ZOONOSES MONITORING

LUXEMBOURG

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 2006

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: **Luxembourg**
Reporting Year: **2006**

Institutions and laboratories involved in reporting and monitoring:

Laboratory name	Description	Contribution
LMVE		
LSGV		
EPIFOOD		

PREFACE

This report is submitted to the European Commission in accordance with Article 9 of Council Directive 2003/ 99/ EC[1]. 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 2006. 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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[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

LIST OF CONTENTS

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.

Table Susceptible animal populations

* Only if different than current reporting year

Animal species	Category of animals	Livestock numbers (live animals)	Year*	Number of slaughtered animals	Year*	Number of holdings	Year*	Number of herds or flocks	Year*
Cattle (bovine animals)	dairy cows and heifers	38617				932		932	
	calves (under 1 year)	49453		3695		1389		1389	
	in total	183640		27832		1520		1520	
Deer	farmed - in total	244				5		5	
Ducks	in total	241				64		64	
Gallus gallus (fowl)	broilers	19269							
	laying hens	61983				328		328	
	in total	81252		75950		562		562	
Geese	in total	276				92		92	
Goats	meat production animals	960							
	milk goats	990				7		7	
	in total	1950		785		106		106	
Pigs	mixed herds					19		19	
	breeding animals					85		85	
	fattening pigs	76390		143370		79		79	
	in total	84151		143579		183		183	
Sheep	animals under 1 year (lambs)	3890		3349					
	animals over 1 year	5754		34					
	meat production animals	9644		3483		227		227	
	in total	9644		3483		227		227	
Solipeds, domestic	horses - in total	4336		52		544		544	
Turkeys	in total	191				12		12	
unspecified	sows and gilts	7761		209		104		104	

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

Additional information

• Salmonelloses in animals are treated in the LMVE and in a research project from the FNR (Fonds National de Recherche/ National Research Found), called EPIFOOD
FNR is an administration depending upon the ministry of research
• Except the base line study on laying hens and perhaps the base line study on broilers, there is no other programm of detection and prevention of salmonelloses (and also of Campylobacter, and so on) in Luxembourg
• Despite that, Luxembourg has organised a programm of screening fattening pigs at slaughter by serology(ELISA on serum) for those owners belonging to the "Marque Nationale".
The tests done by the LMVE are not oriented on a special statistically significative sampling programm, but mainly on those pigs slaughtered for this "Marque Nationale"
Those herds that have a high seroprevalence are irregularely tested by bacteriology for salmonelloses, mainly now in the LMVE, but also partially by EPIFOOD. So prevalences can either been established or estimated and will be described in the tables
• Data from food are only available from the LMVE and from EPIFOOD, not from the department of food microbiology from the LNS (Laboratoire National de Santé/ Public Health Laboratory)

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. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	S. Agona	S. Infantis	S. Paratyphi B var. Java
Meat from broilers (Gallus gallus)											
fresh	LMVE+EPIFOO	single	25 g	91	6	2			1	1	2
meat products											
raw but intended to be eaten cooked	LMVE	single	25 g	1	0						
cooked, ready-to-eat	LMVE	single	25 g	18	0						
Meat from turkey											
fresh	EPIFOOD	single	25 g	6	0						
meat preparation											
intended to be eaten cooked	LMVE	single	25 g	2	0						
meat products											
cooked, ready-to-eat	LMVE	single	25 g	6	0						
Meat from duck	LMVE+EPIFOO	single	25 g	4	0						

Footnote

All the samples were taken at retail

Table Salmonella in red meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	S. 1,4,5,12:-:i	S. Anatum	S. Goldcoast
Meat from pig											
fresh	LMVE+EPIFOOD	single	25 g	62	0						
meat preparation											
intended to be eaten cooked	LMVE+EPIFOOD	single	25g	49	0						
meat products											
raw but intended to be eaten cooked	LMVE+EPIFOOD	single	25g	147	0						
Meat from bovine animals											
fresh	LMVE+EPIFOOD	single	25 g	98	1						1
Meat from sheep											
fresh	LMVE	single	25 g	1	0						
meat preparation											
intended to be eaten cooked	LMVE	single	25 g	3	0						
Meat from horse											
fresh	LMVE+EPIFOOD	single	25 G	7	1					1	
meat preparation											
intended to be eaten cooked	LMVE	single	25 g	1	0						
Other products of animal origin											
gelatin and collagen	LMVE	single	25 g	2	0						
Meat from bovine animals and pig											
fresh	LMVE+EPIFOOD	single	25 g	38	2				2		
meat preparation											
intended to be eaten cooked	LMVE+EPIFOOD	single	25 g	122	1				1		
meat products	LMVE+EPIFOOD	single	25 g	183	2		2				
Meat, mixed meat											
meat products	LMVE+EPIFOOD	single	25 g	7	0						
Meat from other animal species or not specified											
fresh	LMVE+EPIFOOD	single	25 g	7	1		1				
meat preparation	LMVE+EPIFOOD	single	25 g	3	0						

