



IRELAND

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

TRENDS AND SOURCES OF ZOONOSES AND ZOOBOTIC 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: **Ireland**

Reporting Year: **2004**

Institutions and laboratories involved in monitoring:

Laboratory name	Description	Contribution
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PREFACE

This report is submitted to the European Commission in accordance with Article 5 of Council Directive 92/117/EEC¹. 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 Ireland 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.

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.

2. INFORMATION ON SPECIFIC ZONOSSES AND ZONOTIC 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

A. Salmonellosis in humans

Case definition

Salmonellosis (*Salmonella enterica*) (EU)

Clinical description

Clinical picture compatible with salmonellosis e.g. diarrhoea, abdominal pain, nausea, and sometimes vomiting. Cases may also be asymptomatic. The organism may cause extraintestinal infections.**

Laboratory criteria for diagnosis

Isolation of *Salmonella* sp. (non-typhi, non-paratyphi) from a clinical specimen

Case classification

Possible: N/A

Probable: A laboratory confirmed isolate without clinical information or a case with clinical symptoms that has an epidemiological link*

Confirmed: A clinically compatible case that is laboratory confirmed.

** The description in the EU case definition document has been elaborated upon here.

Notification system in place

Notifiable since 1948

Table 3.4.1.A Salmonellosis in man - species/serotype distribution

Salmonella	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc	unknown status
	410	9.3178	342	0	68	0	0
S. Adelaide	2		0		2		
S. Agona	2		1		1		
S. Albany	2		2				
S. Anatum	1		1				
S. Berkeley	1				1		
S. Bredeney	11	.2808	10		1		
S. Chester	2		1		1		
S. Corvallis	1		1				
S. Derby	2		2				
S. Dublin	4	.1021	4		0		
S. Enteritidis	173	4.4164	135		38		
S. Goldcoast	1		1				
S. Hadar	4	.1021	3		1		
S. Haifa	2		1		1		
S. Havana	5	.1276	5		0		
S. Heidelberg	1		1				
S. Hvittefoss	1		1				
S. Indiana	1		1				
S. Infantis	1		1				
S. Kentucky	7	.1787	3		4		
S. Kottbus	8	.2042	8		0		
S. Mbandaka	2		2				
S. Montevideo	2		2				
S. Muenster	1		1				
S. Newport	6	.1532	4		2		

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Table 3.4.1.B Salmonellosis in man - age distribution

Age Distribution	S. Enteritidis			S. Typhimurium			Salmonella spp.		
	All	M	F	All	M	F	All	M	F
<1 year	5	3	2	12	5	6	28	11	14
1 to 4 years	23	14	8	20	11	7	55	31	21
5 to 14 years	21	7	14	17	6	11	44	15	28
15 to 24 years	26	9	17	19	8	10	61	24	36
25 to 44 years	52	22	27	26	8	16	111	45	61
45 to 64 years	34	16	17	22	9	13	73	30	42
65 years and older	8	6	2	6	4	2	30	20	10
Age unknown	4	3	1	2	1	1	8	5	3
Total :	173	80	88	124	52	66	410	181	215

Footnote

SEx not know for 5 x S. Enteritidis, 6 x S. Typhimurium and 3 others

Table 3.4.2 Salmonellosis in man - seasonal distribution

Month	S. Enteritidis		S. Typhimurium		Salmonella spp.	
	Cases	Cases	Cases	Cases	Cases	Cases
January	3		7		18	
February	6		5		19	
March	10		4		18	
April	5		10		24	
May	5		6		20	
June	23		6		38	
July	27		24		62	
August	34		25		77	
September	35		17		68	
October	16		8		31	
November	6		4		18	
December	3		8		17	
not known						
Total :	173		124		410	

2.1.3. Salmonella in foodstuffs

Table 3.3.1 Salmonella sp. in meat and meat products (Part A)

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Kentucky	S. Mbandaka	S. Bredeney	S. Hadar	S. Infantis	S. Livingstone	S. Paratyphi B	S. Thompson	S. Montevideo	S. Orion	S. Brandenburg	S. Schwarzengrund	S. Virchow	S. Manhattan
Bovine meat																				
	fresh																			
	- at processing plant				13364	24														
	- at retail					0														
	minced meat																			
	- at processing plant				23	0														
	- at retail				19	1														
	meat products																			
	non-ready-to-eat																			
	- at processing plant (7)				4016	7														
Pig meat																				
	fresh																			
	- at processing plant				4485	104														
	- at retail				29	2														
	ready-to-eat																			
	- at processing plant (8)				686	0														
	- at retail				606	0														

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	DAF FSAI surv. & CVRL OFML	478	21	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- at processing plant (2)																				
- at retail																				
meat products																				
non-ready-to-eat																				
- at processing plant (13)	CMCL & CVRL		59	0																
- at retail	OFML		1	0																
ready-to-eat																				
- at processing plant (14)	CMCL & CVRL		761	0																
- at retail	OFML		253	0																
Other meat																				
fresh																				
- at processing plant (3)	CVRL		2929	11																
- at retail (4)	OFML		7	0																
minced meat																				
- at processing plant (5)	CMCL		38	0																
- at retail (6)	OFML		31	0																
meat products																				
non-ready-to-eat																				
- at processing plant (18)	CMCL & CVRL		292	7																1
ready-to-eat																				
- at processing plant (19)	CMCL & CVRL		2025	0																
- at retail (26)	OFML		309	0																
Mixed meat																				
minced meat																				

[illegible]

[illegible]

(1) : Broiler meat/fresh/at processing/DAF&FSAI surveillance=2281. Positive=110

Broiler meat/fresh/at processing/CVRL_i=4674.Positive=80

(2) : Turkey meat/fresh/at processing/DAF&FSAI surveillance=273.Positive=10.

Turkey meat/fresh/at processing/CVRL=205. Positive =11

(3) : Other meat/Not stated/Fresh/at processing/CVRL= 2929, Positive=11

(3) : Other meat/Not stated/Fresh/At processing/At retail/OFML=7. No positives.

4) : Other meat/hot stated/fresh at retail/OF-ML=/. No positives.

(5) : Other meat/Not stated/minced meat/at processing/CIMLE=38. No positives.

(6) : Other meat/hot stated/minced meat/at retail/OF-MIL=31.No positives,
(7) : Bovine/Meat products/non-RTE/at processing/CMCL=115. No positives,Bovine/meat products/non-RTE/at processing/CVRL/=3901.Positive=7

8) : Bovine/meat products RTE/at processing/ $CMCL=87$. No positives. Bovine/meat products RTE/at processing/ $CMCL=599$. No positives.

8) : Bovine/meat products RTE/at processing/CMCL=8. No positives. Bovine/meat products RTE/at processing/CVRL=599. No positives.

(10) : Porcine/meat products RTE=114.No positives. Porcine/meat products RTE=4162.No positives.

