ZOONOSES MONITORING

LUXEMBOURG

The Report referred to in Article 5 of Directive 92/117/EEC

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

including information on foodborne outbreaks and antimicrobial resistance in zoonotic agents

IN 2004

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: **Luxembourg**

Reporting Year: **2004**

Institutions and laboratories involved in monitoring:

Laboratory name	Description	Contribution
Laboratoire de Médecine Vétérinaire de l'Etat (Luxembourg)		

PREFACE

This report is submitted to the European Commission in accordance with Article 5 of Council Directive 92/117/EEC[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 2004. 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 Council Directive 92/117/ECC of 17 December 1992 concerning measures for protection against specified zoonoses and specified zoonotic agents in animals and products of animal origin in order to prevent outbreaks of foodborne infections and intoxications, OJ L 62, 15.3.1993, p. 38

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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.

Table 14.2 Susceptible animal populations: number of animals

* Only if different than current reporting year

Animal species	Category of animals	Livestock numbers (live animals)	Year*	Number of slaughtered animals	Year*
Cattle (bovine animals)	calves (under 1 year)	50427	2004		
	dairy cows and heifers	81938			
	meat production animals	51002			
	in total	183367			
Gallus gallus	in total	79162			
Goats	in total	1970			
Pigs	breeding animals	7777			
	fattening pigs	32350			
	in total	83432			
Sheep	in total	9792			
Solipeds	horses - in total	3405			

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

2.1.2. Salmonellosis in humans

2.1.3. Salmonella in foodstuffs

Table 3.3.1 Salmonella sp. in meat and meat products

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Enteritidis	S. Typhimurium	S. Livingstone	S. Derby	S. Montevideo	S. Saintpaul	S. Tennessee
Bovine meat													
fresh													
- at slaughter	LMVE				156	0							
- at processing plant	LMVE				19	0							
minced meat													
- at processing plant	LMVE				49	0							
- at retail	LMVE				7	0							
meat products													
non-ready-to-eat													
- at processing plant	LMVE				6	0							
- at retail	LMVE				13	0							
Pig meat													
fresh													
- at processing plant	LMVE				30	0							
meat products													
non-ready-to-eat													
- at processing plant	LMVE				98	1				1			
- at retail	LMVE				42	0							
Broiler meat													
fresh													

- at processing plant	LMVE				66	0													
meat products																			
non-ready-to-eat																			
- at processing plant	LMVE				16	0													
Turkey meat																			
fresh																			
- at processing plant	LMVE				2	0													
meat products																			
non-ready-to-eat																			
- at processing plant	LMVE				3	0													
Other meat																			
fresh																			
- at processing plant	LMVE	sheep/goat, rabbit,horses			22	0													
- at retail		kangoroo			12	3										1	1	1	
Mixed meat																			
minced meat																			
- at processing plant	LMVE	bovine+porcine			15	0													
- at retail	LMVE	bovine+porcine			175	0													
Other animals or mixed meat																			
meat products																			
non-ready-to-eat																			
- at processing plant	LMVE	bovine+porcine			261	6	1	4	1										

2.1.4. Salmonella in animals

Table 3.2.1 Salmonella sp. in Poultry breeding flocks (Gallus gallus)

		Source of information	Remarks	Epidemiological unit	Flocks tested	Flocks positive	S. Enteritidis	S. Typhimurium

Footnote

Luxembourg does not have any breeding flocks

Table 3.2.2 Salmonella sp. in other commercial poultry

	Source of information	Remarks	Epidemiological unit	Flocks tested	Flocks positive	S. Enteritidis	S. Typhimurium
Gallus gallus							
laying hens							
unspecified	LMVE			44	0		

Footnote

It is not specified, but it answers to minimal direcztive requirements
A baseline study on laying hens has been sztarted in december 2004 and will be continued in 2005. One farm has been sampled with negative results

Table 3.2.3 Salmonella sp. in non-commercial poultry and birds

		Source of information	Remarks	Epidemiological unit	Flocks tested	Flocks positive	S. Enteritidis	S. Typhimurium