Meat from rabbit											
fresh	LMVE+EPIFOOD	single	25 g	12	0						
meat preparation											
intended to be eaten cooked	LMVE+EPIFOOD	single	25 g	1	0						
Fishery products, unspecified	LMVE+EPIFOOD	single	25 g	6	0						

Footnote

-All samples are taken at retail
-The denommination"other species or not defined" means "wildlife"

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
Eggs								
table eggs								
- at retail	MVE+EPIFOOD	single	25 g	184	2	2		

Footnote

The two eggs positive for S. enteritidis were imported from France

2.1.4. Salmonella in animals

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

Monitoring system

Sampling strategy

Breeding flocks

Luxembourg does not have any breeding flocks. All the chickens are imported for production

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 (base-line study)	flock	8	0			
unspecified	LMVE	animal	58	0			
during production period	EPIFOOD(2nd BASE-LINE STUDY)	flock	1	0			

Table Salmonella in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	S. 1,4,5,12:-:i	S. Eboko	S. Typhimurium var. Copenhagen	S. Derby	S. Tumodi	S. Lexington	S. Mbandaka
Cattle (bovine animals)	LMVE+EPI	herd	330	3		1		1	1					
Sheep	LMVE	animal	11	0										
Goats	LMVE	animal	1	0										
Pigs	LMVE+EPIFOOD	animal	712	95		36		14		16	26	1	1	1
fattening pigs	LMVE+EPIFOOD	herd	91	37		13		5		13	3	1	1	1
unspecified	LMVE	animal	54	10	1	5		1			3			
Rabbits	LMVE	animal	2	0										

Footnote

Concerning bovine and pigs:
The herd is defined by the owner
387 animals were analysed in 330 herds(that means that often only one bovine was analysed per owner)
Concerning pigs only:
-A serological screening on blood was done in the slaughter pigs mostly of the farms with a special quality level (Marque Nationale)
The results
Serological tests realised in 2006: 4619

Exploitations involved: 73
Exploitations with seroprevalence 0: 30
Exploitations with seroprevalence non 0: 43
Seroprevalence in the exploitations: 0,589041096
If only considering the farms having slaughtered at least 20 pigs in 2006, 57 farms were selected.
Results
Seroprevalence Number
0: 13
<0-19: 27
20-39: 13
40-65: 4
In the 4 most important farms, bacteriological prevalence was as follows:
Farm 1: not tested
Farm 2: 20%
Farm 3: 38,29%
Farm 4: same owner as farm 3
But also farms were sampled without having been analysed for serology before
-Lymph nodes and swabs from slaughtered pigs,(mentioned under"unspecified" were analysed following DG SANCO 40162/ 2006

2.1.5. Salmonella in feedingstuffs

Table Salmonella in feed material of animal origin

	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 marine animal origin								
fish meal	offiical control	batch	25 g	1	0	0	0	

Table Salmonella in other feed matter

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Typhimurium	S. Enteritidis	Salmonella spp., unspecified	S. Lexington
Feed material of cereal grain origin									
other cereal grain derived	official control	batch	25 g	1	0	0	0		
Feed material of oil seed or fruit origin									
rape seed derived	official control	batch	25 g	18	3	0	0	3	
soya (bean) derived	official control	batch	25 g	15	0	0	0		

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	S. Lexington	S. Senftenberg	S. Mbandaka	S. Rissen	S. enterica subsp. enterica
Compound feedingstuffs for cattle													
final product	official control	batch	25 g	32	3	0	0		2		1		
Compound feedingstuffs for pigs													
final product	official control	batch	25 g	60	2	0	0	0		1			1
Compound feedingstuffs for poultry (non specified)													
final product	official control	batch	25 g	40	1	0	0	1					
Compound feedingstuffs for sheep													
final product													
non-pelleted/ meal	official control	batch	25 g	1	0	0	0						

Footnote

Salmonella indicated as Salmonella enterica subsp. enterica is S. enterica monophasic strain