(11) : Broiler meat/Meat products non-RTE at processing/CMCL=113. Positive=2

Broiler meat/Meat products non-RTE at processing/CVRL=2063 Positive=42

- (12) : Broiler/meat products RTE/at processing/CMCL=213.Positives=2.Broiler/meat products RTE/at processing/CVRL=2634.Positives=11.
(13) : Turkey meat/meat products/non-RTE/at processing=9.No positives. Turkey meat/meat products/non-RTE/at processing/CVRL/=50. No positives.
(14) : Turkey/meat products/RTE/at processing/CMCL=42.No positives.Turkey/meat products/RTE/at processing/CVRL=719.No positives.
(15) : Mixed meat/meat products/non-RTE/at processing/CMCL= 8. No positives.
(16) : Duck/fresh/at processing/DAF&FSAI surveillance=60. Positives=33.Duck/fresh/at processing/CVRL/=117. No positives.
(17) : Ovine meat/fresh/at processing/CVRL =2462.Positives=4.
(18) : Other meat/not stated/meat products/non-RTE/at processing/CMCL=254.Positives=3.Other meat/not stated/meat products/non-RTE/at processing/CVRL=38.Positives=4.
(19) : Other meat/not stated/Meat products/RTE/at processing/CMCL=166.No positives.Other meat/not stated/Meat products/RTE/at processing/CVRL=1859.No positives.
(20) : Ovine meat/meat products/non-RTE/at processing/CMCL=38. No positives. Ovine meat/meat products/non-RTE/at processing/CVRL=392.No positives.
(21) : Ovine/meat products/RTE/at processing/CMCL=6.No positives.Ovine/meat products/RTE/at processing/CVRL=25. No positives.
(22) : Other poultry meat/Not stated/fresh/at processing/DAF&FSAI surveillance=4.
No positives.
(23) : Other poultry meat/not stated/meat products non-RTE/at processing/CMCL=49. No positives.
(24) : Other poultry meat/not stated/meat products ready to eat/at processing/CMCL=56. No positives.
(25) : Other poultry meat/Not stated/Minced/at processing/CMCL=1. No positives
(26) : Other meat/not stated/meat products/RTE/at retail/OFML=309. No positives.
(27) : Other poultry meat/not stated/meat products/RTE/at retail/OFML=1. No positives.

Footnote

The sample weight for samples analysed at OFMLs and CMCL is usually 25g. No sample weight provided for the data submitted from the CVRL. The sample weight for poultry meat samples taken under the DAF/FSAI enhanced poultry monitoring surveillance programme varies. A carcass wash of the whole sample (e.g. chicken or breast) less 35g was used for analysis

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-10-07	Pig meat - meat products - ready-to-eat - at processing plant	Source of information	CMCL	CMCL & CVRL

Table 3.3.1 Salmonella sp. in meat and meat products (Part B)

	S. Dublin	S. Derby	S. Enteritidis	S. Typhimurium	S. Goldcoast	S. Indiana	S. Species	S. Paratyphi B var. Java
Bovine meat								
fresh				4			20	
- at processing plant								
- at retail								
minced meat								
- at processing plant							1	
- at retail								
meat products								
non-ready-to-eat								
- at processing plant (7)				6			1	
- at retail								
ready-to-eat								
- at processing plant (8)								
- at retail								
Pig meat								
fresh								
- at processing plant				52			52	
- at retail				2				

[illegible]

meat products								
non-ready-to-eat								
- at processing plant (13)								
- at retail								
ready-to-eat								
- at processing plant (14)								
- at retail								
Other meat								
fresh								
- at processing plant (3)					6			5
- at retail (4)								
minced meat								
- at processing plant (5)								
- at retail (6)								
meat products								
non-ready-to-eat								
- at processing plant (18)	1				3		1	1
ready-to-eat								
- at processing plant (19)								
- at retail (26)								
Mixed meat								
minced meat								
- at retail								
meat products								
non-ready-to-eat								
- at processing plant								
ready-to-eat								
- at processing plant								

[illegible]

[illegible]

(1) : Broiler meat/fresh/at processing/DAF&FSAI surveillance=2281. Positive=110

Broiler meat/fresh/at processing/CVRL/=4674.Positive=80

2) : Turkey meat/fresh/at processing/DAF&FSAI surveillance=273. Positive=10.

Turkey meat/fresh at processing/CVRL=205. Positive =11

(3) : Other meat/Not stated/Fresh/at processing/CVRL= 2929 Positive=11

(4) : Other meat/not stated/fresh/at retail/OFML=7. No positives.

(5) : Other meat/Not stated/minced meat/at processing/CMCL=38. No positives.

(6) : Other meat/not stated/minced meat/at retail/OFML=31.No positives,

(7) : Bovine/Meat products/non-RTE/at processing/CMCL=115. No positives.Bovine/meat products/non-RTE/at processing/CVRL/=3901.Positive=7

(8) : Bovine/meat products RTE/at processing/CMCL/=87.No positives.Bovine/meat products RTE/at processing/CMCL/=599.No positives.

(9) : Pig meat/meat products non-RTE at processing/
CMCL/=229, Positive=1. Pig meat/meat products non-RTE at processing/
CVRL=3198, Positive=0. Bovine/meat products RTE at processing/
CMCL=67, Positive=0. Bovine/meat products RTE at processing/
CVRL=55, Positive=0.

(10) : Porcine/at processing/CMCL/meat products RTE=114.No positives. Porcine/at processing/CVRL/meat products RTE=4162.No positives.

(11) : Broiler meat/Meat products non-RTE at processing/CMCL=113.Positive=2

Broiler meat/Meat products non-RTE at processing/CVRL=2063.Positive=42

(12) : Broiler/meat products RTE/at processing/CVRL=2634,Positives=11.

(13) : Turkey meat/meat products/non-RTE/at processing/CVRL/=50. No positives.

(14) : Turkey/meat products/RTE/at processing/CMCL=42.No positives,Turkey/meat products/RTE/at processing/CMCL=719.No positives.

(15) : Mixed meat/meat products/non-RTE/at processing/CMCL=8. No positives.

(16) : Duck/fresh/at processing/DAF&FS AI surveillance=60. Positives=33.Duck/fresh/at processing/CVRI./=117. No positives.

(17) : Ovine meat/fresh/at processing/CVRL =2462.Positive=4.

(18) : Other meat/hot stated/meat products/non-RTE/at processing/CVRL=38. Positives=4.

(19) : Other meat/not stated/Meat products/RTE/at processing/CMCL=166.No positives.Other meat/not stated/Meat products/RTE/at processing/CVRL=1859.No positives.

(20) : Ovine meat/meat products/non-RTE/at processing/CVRL=392.No positives.

(21): Ovine/meat products/RTE/at processing/CMCL=6.No positives.Ovine/meat products/RTE/at processing/CVRL=25. No positives.

(22) : Other poultry meat/Not stated/fresh/at processing/DAF&FSAI surveillance=4.

No positives.

23) : Other poultry meat/not stated/meat products non-RTE/at processing/CMCL=49. No positives.

24) : Other poultry meat/not stated/meat products ready to eat/at processing/CMCL=56. No positives.

(25) : Other poultry meat/Not stated/Minced/at processing/CMCL=1 No positives

(26) : Other meat/not stated/meat products/RTE/at retail/OFML=309. No positives.
(27) : Other poultry meat/not stated/meat products/RTE/at retail/OFML=1. No positives.