Footnote

no indications

Table 3.2.4 Salmonella sp. in animals (non poultry)

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	S. Enteritidis	S. Typhimurium	S. Dublin	S. Paratyphi B	S. Derby
Cattle (bovine animals)	LMVE			428	13	3	0	1	1	0
Sheep	LMVE			8	0					
Goats	LMVE			11	0					
Pigs										
fattening pigs	LMVE		1				1			1
Solipeds	LMVE			1			0			
Rabbits	LMVE			3			0			
Wildlife	LMVE			1			0			
Pet animals	LMVE			1			0			
Other animals	LMVE			3			0			

Footnote

A screening of salmonella serology has been done on fattening pigs of the "marque nationale" and one farm with a very high pourcentage of seropositives has been detected in this way

2.1.5. Salmonella in feedstuffs

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.

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 3.2.5.3 Antimicrobial susceptibility testing of S.Typhimurium in animals

	S. Typhimurium							
	Cattle (bovine animals)		**Pigs**		**Gallus gallus**		**Turkeys**	
Isolates out of a monitoring program								
Number of isolates available in the laboratory								
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**
Tetracycline				100%				
Amphenicols								
Chloramphenicol				50%				
Cephalosporin								
3rd generation cephalosporins				0%				
Fluoroquinolones								
Ciprofloxacin				0%				
Sulfonamides								
Sulfonamide				100%				
Aminoglycosides								
Streptomycin				0%				
Gentamicin				0%				
Neomycin				0%				
Penicillins								
Ampicillin				100%				
Number of multiresistant isolates								
resistant to 3 antimicrobials				33%				

Footnote

It is not specified, but it answers to minimal direcztive requirements
A baseline study on laying hens has been sztarted in december 2004 and will be continued in 2005. One farm has been sampled with negative results

Table 3.2.6 Breakpoints for antibiotic resistance of Salmonella in Animals

Test Method Used

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

Standards used for testing

- NCCLS
- CASFM

Subject to quality control

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 <=
Tetracycline		4		16			30	19	15	14
Amphenicols										
Chloramphenicol		8		32			30	18	13	12
Florfenicol										
Fluoroquinolones										
Ciprofloxacin		1		4			5	21	16	15
Enrofloxacin		2		8			10	18	15	14
Quinolones										
Nalidixic acid		8		32			30	19	14	13
Trimethoprim							5	16	11	10
Sulfonamides										
Sulfonamide		100		300			23,75	17	13	12
Aminoglycosides										
Streptomycin							10	15	12	11
Gentamicin		4		8			10	15	13	12
Neomycin										
Kanamycin							30	18	14	13
Trimethoprim + sulfonamides		2								
Cephalosporin										
3rd generation cephalosporins		8		32			30	18	15	14
Penicillins										
Ampicillin		8		32			10	17	14	13

Table 3.2.6 Breakpoints for antibiotic resistance of Salmonella in Food

Test Method Used

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

Standards used for testing

- NCCLS
- CASFM

Subject to quality control

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 <=
Tetracycline		4		16			30	19	15	14
Amphenicols										
Chloramphenicol		8		32			30	18	13	12
Florfenicol										
Fluoroquinolones										
Ciprofloxacin		1		4			5	21	16	15
Enrofloxacin		2		8			10	18	15	14
Quinolones										
Nalidixic acid		8		32			30	19	14	13
Trimethoprim							5	16	11	10
Sulfonamides										
Sulfonamide		100		300			23,75	17	13	12
Aminoglycosides										
Streptomycin							10	15	12	11
Gentamicin		4		8			10	15	13	12
Neomycin										
Kanamycin							30	18	14	13
Trimethoprim + sulfonamides		2								
Cephalosporin										
3rd generation cephalosporins		8		32			30	18	15	14
Penicillins										
Ampicillin		8		32			10	17	14	13

Footnote

Tirets are not be put in the tables, that's why only one number is indicated for the breakpoints zone diameters (intermediate)