2.1.6. Salmonella serovars and phagetype distribution

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

Table Salmonella serovars in animals

Serovars		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry	
Sources of isolates (*)		M	C	M	C	M	C	M	C
Number of isolates in the laboratory	N=	1	2	96		2			
Number of isolates serotyped	N=	1	2	96	0	2	0	0	0
Number of isolates per type									
S. Derby				26					
S. Eboko			1						
S. Enteritidis				1		2			
S. Lexington				1					
S. Mbandaka				1					
S. Tumodi				1					
S. Typhimurium		1		36					
S. Typhimurium var. Copenhagen				16					
S. 1,4,5,12:-:i			1	14					

Footnote

(*) M : Monitoring, C : Clinical

Table Salmonella serovars in food

Serovars		Meat from bovine animals and pig		Meat from other animal species or not specified		Meat from horse		Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Other poultry		Other products of animal origin	
Sources of isolates (*)		M	C	M	C	M	C	M	C	M	C	M	C	M	C	M	C
Number of isolates in the laboratory	N=	5		1		1		1				6					
Number of isolates serotyped	N=	5	0	1	0	1	0	1	0	0	0	6	0	0	0	0	0
Number of isolates per type																	
S. Agona												1					
S. Anatum						1											
S. Derby		1															
S. Enteritidis												2					
S. Goldcoast								1									
S. Infantis												1					
S. Typhimurium		2		1													
S. Paratyphi B var. Java												2					
S. 1,4,5,12:-:i		2															

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.Typhimurium in animals

n = Number of resistant isolates	S. Typhimurium							
	Cattle (bovine animals)		**Pigs**		**Gallus gallus (fowl)**		**Turkeys**	
Isolates out of a monitoring programme								
Number of isolates available in the laboratory				8				
Antimicrobials:	**N**	**n**	**N**	**n**	**N**	**n**	**N**	**n**
Tetracyclines								
Tetracyclin			0	8				
Amphenicols								
Chloramphenicol			2	6				
Cephalosporins								
3rd generation cephalosporins			8	0				
Fluoroquinolones								
Ciprofloxacin			8	0				
Sulfonamides								
Sulfonamide			1	7				
Aminoglycosides								
Streptomycin			1	7				
Gentamicin			8	0				
Neomycin			8	0				
Penicillins								
Ampicillin			1	7				
Trimethoprim + sulfonamides			5	3				
Fully sensitive			0					
Resistant to 1 antimicrobial				1				
Resistant to 4 antimicrobials				1				
Resistant to >4 antimicrobials				6				
Number of multiresistant S. Typhimurium DT104								
with penta resistance				6				

Table Antimicrobial susceptibility testing of Salmonella in animals

n = Number of resistant isolates	Salmonella spp.							
	Cattle (bovine animals)		**Pigs**		**Gallus gallus (fowl)**		**Turkeys**	
Isolates out of a monitoring programme								
Number of isolates available in the laboratory				41				
Antimicrobials:	**N**	**n**	**N**	**n**	**N**	**n**	**N**	**n**
Tetracyclines								
Tetracyclin			21	20				
Amphenicols								
Chloramphenicol			40	1				
Cephalosporins								
3rd generation cephalosporins			41	0				
Fluoroquinolones								
Ciprofloxacin			41	0				
Sulfonamides								
Sulfonamide			1	40				
Aminoglycosides								
Streptomycin			1	40				
Gentamicin			40	1				
Neomycin			40	1				

Table Breakpoints for antibiotic resistance testing in Animals

Test Method Used

- Disc diffusion
- Agar dilution
- Broth dilution
- E-test

Standards used for testing

- NCCLS

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ ml)			Range tested concentration (microg/ ml)		Disk content	Breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Amphenicols										
Chloramphenicol							30	18	13	12
Florfenicol										
Tetracyclines										
Tetracyclin							30	19	15	14
Fluoroquinolones										
Ciprofloxacin							5	21	16	15
Enrofloxacin							10	18	15	14
Quinolones										
Nalidixic acid							30	19	14	13
Trimethoprim							5	16	11	10
Sulfonamides										
Sulfonamide							23.75	17	13	12
Aminoglycosides										
Streptomycin							10	15	12	11
Gentamicin							10	15	13	12
Neomycin										
Kanamycin							30	18	15	14
Trimethoprim + sulfonamides										
Cephalosporins										
3rd generation cephalosporins							30	18	15	14
Penicillins										
Ampicillin							10	17	14	13