Footnote

The sample weight for samples analysed at OFMLs and CMCL is usually 25g. No sample weight provided for the data submitted from the CVRL. The sample weight for poultry meat samples taken under the DAF/FSAI enhanced poultry monitoring surveillance programme varies. A carcass wash of the whole sample (e.g. chicken or breast) less 35g was used for analysis

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-10-07	Bovine meat - fresh - at processing plant	S. Species	20	20

Table 3.3.2 *Salmonella* sp. in other food

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Species	S. Enteritidis	S. Typhimurium	S. Agona	S. Bredeney	S. Senftenberg	S. Tennessee
Dairy products	ready-to-eat												
	- at processing plant				2767	0							
	- at retail				1585	0							
	milk powder (3)												
Dairy products, not specified	- at processing plant (6)				5884	2	2						
	- at processing plant				6824	0							
	non-ready-to-eat												
	- at retail				4	0							
Table eggs													
- at packing centre	CVRL				137	0							
- at retail	OFML				5	0							
Egg products (2)													
- at processing plant	CVRL				438	1	1						
- at retail	OFML				473	0							
Raw material (liquid egg) for egg products													

- at processing plant	CVRL							91	0										
- at retail	OFML							3	0										
Fishery products																			
fish																			
- at processing plant (7)	DCMNR private labs & CVRL							1763	0										
- at retail	OFML							531	0										
Fats and oils (4)																			
- at processing plant (8)	CVRL							791	1						1				
- at retail	OFML							1	0										
Prepared food, ready to eat (5)																			
- at processing plant	CVRL							4665	1	1									
- at retail	OFML							2685	0										
Prepared food, non-ready to eat																			
- at processing plant	CVRL							3702	1						1				
- at retail	OFML							1	0										
Food grade water																			
- at processing plant	CVRL							658	0										
Fruit & Vegetables																			
- at processing plant (9)	CVRL							1788	0										
- at retail	OFML							343	0										
Foods not specified																			
- at processing plant	CVRL							4700	2	2									
Other milk raw																			
- at processing plant (10)	CVRL & DSL							28	1						1				

heat-treated - at processing plant (11) - at retail	OFML								1	0									
	CVRL & DSL								212	0									
	OFML								11	0									
Soups																			
- at retail (12)	OFML								397	0									
Cereals and bakery products																			
- at retail	OFML								537	0									
Spices and herbs																			
- at retail	OFML								795	7	3		1	1	1	1	1	1	1
Non-alcoholic beverages																			
- at retail	OFML								26	0									
Ices and desserts																			
- at retail	OFML								263	0									
Confectionery products and pastes																			
- at retail	OFML								12	0									
Nut and nut products																			
- at retail	OFML								3	0									
Foodstuffs intended for special nutritional uses																			
- at retail	OFML								45	0									

(1) : raw milk/at processing/CVRL=26.1 positive.S.Typhimurium 193

(2) : Egg products/at processing/CVRL/Ready to eat =438.1 positive.

(3) Dairy products/at processing/CVRL/milk powder=5144.Positive=2.

(4) : Fats & oils/at processing/CVRL=791. Positive=1

(5) : Prepared food RTE/at processing/CVRL=4665.Positive=1

(6) : Dairy products/milk powder/at processing/CVRL=5144, positives=2. Dairy products/milk powder/at processing/DSL=740. No positives.

(7) : Fishery products/fish/at processing/DCMNR private laboratories=128.No positives,Fishery products/fish/at processing/CVRL=1635. No positives.

(8) : Edible fat

(9) : Includes 165 mushroom samples

(10) : Other milk/not stated/raw/at processing/CVRL=26,Positive=1,Other milk/not stated/raw/at processing/DSL=2.No positives
(11) : Other milk/not stated/Milk heat treated/at processing/CVRL=117 .
Other milk/not stated/Milk heat treated/at processing/DSL=95. No positives.
(12) : This also includes broths and sauces

Footnote

The sample weight for samples analysed at OFMLs,DCMNR approved laboratories and DSLs is usually 25g. No sample weight provided for data submitted from the CVRL.

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
Gallus gallus							
parent breeding flocks for meat production line				548	40	0	0

Table 3.2.2 Salmonella sp. in other commercial poultry

	Source of information	Remarks	Epidemiological unit	Flocks tested	Flocks positive	S. Typhimurium	S. Enteritidis
Gallus gallus							
laying hens							
- during production period				355	3		3
Ducks							
breeding flocks, unspecified (1)				19	5		
Turkeys							
breeding flocks, unspecified (2)				133	11		

(1) : Serotype isolated = S. Bredney

(2) : Serotypes isolated=

4 x S. Livingstone

1 x S. Group B/G

6 X S. Indiana

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	S. Dublin	S. group B
Pigeons	Diag		Sample	9	0	0	0	0	0
Guinea fowl	Diag		Sample	0	0	0	0	0	0
Quails	Diag		Sample	0	0	0	0	0	0
Pheasants	Diag		Sample	43	0	0	0	0	0
Partridges	Diag		Sample	5	0	0	0	0	0
Ostriches	Diag		Sample	0	0	0	0	0	0

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-09-12	Guinea fowl	Source of information		Diag
	Guinea fowl	Epidemiological unit		Sample
	Guinea fowl	Flocks tested		0
	Guinea fowl	Flocks positive		0
	Quails	Source of information		Diag
	Quails	Epidemiological unit		Sample
	Quails	Flocks tested		0
	Quails	Flocks positive		0
	Pheasants	Source of information		Diag
	Pheasants	Epidemiological unit		Sample
	Pheasants	Flocks tested		43
	Pheasants	Flocks positive		0
	Partridges	Source of information		Diag
	Partridges	Epidemiological unit		Sample
	Partridges	Flocks tested		5
	Partridges	Flocks positive		0
	Ostriches	Source of information		Diag
	Ostriches	Epidemiological unit		Sample
	Ostriches	Flocks tested		0
	Ostriches	Flocks positive		0
	Pigeons	Source of information		Diag
	Pigeons	Epidemiological unit		Sample
	Pigeons	Flocks tested		9
	Pigeons	Flocks positive		0
	Guinea fowl	S. Enteritidis		0
	Guinea fowl	S. Typhimurium		0
	Guinea fowl	S. Dublin		0
	Guinea fowl	S. group B		0
	Quails	S. Enteritidis		0
	Quails	S. Typhimurium		0
	Quails	S. Dublin		0
	Quails	S. group B		0
	Pheasants	S. Enteritidis		0
	Pheasants	S. Typhimurium		0
	Pheasants	S. Dublin		0
	Pheasants	S. group B		0
	Partridges	S. Enteritidis		0
	Partridges	S. Typhimurium		0
	Partridges	S. Dublin		0
	Partridges	S. group B		0
	Ostriches	S. Enteritidis		0
	Ostriches	S. Typhimurium		0
	Ostriches	S. Dublin		0
	Ostriches	S. group B		0

Pigeons	S. Enteritidis	0
Pigeons	S. Typhimurium	0
Pigeons	S. Dublin	0
Pigeons	S. group B	0

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. group B	S. Derby
Cattle (bovine animals)	Diag		Sample	8525	395	0	4	373	18	0
Sheep	Diag		Sample	787	3	0	0	3	0	0
Goats	Diag		Sample	35	0	0	0	0	0	0
Pigs										
breeding animals	Diag			0	0	0	0	0	0	0
fattening pigs	Diag			0	0	0	0	0	0	0
unspecified	Diag		Sample	272	9	0	1	0	6	2
Solipeds	Diag		Sample	1256	1	0	1	0	0	0
other	Diag		Sample	783	0	0	0	0	0	0

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-09-12	Goats	Source of information		Diag
	Goats	Epidemiological unit		Sample
	Goats	Units tested		35
	Goats	Units positive		0
	Pigs - breeding animals	Source of information		Diag
	Pigs - breeding animals	Units tested		0
	Pigs - breeding animals	Units positive		0
	Pigs - fattening pigs	Source of information		Diag
	Pigs - fattening pigs	Units tested		0
	Pigs - fattening pigs	Units positive		0
	Pigs - unspecified	Source of information		Diag
	Pigs - unspecified	Epidemiological unit		Sample
	Pigs - unspecified	Units tested		272
	Pigs - unspecified	Units positive		9
	Solipeds	Source of information		Diag
	Solipeds	Epidemiological unit		Sample
	Solipeds	Units tested		1256
	Solipeds	Units positive		1
	Cattle (bovine animals)	Source of information		Diag
	Cattle (bovine animals)	Epidemiological unit		Sample
	Cattle (bovine animals)	Units tested		8525
	Cattle (bovine animals)	Units positive		395
	Sheep	Source of information		Diag
	Sheep	Epidemiological unit		Sample
	Sheep	Units tested		787
	Sheep	Units positive		3
	other	Source of information		Diag
	other	Epidemiological unit		Sample
	other	Units tested		783
	other	Units positive		0
	Goats	S. Enteritidis		0
	Goats	S. Typhimurium		0
	Goats	S. Dublin		0
	Goats	S. group B		0
	Goats	S. Derby		0
	Pigs - breeding animals	S. Enteritidis		0
	Pigs - breeding animals	S. Typhimurium		0
	Pigs - breeding animals	S. Dublin		0
	Pigs - breeding animals	S. group B		0