2.2. CAMPYLOBACTERIOSIS

2.2.1. General evaluation of the national situation

2.2.2. Campylobacteriosis in humans

2.2.3. Campylobacter in foodstuffs

2.2.4. Campylobacter in animals

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

2.4. VEROCYTOTOXIC ESCHERICHIA COLI

2.4.1. General evaluation of the national situation

2.4.2. Verocytotoxic Escherichia coli in humans

2.4.3. Pathogenic Escherichia coli in foodstuffs

2.4.4. Pathogenic Escherichia coli in animals

2.5. TUBERCULOSIS

2.5.1. General evaluation of the national situation

2.5.2. Tuberculosis in humans

2.5.3. Mycobacterium in animals

Table 1.1.3 Tuberculosis in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	M. bovis	M. tuberculosis	M. avium subsp. paratuberculosis
Cattle (bovine animals)								
unspecified	LMVE		2000	153	47	0	0	47

Footnote

26 herds are tested by coproculture
127 herds were tested by coproscpy; 24 herds had at least one animal positive
In total: 153 herds tested:
24 herds with at least one animal positive in coproscpy
23 herds with at least one animal positive in coproculture
other herds are under serological control
Remark: paratuberculosis is not under official control, but is aware to be a potential zoonoses

1.1.1 Bovine tuberculosis - LUXEMBOURG (GRAND-DUCHÉ)

MANDATORY	**CATTLE**		
Number of herds under official control:	2000	Number of animals under official control:	183385
	OTF bovine herds	**OTF bovine herds with status suspended**	**Bovine herds infected with tuberculosis**
Status of herds at year end (a):	2000	0	0
New cases notified during the year (b):		0	0
	Units tested	**Units suspected**	**Units positive**
Routine tuberculin test (c) - data concerning herds:	0	0	0
Routine tuberculin test (c) - data concerning animals:	0	0	0
	Animals slaughtered	**Animals suspected**	**Animals positive**
Routine post-mortem examination (d):	35547	0	0
		Herds suspected	**Herds confirmed**
Follow up of suspected cases in post-mortem examination (e):		0	0
Follow-up investigation of suspected cases: trace, contacts (f):		0	0
	Animals tested	**Animals suspected**	**Animals positive**
Other routine investigations: exports (g):	0	0	0
Other routine investigations: tests at AI stations (h):	0	0	0
	All animals	**Positives**	**Contacts**
Animals destroyed (i):	21639	0	0
Animals slaughtered (j):	35547	0	0
VOLUNTARY	**CATTLE**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (k):	0	0	0
	Herds tested	**Herds suspected**	**Herds positive**
Other investigations: farms at risk (l):	0	0	0
	Samples tested	***M. bovis*isolated**	
Bacteriological examination (m):	0	0	

Footnote

Luxembourg has been declared OTF by decision 97/76/CE, the 17th of december 1996
This status has been confirmed by decision 1999/467/CE the 15th of july 1999
The status could be maintained in 2004 by following the disopsitions of annex of the "règlement grand-ducal du 20 août 1999"
-The %age of bovine herds infected <0,1% during 6 consecutive years
-There is an identification system following règlement CE no 820/97
-all slaughtered animals are officially inspected post mortem, and no tuberculosis has been found

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 2.1.3 Brucellosis in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	B. melitensis	B. abortus	B. suis

Footnote

89 pigs have been tested; they were all negative

2.1.1 Bovine brucellosis - LUXEMBOURG (GRAND-DUCHÉ)

MANDATORY	**CATTLE**		
Number of herds under official control:	2000	Number of animals under official control:	183385
	OBF bovine herds	**OBF bovine herds with status suspended**	**Bovine herds infected with brucellosis**
Status of herds at year end (a):	0	0	0
New cases notified during the year (b):	0	0	0
	Animals tested	**Animals suspected**	**Animals positive**
Notification of clinical cases, including abortions (c):	20	20	0
	Units tested	**Units suspected**	**Units positive**
Routine testing (d1) - data concerning herds:	977	0	0
Routine testing (d2) - number of animals tested:			
Routine testing (d3) - number of animals tested individually:	1181	0	0
		Herds suspected	**Herds confirmed**
Follow-up investigation of suspected cases: trace, contacts (e):			
	Animals tested	**Animals suspected**	**Animals positive**
Other routine investigations: exports (f):			
Other routine investigations: tests at AI stations (g):			
	All animals	**Positives**	**Contacts**
Animals destroyed (h):	21639	0	
Animals slaughtered (i):	35547	0	