Table Breakpoints for antibiotic resistance testing in Feedingstuff

Test Method Used

- Disc diffusion
- Agar dilution
- Broth dilution
- E-test

Standards used for testing

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ ml)			Range tested concentration (microg/ ml)		Disk content	Breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Amphenicols										
Chloramphenicol										
Florfenicol										
Tetracyclines										
Tetracyclin										
Fluoroquinolones										
Ciprofloxacin										
Enrofloxacin										
Quinolones										
Nalidixic acid										
Trimethoprim										
Sulfonamides										
Sulfonamide										
Aminoglycosides										
Streptomycin										
Gentamicin										
Neomycin										
Kanamycin										
Trimethoprim + sulfonamides										
Cephalosporins										
3rd generation cephalosporins										
Penicillins										
Ampicillin										

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. jejuni	C. upsaliensis	thermophilic Campylobacter spp., unspecified
Meat from broilers (Gallus gallus)										
fresh	EPIFOOD	single	10 g	44	12	5		7		
Meat from turkey										
fresh	EPIFOOD	single	10 g	4	1	1				
Meat from duck	EPIFOOD	single	10 g	1	0					

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 pig										
fresh	EPIFOOD	single	10 g	38	0					
meat preparation										
intended to be eaten cooked	EPIFOOD	single	10 g	1	0					
meat products										
unspecified, ready-to-eat	EPIFOOD	single	10 g	18	0					
Meat from bovine animals										
fresh	EPIFOOD	single	10 g	37	0					
Meat from bovine animals and pig										
fresh	EPIFOOD	single	10 g	19	0					
meat preparation										
intended to be eaten cooked	EPIFOOD	single	10 g	3	0					
meat products	EPIFOOD	single	10 g	28	0					
Meat from horse										
fresh	EPIFOOD	single	10 g	2	0					
meat products	EPIFOOD	single	10 g	1	0					
Meat from rabbit										
fresh	EPIFOOD	single	10 g	2	0					

Footnote

The samples were taken at retail

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)									
unspecified	EPIFOOD	herd	183	37	36	1			
Pigs	EPIFOOD	herd	64	23		23			
Gallus gallus (fowl)									
broilers									
- at slaughterhouse	EPIFOOD	animal	5	0					

Footnote

-In one herd of cattle or pigs, more than one animal was tested, and more than 1 animal were often positive (explanation of the difference between the results of "total units positive for thermophilic Campylobacter spp." and the species found!!)
In one herd C.jejuni and C. coli was found, so that 37 herds were positive for C.jejuni, and one of the herds was also positive for C.coli
-The 5 broilers tested belonged to one farm

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	Listeria monocytogenes presence in x g	> detection limit but =< 100 cfu/ g	L. monocytogenes > 100 cfu/ g
Meat from broilers (Gallus gallus)								
fresh	LMVE+EPIFOOD	single	25g	95	27		27	0
meat products								
cooked, ready-to-eat	LMVE+EPIFOOD	single	25g	20	1		1	0
meat preparation								
intended to be eaten raw	LMVE+EPIFOOD	single	25g	1	0			
Meat from pig								
fresh	LMVE+EPIFOOD	single	25g	20	5		5	0
meat products								
cooked, ready-to-eat	LMVE+EPIFOOD	single	25g	31	16		16	0
meat preparation								
intended to be eaten cooked	LMVE+EPIFOOD	single	25g	130	14		14	0
Meat from bovine animals								
fresh	LMVE+EPIFOOD	single	25g	95	21		21	0
meat products								
cooked, ready-to-eat	LMVE+EPIFOOD	single	25g	2	1		1	0
meat preparation								
intended to be eaten cooked	LMVE+EPIFOOD	single	25g	15	5		5	0
Crustaceans								
unspecified								
cooked	LMVE+EPIFOOD	single	25g	9	0			
Meat from bovine animals and pig								

fresh	LMVE+EPIFOOD	single	25g	37	21		21	0
meat preparation	LMVE+EPIFOOD	single	25g	121	40		40	0
meat products	LMVE+EPIFOOD	single	25g	151	26		26	0
Meat from turkey								
fresh	LMVE+EPIFOOD	single	25g	5	0			
meat preparation								
intended to be eaten cooked	LMVE+EPIFOOD	single	25g	4	0			
meat products								
cooked, ready-to-eat	LMVE+EPIFOOD	single	25g	2	0			
Meat from duck								
fresh	LMVE+EPIFOOD	single	25g	1	0			
meat products	LMVE+EPIFOOD	single	25g	1	0			
meat preparation								
intended to be eaten cooked	LMVE+EPIFOOD	single	25g	2	0			
Meat from horse								
fresh	LMVE+EPIFOOD	single	25g	5	0			
meat preparation								
intended to be eaten cooked	LMVE+EPIFOOD	single	25g	1	0			
Meat from deer (venison)								
meat preparation								
intended to be eaten cooked	LMVE+EPIFOOD	single	25g	5	0			