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Pigs - breeding animals	S. Derby	0
Pigs - fattening pigs	S. Enteritidis	0
Pigs - fattening pigs	S. Typhimurium	0
Pigs - fattening pigs	S. Dublin	0
Pigs - fattening pigs	S. group B	0
Pigs - fattening pigs	S. Derby	0
Pigs - unspecified	S. Enteritidis	0
Pigs - unspecified	S. Typhimurium	1
Pigs - unspecified	S. Dublin	0
Pigs - unspecified	S. group B	6
Pigs - unspecified	S. Derby	2
Solipeds	S. Enteritidis	0
Solipeds	S. Typhimurium	1
Solipeds	S. Dublin	0
Solipeds	S. group B	0
Solipeds	S. Derby	0
Cattle (bovine animals)	S. Enteritidis	0
Cattle (bovine animals)	S. Typhimurium	4
Cattle (bovine animals)	S. Dublin	373
Cattle (bovine animals)	S. group B	18
Cattle (bovine animals)	S. Derby	0
Sheep	S. Enteritidis	0
Sheep	S. Typhimurium	0
Sheep	S. Dublin	3
Sheep	S. group B	0
Sheep	S. Derby	0
other	S. Typhimurium	0
other	S. Dublin	0
other	S. group B	0
other	S. Derby	0
other	S. Enteritidis	0

2.1.5. Salmonella in feedstuffs**Table 3.1.1 Salmonella sp. in feed material of animal origin**

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Typhimurium	S. Enteritidis
Feed material of land animal origin								
Dairy products					0			
Meat meal					0			
Meat and bone meal					0			
Bone meal					0			
Greaves					0			
Poultry offal meal					0			
Feather meal					0			
Blood meal					0			
Animal fat					0			
Feed material of marine animal origin								
Fish meal (1)					6			
Fish oil					0			
Fish silage					0			
other fish products					0			

(1) : Sample size = 0.5 KG

Table 3.1.2 Salmonella sp. in feed of vegetable origin

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Enteritidis	S. Typhimurium
Feed material of cereal grain origin								
Barley derived					5	0		
Wheat derived					14	0		
Maize					2	0		
derived					22	0		
other cereal grain derived					1	0		
Feed material of oil seed or fruit origin								
Groundnut derived					0	0		
Rape seed derived					16	0		
Palm kernel derived					2	0		
Soya (bean) derived (1)					27	2		
Cotton seed derived (2)					7	2		
Sunflower seed derived					10	0		
Linseed derived					0			
other oil seeds derived					0			
other feed material								
Legume seeds and similar products					0			
Tubers, roots and similar products					0			
Other seeds and fruits					6	0		
Forages and roughages					0			
Other plants (3)					0			

(1) : The 2 serotypes isolated were Salm. Mbdanka & Salm. Cerro

(2) : Serotypes isolated = 2 x Salm. Oranienburg

(3) : -

Table 3.1.3 Salmonella sp. in compound feedingstuff

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Enteritidis	S. Typhimurium
Compound feedingstuffs for cattle								
Final product					56	0		
Compound feedingstuffs for pigs								
Final product					23	0		
Compound feedingstuffs for poultry (non specified)								
Final product (2)					539	29		2
Compound feedingstuffs for poultry - laying hens								
Final product					23	0		
Compound feedingstuffs for poultry - broilers								
Final Product					8	0		
Pet food								
Dog snacks (pig ears, chewing bones)					0			
Compound feedingstuffs for sheep								
- at feed mill					9	0		
Compound feedingstuffs for horses								
- at feed mill					1	0		
Compound feedingstuffs for fish								
- at feed mill					11	0		

(1) : Serotyp

(2) : 27 other serotypes were isolated consisting of:

1 x S. Agona

14 x S. Kentucky

2 x S. Bredensky

4 x S. Seftenberg

1 x S. Tennessee

5 x S. Group C

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 3.3.3 Salmonella serovars in animals

Serovars		Cattle (bovine animals)		Pigs		Gallus gallus		Other poultry		Other animals	
Sources of isolates		M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
Number of isolates in the laboratory (1)	N=		11809		667		628				4725
Number of isolates serotyped	N=										
Number of isolates per type											
S. Derby			0		2		0				0
S. Dublin			299		0		0				0
S. Enteritidis			0		0		0				0
S. Typhimurium			5		5		0				0
Total of typed <i>Salmonella</i> isolates											

(1) : Total number of samples cultured for bacteria

Footnote

(*) M : Monitor, C : Clinical

The following amendments were made :

Date of modification	Species	Line	Column	Old value	New value
2005-09-21	Cattle (bovine animals)	Number isolates	clinical		11809
	Pigs	Number isolates	clinical		667
	Gallus gallus	Number isolates	clinical		628

2005-09-21	Other animals	Number isolates	clinical		4725
	Cattle (bovine animals)	S. Dublin	Clinical		299
	Cattle (bovine animals)	S. Enteritidis	Clinical		0
	Cattle (bovine animals)	S. Typhimurium	Clinical		5
	Cattle (bovine animals)	S. Derby	Clinical		0
	Pigs	S. Dublin	Clinical		0
	Pigs	S. Enteritidis	Clinical		0
	Pigs	S. Typhimurium	Clinical		5
	Pigs	S. Derby	Clinical		2
	Gallus gallus	S. Dublin	Clinical		0
	Gallus gallus	S. Enteritidis	Clinical		0
	Gallus gallus	S. Typhimurium	Clinical		0
	Gallus gallus	S. Derby	Clinical		0
	Other animals	S. Dublin	Clinical		0
	Other animals	S. Enteritidis	Clinical		0
	Other animals	S. Typhimurium	Clinical		0
	Other animals	S. Derby	Clinical		0

Table 3.3.4 Salmonella serovars in food

Serovars		Bovine meat		Pig meat		Broiler meat		Other poultry		Other products of animal origin	
		M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
Sources of isolates											
Number of isolates in the laboratory		N=									
Number of isolates serotyped		N=									
Number of isolates per type											
S. Brandenburg		0		0		0		3		0	
S. Bredeney		0		0		11		28		0	
S. Derby		0		1		0		0		0	
S. Enteritidis		0		0		22		1		0	
S. Goldcoast		0		1		17		2		0	
S. Hadar		0		0		1		0		0	
S. Indiana		0		0		0		1		0	
S. Infantis		0		0		2		0		0	
S. Kentucky		0		0		25		3		0	
S. Livingstone		0		0		4		0		0	
S. Mbandaka		0		0		21		2		0	
S. Montevideo		0		0		1		0		0	
S. Orion		0		0		0		3		0	
S. Paratyphi B		0		0		1		0		0	

