520	100	0	0		0	0	0	0

Footnote

Luxembourg is OTF through decision 97/ 76/ CE from 17.12.1996 and is confirmed through decision 1999/ 467/ CE from 15.07.1999
 The sanitary status is maintained in 2007 by respecting the dispositions of annex of grand ducal reglement from 20.08.1999 concerning sanitary problems in intra-communautaire exchanges of animals from the bovine and porcine species:
 the pourcentage of infected bovine herds with tuberculosis was not superior to 0,1% per year during 6 consecutive years
 An identification system exists following CE reglement n°1760/ 2000
 All slaughtered bovine are submitted to post mortem inspection, and no case of tuberculosis was detected

(*) Legend:

In column "Interval between routine tuberculin tests" use the following numeric codes: (0) no routine tests; (1) tests once a year; (2) tests each two years; (3) tests each three years concerning 24 month-old animals; (4) tests each 4 years; (5) others (please give details).

2.6. BRUCELLOSIS**2.6.1. General evaluation of the national situation****2.6.2. Brucellosis in humans****2.6.3. Brucella in foodstuffs****2.6.4. Brucella in animals****Table Brucellosis in other animals**

	Source of information	Sampling unit	Units tested	Total units positive for Brucella spp.	B. melitensis	B. abortus	B. suis	Brucella spp., unspecified
Pigs	LMVE	animal	53	0				

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

Region	Total number of existing bovine		Officially free herds		Infected herds		Surveillance				Investigations of suspect cases											
							Serological tests			Examination of bulk milk samples			Information about abortions			Epidemiological investigation						
																Number of positive animals			Number of animals examined serologically	Number of animals examined microbiologically	Number of animals positive microbiologically	
Herds	Animals	Number of herds	%	Number of bovine herds tested	Number of animals infected herds tested	Number of animals or pools tested	Number of infected herds	Number of notified abortions wherever cause	Number of isolations of Brucella infection	Number of abortions due to Brucella abortus	Number of animals tested with serological blood tests	Serologically	BST									
Luxembourg (Grand-Duché)	1520	183640	1520	100	0	0	785	0	892	892	0											
Total	1520	183640	1520	100	0	0	785	0	892	892	0	0	0	0	0	0	0	0	0			

Footnote

Luxembourg is OBF through decision 99/ 466/ CE from 15.07.1999
 In 2006, no case of brucellosis was detected and it is the twelve year since there was no focus of bovine brucellosis
 Continuous prevention and control measures are applied to guarantee the status
 922 dairy herds were analysed in bulk tank milk with negative results
 785 rearing bovines over 12 months of age were tested negative

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

Region	Total number of existing ovine / caprine		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 microscopically	Number of animals positive microscopically	Number of suspected herds
Luxembourg (Grand-Duché)	227	3483	227	100	0	0		229	0	229	0			
Total	227	3483	227	100	0	0	0	229	0	229	0	0	0	0

2.7. YERSINIOSIS

2.7.1. General evaluation of the national situation

2.7.2. Yersiniosis in humans

2.7.3. Yersinia in foodstuffs

2.7.4. Yersinia in animals

2.8. TRICHINELLOSIS**2.8.1. General evaluation of the national situation****2.8.2. Trichinellosis in humans****2.8.3. Trichinella in animals****Table Trichinella in animals**

	Source of information	Sampling unit	Units tested	Total units positive for Trichinella spp.	T. spiralis	Trichinella spp., unspecified
Pigs						
fattening pigs						
raised under controlled housing conditions in integrated production system	LMVE	animal	2387	0		
Solipeds, domestic						
horses	LMVE	animal	20	0		
Wild boars						
wild	LMVE	animal	544	0		
Foxes	LSVG	animal	23	0		

2.9. ECHINOCOCCOSIS**2.9.1. General evaluation of the national situation****2.9.2. Echinococcosis in humans****2.9.3. Echinococcus in animals****Table Echinococcus in animals**

	Source of information	Sampling unit	Units tested	Total units positive for Echinococcus spp.	E. granulosus	E. multilocularis	Echinococcus spp., unspecified
Foxes	LSGV	animal	23	3		3	

2.10. TOXOPLASMOSIS

2.10.1. General evaluation of the national situation

2.10.2. Toxoplasmosis in humans

2.10.3. Toxoplasma in animals

2.11. RABIES**2.11.1. General evaluation of the national situation****2.11.2. Lyssavirus (rabies) in animals****Table Rabies in animals**

	Source of information	Sampling unit	Units tested	Total units positive for Lyssavirus (rabies)	Unspecified Lyssavirus	European Bat Lyssavirus - unspecified	Classical rabies virus (genotype 1)
Cattle (bovine animals)	LMVE	animal	1	0			
Cats	LMVE	animal	5	0			
Foxes							
wild	LMVE+LSVG	animal	23	0			

2.12. Q-FEVER

2.12.1. General evaluation of the national situation

2.12.2. Coxiella (Q-fever) in animals

3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE

3.1. ENTEROCOCCUS, NON-PATHOGENIC

3.1.1. General evaluation of the national situation

3.1.2. Antimicrobial resistance in Enterococcus, non-pathogenic isolates

3.2. *ESCHERICHIA COLI, NON-PATHOGENIC*

3.2.1. General evaluation of the national situation

3.2.2. Antimicrobial resistance in *Escherichia coli*, non-pathogenic isolates

4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS

4.1. HISTAMINE

4.1.1. General evaluation of the national situation

4.1.2. Histamine in foodstuffs

4.2. ENTEROBACTER SAKAZAKII**4.2.1. General evaluation of the national situation****4.2.2. Enterobacter sakazakii in foodstuffs****Table Enterobacter sakazakii in food**

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Enterobacter sakazakii	E. sakazakii
Infant formula						
dried	LNS	single		49	0	

4.3. STAPHYLOCOCCAL ENTEROTOXINS

4.3.1. General evaluation of the national situation

4.3.2. Staphylococcal enterotoxins in foodstuffs

5. FOODBORNE OUTBREAKS

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.

Foodborne Outbreaks: summarized data

	Total number of outbreaks	Number of possible outbreaks	Number of verified outbreaks
Bacillus	0	0	0
Campylobacter	0	0	0
Clostridium	0	0	0
Escherichia coli, pathogenic	0	0	0
Foodborne viruses	0	0	0
Listeria	0	0	0
Other agents	0	0	0
Parasites	0	0	0
Salmonella	0	0	0
Staphylococcus	0	0	0
Unknown	0	0	0
Yersinia	0	0	0