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

Table VT E. coli in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Escherichia coli, pathogenic	E.coli, pathogenic, unspecified	Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC) - VTEC O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Meat from bovine animals (1)	EPIFOOD	single	25g	28	1		1	1	
fresh		single	25 g	7	0				
minced meat									
intended to be eaten raw		single	25g	2	0				
Meat from bovine animals and pig (2)	EPIFOOD	single	25g	36	0				

(1) : All at retail
(2) : All at retail

2.4.4. Escherichia coli, pathogenic in animals

Table VT E. coli in animals

	Source of information	Sampling unit	Units tested	Total units positive for Escherichia coli, pathogenic	E.coli, pathogenic, unspecified	Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC) - VTEC O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Cattle (bovine animals)								
meat production animals	EPIFOOD	herd	176	1		1		1

Footnote

The method used:
-Culture on feces
-Detrmination of E.coli O157,H7
Further identification by PCR: stx1;stx2;eae;ehxa
The sampling weight was always 10 g (There is no column reserved for sampling weight)

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

A. Mycobacterium bovis in bovine animals

Status as officially free of bovine tuberculosis during the reporting year

The entire country free

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 2006 by respecting the dispositions of annex of grand ducal reglement from 20.08.1999 concerning sanitary problems in intra-communautary exchanges of animals from 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

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

(*) 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

A. Brucella abortus in bovine animals

Status as officially free of bovine brucellosis during the reporting year

The entire country free

Luxembourg is OBF trough Decision 99/ 466/ CE from 15.07.1999
In 2006 no case of brucellosis was detected and it is the eleventh year, since there was no focus of bovine brucelloses
Continuous preventing and control measures are applied to garantee the status
922 dairy herds were analysed in bulk tank milk with negative results
1073 rearing bovines over 12 months of age were tested negative by serology.
In 16 notified abortion cases, no case of brucellosis was found

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	32	0				
Goats	LMVE	animal	126	0				
Sheep	LMVE	animal	583	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					
	Herds	Animals	Number of herds	%	Number of herds	%	Number of bovine herds tested	Number of animals tested	Number of infected herds tested	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
																		Serologically	BST		
LUXEMBOURG (GRAND-DUCHÉ)	1520	183640	1520	100	0	0		1073	0	922	922	0	16	0	0					16	0
Total	1520	183640	1520	100	0	0	0	1073	0	922	922	0	16	0	0	0	0	0	0	16	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	LMVE	animal	2541	0		
Solipeds, domestic	LMVE	animal	36	0		
Wild boars						
wild	LMVE	animal	270	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	7		7	

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

• Data about toxoplasmosis, yersinioses, coxielloses, enterobacter sakazakii, staphylococcal enterotoxins and histamine are not available

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)
Sheep	LMVE	animal	1	0			
Solipeds, domestic	LMVE	animal	2	0			
Dogs	LMVE	animal	2	0			
Foxes							
wild	LMVE+LSGV	animal	21	0			
Marten							
wild	LMVE	animal	2	0			
Deer							
wild							
roe deer	LMVE	animal	1	0			

Footnote

Luxembourg is declared ORF by O.I.E. in july 2001
Annual screenings mainly in foxes allow to maintain the status

2.12. Q-FEVER

2.12.1. General evaluation of the national situation

2.12.2. Coxiella (Q-fever) in animals

2.13. CYSTICERCOSIS, TAENIOSIS

2.13.1. General evaluation of the national situation

2.13.2. Cysticerci in animals

Table Cysticerci in animal

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Cysticerci	Cysticerci of Taenia saginata
Cattle (bovine animals)	Slaughterhouses	animal	carcass	24739	41	41

Footnote

Number of cases found in 2006
Slaughterhouse of Ettelbruck
27 cases calcified; 1 case alive
Slaughterhouse of Esch/ Alzette:
13 cases alive

2.14. SARCOCYSTOSIS

2.14.1. General evaluation of the national situation

2.14.2. Sarcocystis in animals

Table Sarcocystis in animal

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Sarcocystis	Sarcocystis spp., unspecified
Cattle (bovine animals)	Slaughterhouses	animal	Carcass	24739	3	3

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 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

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.