S. Schwarzengrund	0	0	0	0	0	0	0	0	1	0	0	
S. Thompson	0	0	0	0	1	0	0	0	0	0	0	
S. Typhimurium	10		77		66	1			1	1		
S. Virchow	0	0	0	0	1	0			0	0	0	
S. Paratyphi B var. Java	0	0	0	0	1	0			0	0	0	
Total of typed <i>Salmonella</i> isolates												

Footnote

(*) M : Monitor, C : Clinical
Other products of animal origin includes dairy products, fish and fish products, egg and egg products

Table 3.3.5 S.Enteridis phagetypes in animals

Phagetype	Cattle (bovine animals)		Pigs		Gallus gallus		Other poultry		Other animals	
	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
	Sources of isolates									
Number of isolates in the laboratory (1)	N= 11809				667				628	
Number of isolates serotyped	N= 0				0				0	

(1) : Total number of samples cultured for bacteria

Footnote

(*) M : Monitor, C : Clinical

The following amendments were made :

Date of modification	Species	Line	Column	Old value	New value
2005-09-21	Cattle (bovine animals)	Number serotyped	clinical		0
	Cattle (bovine animals)	Number isolates	clinical		11809
	Pigs	Number serotyped	clinical		0
	Pigs	Number isolates	clinical		667
	Gallus gallus	Number serotyped	clinical		0
	Gallus gallus	Number isolates	clinical		628
	Other animals	Number serotyped	clinical		0
	Other animals	Number isolates	clinical		4725

Table 3.3.6 S.Enteritidis phagetypes in food

Phagetype	Bovine meat		Pig meat		Broiler meat		Other poultry		Other products of animal origin	
	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
	Sources of isolates									
Number of isolates in the laboratory (1)	N=									
	0		0		22		1		0	
Number of isolates serotyped (2)	N=									
	0		0		1		0		0	
Number of isolates per type										
PT 6										
	0		0		1		0		0	
Total of typed <i>Salmonella</i> isolates										

(1) : Number of S.Enteritidis isolates

(2) : Number of S.Enteritidis isolates which were phage-typed.

Footnote

(*) M : Monitor, C : Clinical

Table 3.3.9 S. Enteritidis phagetypes in humans

Phagetype		humans	
Sources of isolates		M(*)	C(*)
Number of isolates in the laboratory	N=		173
Number of isolates serotyped	N=		171
Number of isolates per type			
PT 1			48
PT 4			43
PT 6			10
PT 8			10
PT 14b			11
PT 21			18
DT RDNC			3
PT 1b			1
PT 21c			1
PT 3			2
PT 44			1
PT 13a			1
PT 2			1
PT 24 var			4
PT 35			1
PT 4b			3
PT 56			1
PT 6a			11
PT 6b			1
Total of typed <i>Salmonella</i> isolates			

Footnote

(*) M : Monitor, C : Clinical

Table 3.3.8 *Salmonella* Typhimurium phage types in food

Phagetype	Bovine meat		Pig meat		Broiler meat		Other poultry		Other products of animal origin	
	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
	Number of isolates in the laboratory (1)									
Sources of isolates	N=									
Number of isolates in the laboratory (1)	10		77		66		1		1	
Number of isolates serotyped (2)	0		3		0		0		1	
Number of isolates per type										
DT 104b	0		3		0		0		0	
DT 193	0		0		0		0		1	
Total of typed <i>Salmonella</i> /isolates										

(1) : Number of *S.Typhimurium* isolates(2) : Number of *S.Typhimurium* isolates which were phage-typed.**Footnote**

(*) M : Monitor, C : Clinical

Table 3.3.10 S. Typhimurium phagetypes in humans

Phagetype	humans	
	M(*)	C(*)
Sources of isolates		
Number of isolates in the laboratory N=		124
Number of isolates serotyped N=		115
Number of isolates per type		
DT 1		4
DT 2		2
DT 7		2
DT 8		1
DT 9		1
DT 12		1
DT 104		47
DT 104b		23
DT 120		3
DT 193		2
DT 208		3
U 302		2
DT 104c		4
DT 132		1
DT 22		1
DT 193a		3
DT 49		10
U 311		1
U 310		3
DT 42		1
Total of typed <i>Salmonella</i> isolates		

Footnote

(*) M : Monitor, 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. Dublin - qualitative data

	S. Dublin	
	Cattle (bovine animals)	
Isolates out of a monitoring program	No	
Number of isolates available in the laboratory	299	
Antimicrobials:	N	%R
Tetracycline		
Oxytetracyclin	106	8.2%
Tetracyclin	193	3.2%
Amphenicols		
Florfenicol	242	0.4%
Cephalosporin		
Cephalothin	11	0%
Fluoroquinolones		
Enrofloxacin	299	0%
Trimethoprim	60	5.3%
Sulfonamides		
Sulfamethoxazol	6	20%
Sulfisoxazol (sulfafurazol)	11	100%
Aminoglycosides		
Streptomycin	11	0%
Neomycin	271	5.4%
Apramycin	290	1.4%
Framycetin	297	0%
Spectinomycin	11	0%
Macrolides		
Erythromycin	11	100%
Trimethoprim + sulfonamides		
Trimethoprim + Sulfamethoxazol(2)	230	1%
Penicillins		
Amoxicillin(1)	11	0%
Amoxicillin/ clavulanic acid	299	0.7%
Ampicillin	50	8.7%
Penicillin	11	100%

(1) : Clavulated Amoxycillin: N 23 ; %R 0

(2) : Sulphamethaxazole/Trimethoprim: N 130 ; %R 1.6

Sulphamethaxazole/Trimethopriu: N 36 ; %R 5.9

Sulphamethazole/Trimethoprim: N 20; %R 0

Footnote

Number of isolates refers to the total number of samples.

Clavulated Amoxycillin: N 23 ; %R 0.0

Sulphamethaxazole/Trimethoprim: N 130 ; %R 1.6

Sulphamethaxazole/Trimethopriu: N 36 ; %R 5.9

Sulphamethazole/Trimethoprim: N 20 ; %R 0.0

Trimethoprim/Sulfamethoxazole: N 44 ; %R 0.0

The following amendments were made :