VOLUNTARY	**CATTLE**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (k):			
	Herds tested	**Herds suspected**	**Herds positive**
Other investigations: farms at risk (l):			
	Samples tested	**Brucella isolated**	
Bacteriological examination (m):	20	0	

Footnote

Luxembourg has no cases of brucelloses since 5 years
All herds are OBF
Luxembourg is OBF by decision 99/466/CE in 15.07.1999

2.1.2 Ovine and caprine brucellosis - LUXEMBOURG (GRAND-DUCHÉ)

MANDATORY	**SHEEP AND GOATS**		
Number of holdings under official control:		Number of animals under official control:	
	OBF ovine and caprine holdings	**OBF ovine and caprine holdings with status suspended**	**OBF ovine and caprine holdings infected with brucellosis**
Status of herds at year end (a):			
New cases notified during the year (b):			
	Animals tested	**Animals suspected**	**Animals positive**
Notification of clinical cases, including abortions (c):	527	0	0
	Units tested	**Units suspected**	**Units positive**
Routine testing (d) - data concerning holdings:			
Routine testing (d) - data concerning animals:			
		Holdings suspected	**Holdings confirmed**
Follow-up investigation of suspected cases: trace, contacts (e):			
	Animals tested	**Animals suspected**	**Animals positive**
Other routine investigations: exports (f):			
	All animals	**Positives**	**Contacts**
Animals destroyed (g):			
Animals slaughtered (h):			
VOLUNTARY	**SHEEP AND GOATS**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (i):			
	Holdings tested	**Holdings suspected**	**Holdings positive**
Other investigations: farms at risk (j):			
	Samples tested	**Brucella isolated**	
Bacteriological examination (k):			

Footnote

There is no official programme for surveillance in small ruminants as well as in pigs

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

A. Trichinella in pigs

Monitoring system

Sampling strategy

Sampling at slaughter of pigs and wild boar
following a risk assessment strategy
Example: All wild boar destinated for human consumption atre tested

Type of specimen taken

Diaphragm muscle

Methods of sampling (description of sampling techniques)

The wild boar are sampled in the collection centers installed for csf in wild boar
The pigs are sampled in the abattoir

Case definition

Tests used: -Compression method
-Digestion method following règlement ministériel du 31 juillet 1995, annex 1 (directive 94/59/CE)

Table 4.1 Trichinella in animals

	Source of information	Remarks	Epidemiological unit	Animals tested	Animals positive
Pigs	LMVE			323	0
Solipeds	LMVE			21	0
Wildlife					
wild boars	LMVE			1482	0
foxes				0	
other				0	

Footnote

Samples of pigs and horses were taken following a risk assessment scheme
Samples of wild boar were taken, when consumptopn occured

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 9.1 Echinococcus sp. in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Echinococcus spp.	E. multilocularis	E. granulosus
Wildlife							
foxes	LMVE	*		3		5	

Footnote

Tirets are not be put in the tables, that's why only one number is indicated for the breakpoint

* Done by the Landesuntersuchungsamt, saarbrucken

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 5.1 Rabies in animals

	Source of information	Remarks	Animals tested	Animals positive
Cattle (bovine animals)	LMVE	done by Institut Pasteur	1	0
Goats	LMVE		2	0
Wildlife				
foxes	LMVE	6 doneby LMVE, 20 done by the Landesamt für Verbraucher-, Gesundheits- und Arbeitsschutz in Saarbrucken	26	0
other	LMVE		2	0
all			31	0
Pet animals				
dogs	LMVE		1	0
cats	LMVE		8	0
other	LMVE		5	0

Footnote

Luxembourg is ORF since july 2003

3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE

3.1. E. COLI INDICATORS

3.1.1. General evaluation of the national situation

3.1.2. Antimicrobial resistance in *Escherichia coli* isolates

4. 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.