Date of modification	Species	Antimicrobial	Column	Old value	New value
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2005-09-13	Cattle (bovine animals)	isolates out of monitoring			No
	Cattle (bovine animals)	number of isolates			299
	Cattle (bovine animals)	Florfenicol	N		242
	Cattle (bovine animals)	Florfenicol	%R		0.4
	Cattle (bovine animals)	Enrofloxacin	N		299
	Cattle (bovine animals)	Enrofloxacin	%R		0
	Cattle (bovine animals)	Trimethoprim	N		60
	Cattle (bovine animals)	Trimethoprim	%R		5.3
	Cattle (bovine animals)	Streptomycin	N		11
	Cattle (bovine animals)	Streptomycin	%R		0
	Cattle (bovine animals)	Neomycin	N		271
	Cattle (bovine animals)	Neomycin	%R		5.4
	Cattle (bovine animals)	Ampicillin	N		50
	Cattle (bovine animals)	Ampicillin	%R		8.7
	Cattle (bovine animals)	Oxytetracyclin	N		106
	Cattle (bovine animals)	Oxytetracyclin	%R		8.2
	Cattle (bovine animals)	Sulfamethoxazol	N		6
	Cattle (bovine animals)	Sulfamethoxazol	%R		20
	Cattle (bovine animals)	Tetracyclin	N		193
	Cattle (bovine animals)	Tetracyclin	%R		3.2
	Cattle (bovine animals)	Framycetin	N		297
	Cattle (bovine animals)	Framycetin	%R		0
	Cattle (bovine animals)	Amoxicillin	N		11
	Cattle (bovine animals)	Amoxicillin	%R		0
	Cattle (bovine animals)	Amoxicillin/ clavulanic acid	N		276
	Cattle (bovine animals)	Amoxicillin/ clavulanic acid	%R		0.7
	Cattle (bovine animals)	Apramycin	N		290
	Cattle (bovine animals)	Apramycin	%R		1.4
	Cattle (bovine animals)	Spectinomycin	N		11
	Cattle (bovine animals)	Spectinomycin	%R		0
	Cattle (bovine animals)	Erythromycin	N		11
	Cattle (bovine animals)	Erythromycin	%R		100
	Cattle (bovine animals)	Penicillin	N		11
	Cattle (bovine animals)	Penicillin	%R		100
	Cattle (bovine animals)	Sulfisoxazol (sulfafurazol)	N		11
	Cattle (bovine animals)	Sulfisoxazol (sulfafurazol)	%R		100
	Cattle (bovine animals)	Cephalothin	N		11
	Cattle (bovine animals)	Cephalothin	%R		0
2005-09-16	Cattle (bovine animals)	Trimethoprim	N	60	60
	Cattle (bovine animals)	Trimethoprim	%R	5.3	5.3
2005-09-16	Cattle (bovine animals)	Trimethoprim	N	60	60
	Cattle (bovine animals)	Trimethoprim	%R	5.3	5.3
2005-09-16	Cattle (bovine animals)	Trimethoprim + Sulfamethoxazol	N		44
	Cattle (bovine animals)	Trimethoprim + Sulfamethoxazol	%R		0
2005-09-21	Cattle (bovine animals)	Trimethoprim + Sulfamethoxazol	N	44	230
	Cattle (bovine animals)	Trimethoprim + Sulfamethoxazol	%R	0	1
	Cattle (bovine animals)	Amoxicillin/ clavulanic acid	N	276	299

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	no		no					
Number of isolates available in the laboratory	5		2					
Antimicrobials:	N	%R	N	%R	N	%R	N	%R
Tetracycline								
Oxytetracyclin	1	100%	1	0%				
Tetracyclin	4	50%	1	100%				
Amphenicols								
Florfenicol	5	60%	1	0%				
Fluoroquinolones								
Enrofloxacin	5	0%	2	0%				
Trimethoprim	2	0%	0	0%				
Aminoglycosides								
Neomycin	5	40%	1	0%				
Apramycin	4	0%	1	0%				
Framycetin	4	0%	2	0%				
Trimethoprim + sulfonamides								
Trimethoprim + Sulfamethoxazol	4	0%	2	50%				
Penicillins								
Amoxicillin/ clavulanic acid(1)	4	50%	1	0%				

(1) : Clavulated Amoxycillin:

Cattle - N 1 ; %R 0

Pigs - N 1 ; %R 0

The following amendments were made :

Date of modification	Species	Antimicrobial	Column	Old value	New value
2005-09-12	Cattle (bovine animals)	isolates out of monitoring			no
	Cattle (bovine animals)	number of isolates			5
	Pigs	isolates out of monitoring			no
	Pigs	number of isolates			2
	Cattle (bovine animals)	Florfenicol	N		5
	Cattle (bovine animals)	Florfenicol	%R		60
	Cattle (bovine animals)	Enrofloxacin	N		5
	Cattle (bovine animals)	Enrofloxacin	%R		0
	Cattle (bovine animals)	Trimethoprim	N		2
	Cattle (bovine animals)	Trimethoprim	%R		0
	Cattle (bovine animals)	Neomycin	N		5
	Cattle (bovine animals)	Neomycin	%R		40
	Cattle (bovine animals)	Amoxicillin/ clavulanic acid	N		4
	Cattle (bovine animals)	Amoxicillin/ clavulanic acid	%R		50
	Cattle (bovine animals)	Apramycin	N		4
	Cattle (bovine animals)	Framycetin	N		4
	Cattle (bovine animals)	Framycetin	%R		0
	Cattle (bovine animals)	Oxytetracyclin	N		1
	Cattle (bovine animals)	Oxytetracyclin	%R		100
	Cattle (bovine animals)	Tetracyclin	N		4
	Cattle (bovine animals)	Tetracyclin	%R		50
	Cattle (bovine animals)	Trimethoprim + Sulfamethoxazol	N		4
	Cattle (bovine animals)	Trimethoprim + Sulfamethoxazol	%R		0
	Pigs	Florfenicol	N		1
	Pigs	Florfenicol	%R		0
	Pigs	Enrofloxacin	N		2
	Pigs	Enrofloxacin	%R		0

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	Pigs	Trimethoprim	N	0
	Pigs	Trimethoprim	%R	0
	Pigs	Neomycin	N	1
	Pigs	Neomycin	%R	0
	Pigs	Amoxicillin/ clavulanic acid	N	1
	Pigs	Amoxicillin/ clavulanic acid	%R	0
	Pigs	Apramycin	N	1
	Pigs	Framycetin	N	2
	Pigs	Framycetin	%R	0
	Pigs	Oxytetracyclin	N	1
	Pigs	Oxytetracyclin	%R	0
	Pigs	Tetracyclin	N	1
	Pigs	Tetracyclin	%R	100
	Pigs	Trimethoprim + Sulfamethoxazol	N	2
	Pigs	Trimethoprim + Sulfamethoxazol	%R	50
2005-09-21	Cattle (bovine animals)	Apramycin	%R	0
	Pigs	Apramycin	%R	0

Table Antimicrobial susceptibility testing of S. group B - qualitative data

S. group B		
Cattle (bovine animals)		
Isolates out of a monitoring program	no	
Number of isolates available in the laboratory	8	
Antimicrobials:	N	%R
Tetracycline		
Oxytetracyclin	8	100%
Fluoroquinolones		
Enrofloxacin	8	50%
Aminoglycosides		
Neomycin	8	50%
Apramycin	8	0%
Framycetin	8	0%
Trimethoprim + sulfonamides		
Trimethoprim + Sulfamethoxazol	8	62.5%
Penicillins		
Amoxicillin/ clavulanic acid	8	12.5%
Ampicillin	8	100%

The following amendments were made :

Date of modification	Species	Antimicrobial	Column	Old value	New value
2005-09-12	Cattle (bovine animals)	isolates out of monitoring			no
	Cattle (bovine animals)	number of isolates			8
	Cattle (bovine animals)	Enrofloxacin	N		8
	Cattle (bovine animals)	Enrofloxacin	%R		50
	Cattle (bovine animals)	Neomycin	N		8
	Cattle (bovine animals)	Neomycin	%R		50
	Cattle (bovine animals)	Trimethoprim + sulfonamides	N		8
	Cattle (bovine animals)	Trimethoprim + sulfonamides	%R		62.5
	Cattle (bovine animals)	Ampicillin	N		8
	Cattle (bovine animals)	Ampicillin	%R		100
	Cattle (bovine animals)	Framycetin	N		8
	Cattle (bovine animals)	Framycetin	%R		0
	Cattle (bovine animals)	Oxytetracyclin	N		8
	Cattle (bovine animals)	Oxytetracyclin	%R		100
	Cattle (bovine animals)	Amoxicillin/ clavulanic acid	N		8
	Cattle (bovine animals)	Amoxicillin/ clavulanic acid	%R		12.5
	Cattle (bovine animals)	Apramycin	N		8
	Cattle (bovine animals)	Apramycin	%R		0
2005-09-21	Cattle (bovine animals)	Trimethoprim + Sulfamethoxazol	N		8
	Cattle (bovine animals)	Trimethoprim + Sulfamethoxazol	%R		62.5

2.2. CAMPYLOBACTERIOSIS

2.2.1. General evaluation of the national situation

2.2.2. Campylobacteriosis in humans

A. Thermophilic Campylobacter in humans

Case definition

Campylobacter infection (Campylobacter sp.) (EU)

Clinical description

Clinical picture compatible with campylobacter infection, i.e. an illness with diarrhoea and/ or vomiting of variable severity which may be accompanied by abdominal cramps and fever**

Laboratory criteria for diagnosis

Isolation of Campylobacter sp. from any clinical specimen

Case classification

Possible: N/A

Probable: A clinically compatible case with an epidemiological link—

Confirmed: A clinically compatible case (symptomatic or asymptomatic) that is laboratory confirmed

** The description in the EU case definition document has been elaborated upon here

Notification system in place

Notifiable since 2004

Table 6.3.A Campylobacteriosis in man - species/serotype distribution

Campylobacter	Cases	Cases Inc	Autoclone cases	Autoclone Inc	Imported cases	Imported Inc	unknown status
	1711	43.67911	0	0	0	0	0
C. coli	53	1.35301					
C. jejuni	655	16.7211					
C. upsaliensis							
Campylobacter spp.	1003	25.6050					

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-12-09	C. coli	Cases	35	53
	C. coli	Cases Inc	.8935	135301
	C. jejuni	Cases	431	655
	C. jejuni	Cases Inc	11.0027	167211
	Campylobacter spp.	Cases	1136	1003
2005-12-12	C. coli	Cases Inc	135301	135301
	C. jejuni	Cases Inc	167211	167211
	Campylobacter spp.	Cases Inc	29.000	134279
2005-12-12	C. coli	Cases Inc	135301	1.35301
	C. jejuni	Cases Inc	167211	16.7211
	Campylobacter spp.	Cases Inc	134279	25.6050

Table 6.3.B Campylobacteriosis in man - age distribution

Age Distribution	C. coli			C. jejuni			Campylobacter spp.		
	All	M	F	All	M	F	All	M	F
<1 year	2	1	0	46	22	24	120	61	58
1 to 4 years	10	3	7	117	70	46	372	215	155
5 to 14 years	5	2	3	59	42	17	170	109	61
15 to 24 years	5	4	1	80	48	31	214	129	84
25 to 44 years	14	11	3	194	96	98	450	207	242
45 to 64 years	10	5	5	103	54	48	228	116	111
65 years and older	5	1	4	51	27	24	144	82	62
Age unknown	2	1	1	5	3	2	13	7	5
Total :	53	28	24	655	362	290	1711	926	778

Footnote

Sex Not known for 1 x C. coli, 6 x C. jejuni and 15 of all campylobacter cases

The following amendments were made :

Date of modification	Zoonose	Line	Column	Old value	New value
2005-12-09	C. coli	<1 year	All		2
	C. coli	<1 year	M		1
	C. coli	1 to 4 years	All	10	10
	C. coli	1 to 4 years	M	3	3
	C. jejuni	<1 year	All		46
	C. jejuni	<1 year	M		22
	C. jejuni	<1 year	F		24
	Campylobacter spp.	<1 year	All		120
	Campylobacter spp.	<1 year	F		58
	C. coli	1 to 4 years	F	7	7
	C. coli	15 to 24 years	All	5	5
	C. coli	15 to 24 years	M	4	4
	C. coli	15 to 24 years	F	1	1
2005-12-09	C. coli	25 to 44 years	All	14	14
	C. coli	25 to 44 years	M	11	11
	C. coli	25 to 44 years	F	3	3

C. coli	45 to 64 years	All	10	10
C. coli	45 to 64 years	M	5	5
C. coli	45 to 64 years	F	5	5
C. coli	65 years and older	All	5	5
C. coli	65 years and older	F	4	4
C. coli	Age unknown	All	2	2
C. coli	Age unknown	M	1	1
C. coli	Age unknown	F	1	1
C. jejuni	1 to 4 years	All	117	117
C. jejuni	1 to 4 years	M	70	70
C. jejuni	1 to 4 years	F	46	46
C. jejuni	5 to 14 years	All	59	59
C. jejuni	5 to 14 years	M	42	42
C. jejuni	5 to 14 years	F	17	17
C. jejuni	15 to 24 years	All	80	80
C. jejuni	15 to 24 years	M	48	48
C. jejuni	15 to 24 years	F	31	31
C. jejuni	25 to 44 years	All	194	194
C. jejuni	25 to 44 years	M	96	96
C. jejuni	25 to 44 years	F	98	98
C. jejuni	45 to 64 years	All	103	103
C. jejuni	45 to 64 years	M	54	54
C. jejuni	45 to 64 years	F	48	48
C. jejuni	65 years and older	All	51	51
C. jejuni	65 years and older	M	27	27
C. jejuni	65 years and older	F	24	24
C. jejuni	Age unknown	All	5	5
C. jejuni	Age unknown	F	2	2
Campylobacter spp.	1 to 4 years	All	372	372
Campylobacter spp.	1 to 4 years	M	215	215
Campylobacter spp.	1 to 4 years	F	155	155
Campylobacter spp.	5 to 14 years	All	170	170
Campylobacter spp.	5 to 14 years	M	109	109
Campylobacter spp.	5 to 14 years	F	61	61
Campylobacter spp.	15 to 24 years	All	214	214
Campylobacter spp.	15 to 24 years	M	129	129
Campylobacter spp.	15 to 24 years	F	84	84
Campylobacter spp.	25 to 44 years	All	450	450
Campylobacter spp.	25 to 44 years	M	207	207
Campylobacter spp.	25 to 44 years	F	242	242
Campylobacter spp.	45 to 64 years	All	228	228
Campylobacter spp.	45 to 64 years	M	116	116
Campylobacter spp.	45 to 64 years	F	111	111
Campylobacter spp.	65 years and older	All	144	144
Campylobacter spp.	65 years and older	M	82	82
Campylobacter spp.	65 years and older	F	62	62

Campylobacter spp.	Age unknown	All	13	13
Campylobacter spp.	Age unknown	M	7	7
Campylobacter spp.	Age unknown	F	5	5

Table 6.3.C Campylobacteriosis in man - seasonal distribution

Month	C. coli		C. jejuni		C. upsaliensis		Campylobacter spp.	
	Cases		Cases		Cases		Cases	
January	1		36				88	
February	3		30				93	
March	2		42				97	
April	5		42				104	
May	7		57				156	
June	8		88				230	
July	1		51				142	
August	3		73				180	
September	8		94				229	
October	8		61				168	
November	3		50				125	
December	4		31				99	
not known								
Total :	53		655		0		1711	

The following amendments were made :

Date of modification	Serovar	Month	Column	Old value	New value
2005-12-09	C. coli	January	Cases	2	1
	C. coli	February	Cases	0	3
	C. coli	March	Cases	2	2
	C. coli	April	Cases	4	5
	C. coli	May	Cases	3	7
	C. coli	June	Cases	7	8
	C. coli	July	Cases	1	1
	C. coli	August	Cases	2	3
	C. coli	September	Cases	2	8
	C. coli	October	Cases	6	8
	C. coli	November	Cases	4	3
	C. coli	December	Cases	2	4
	C. jejuni	January	Cases	35	36
	C. jejuni	February	Cases	26	30

	C. jejuni	March	Cases	27	42
	C. jejuni	April	Cases	25	42
	C. jejuni	May	Cases	26	57
	C. jejuni	June	Cases	59	88
	C. jejuni	July	Cases	29	51
	C. jejuni	August	Cases	57	73
	C. jejuni	September	Cases	53	94
	C. jejuni	October	Cases	41	61
	C. jejuni	November	Cases	37	50
	C. jejuni	December	Cases	16	31
	C. jejuni	January	Cases	83	88
	Campylobacter spp.	February	Cases	91	93
	Campylobacter spp.	March	Cases	88	97
	Campylobacter spp.	April	Cases	98	104
	Campylobacter spp.	May	Cases	139	156
	Campylobacter spp.	June	Cases	221	230
2005-12-09	Campylobacter spp.	July	Cases	126	142
	Campylobacter spp.	August	Cases	171	180
	Campylobacter spp.	September	Cases	207	229
	Campylobacter spp.	October	Cases	164	168
	Campylobacter spp.	November	Cases	120	125
	Campylobacter spp.	December	Cases	94	99

2.2.3. Campylobacter in foodstuffs

Table 6.2 Thermophilic Campylobacter spp. in food

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	C. lari	Campylobacter spp.	C. coli	C. upsaliensis	C. jejuni
Bovine meat										
fresh										
- at processing plant	CVRL				40					
meat products										
non-ready-to-eat										
- at processing plant	CVRL				34		2			
- at retail	OFML				12					
ready-to-eat										
- at processing plant	CVRL				205					
- at retail	OFML				111					
minced meat										
- at retail	OFML				2					
Pig meat										
fresh										
- at processing plant	CVRL				41					
- at retail	OFML				24			1		2
meat products										
non-ready-to-eat										
- at processing plant (9)	CMCL & CVRL				26					
- at retail	OFML				45					
ready-to-eat										
- at processing plant	CVRL				131					
- at retail	OFML				252					
Poultry meat										
fresh										
- at processing plant (1)	DAF/FSAI surv.				4		4			
meat products										
non-ready-to-eat										
- at processing plant	CMCL				26		8			
ready to eat										
- at processing plant	CMCL				6					
Other meat										
fresh										
- at processing plant (2)	CVRL				32					

- at retail (3)	OFML				2					1
meat products										
non-ready-to-eat										
- at processing plant (10)	CMCL & CVRL				6					
- at retail (13)	OFML				5					
ready-to-eat										
- at processing plant (11)	CMCL & CVRL				320					
- at retail (14)	OFML				50					
minced meat										
- at retail	OFML				9					
Dairy products										
ready-to-eat										
- at retail	OFML				731					
Dairy products, not specified										
- at processing plant	CVRL				21					
Fishery products										
fish										
- at processing plant	CVRL				1					
- at retail	OFML				22					
Broiler meat										
fresh										
- at processing plant (4)	DAF/FSA surveillance & CVRL				2620		1433			
- at retail	OFML				99		52			24
meat products										
non-ready-to-eat										
- at processing plant (7)	CMCL & CVRL				959		371			
- at retail	OFML				7			1		
ready-to-eat										
- at processing plant (8)	CMCL & CVRL				485		1			
- at retail	OFML				442					1
Turkey meat										
fresh										
- at processing plant (5)	DAF/FSA surveillance & CVRL				384		127			
- at retail	OFML				15		5			1
meat products										
non-ready-to-eat										
- at processing plant (6)	CMCL & CVRL				5					
- at retail	OFML				1					
ready-to-eat										
- at processing plant	CVRL				323					
- at retail	OFML				86					

Duck meat									
fresh									
- at processing plant	DAF/FSAI surv.				60		13		
meat products									
non-ready-to-eat									
- at retail	OFML				1				
ready-to-eat									
- at retail	OFML				15				
Table eggs									
- at processing plant	CVRL				11				
- at retail	OFML				2				
Egg products									
- at processing plant (12)	CVRL				36				
- at retail	OFML				9				
Prepared food, ready to eat									
- at processing plant	CVRL				93				
- at retail	OFML				106				
Prepared food, non-ready to eat									
- at processing plant	CVRL				44				
Food grade water									
- at processing plant	CVRL				5				
Fruit & Vegetables									
- at processing plant	CVRL				9				
- at retail	OFML				18				
Foods not specified									
- at processing plant	CVRL				111				
Meat from sheep									
fresh									
- at retail	OFML				2				1
meat products									
ready-to-eat									
- at retail	OFML				10				
Mixed meat									
meat products									
ready-to-eat									
- at retail	OFML				20				
Other milk									
heat-treated									
- at retail	OFML				3				
raw									
- at retail	OFML				1				
Fats and oils									
- at retail	OFML				1				
Soups									

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- at retail (15)	OFML				32					
Cereals and bakery products										
- at retail	OFML				17					
Spices and herbs										
- at retail	OFML				1					
Ices and desserts										
- at retail	OFML				8					

(1) : Poultry meat of unknown species type

(2) : Other meat/not stated/at processing/CVRL/Fresh=32. No positives.

(3) : Other meat/not stated/fresh/at retail/OFML=2. Positives=1.

(4) : Broiler meat/fresh/at processing/DAF&FSAI surveillance=2281.Positive-1357. Broiler meat/fresh/at processing/CVRL=339.Positive= 76

(5) : Turkey meat/fresh/at processing/DAF&FSAI surveillance=273.Positive=93. Turkey meat/fresh/at processing/CVRL=111. Positive =34

(6) : Turkey meat/meat products/non-RTE/at processing/CMCL/=1. No positives. Turkey meat/meat products/non-RTE/at processing/CVRL=4. No positives.

(7) : Broiler meat/meat products/ non-RTE/at processing/CMCL/= 37.Positive=19.

Broiler meat/meat products /non-RTE/at processing/CVRL/=922.Positive =352

(8) : Broiler meat/meat products /RTE/at processing/CMCL/=12. No positives. Broiler meat/meat products/RTE/at processing/CVRL/=473 .Positive=1.

(9) : Pigmeat/meat products/non RTE/at processing/CMCL/= 10.No positives. Pigmeat/meat products/non RTE/at processing/CVRL=16. No positives.

(10) : Other meat/not stated/meat products/non-RTE/at processing/CMCL=3.No positives.Other meat/not stated/meat products/non-RTE/at processing/CVRL=3.No positives.

(11) : Other meat/not stated/meat products/RTE/at processing/CMCL=1.No positives.Other meat/not stated/meat products/RTE/at processing/CVRL=319. No positives.

(12) : Egg products/at processing/CVRL/Ready to eat=36. No positives.

(13) : Other meat/Not stated/meat products/non-RTE/at retail/OFML=5. No positives.

(14) : Other meat/not stated/meat products/RTE/at retail/OFML=50. No positives.

(15) : Includes broths and sauces

2.2.4. Campylobacter in animals

Table 6.1.1 Thermophilic Campylobacter spp. in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	C. jejuni	C. upsaliensis	C. coli	C. lari
Cattle (bovine animals)									
dairy cows	Diag		Samples	0	0	0	0	0	0
others	Diag		Samples	0					
unspecified	Diag		Samples	4375	35	35	0	0	0
Sheep	Diag		Samples	717	2	0	0	2	0
Goats	Diag		Samples	16	0	0	0	0	0
Pigs	Diag		Samples	273	1	1	0	0	0
Solipeds	Diag		Samples	1263	0	0	0	0	0
Gallus gallus									
broilers									
- at farm	Diag		Samples	0					
- at slaughter	Diag		Samples	0					
unspecified	Diag		Samples	300	4	4	0		
Other poultry	Diag		Samples	0					
Pet animals									
dogs	Diag		Samples	331	3	3	0	0	0
cats	Diag		Samples	23	0	0	0	0	0
Wildlife	Diag		Samples	0					
other	Diag		Samples	0					

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-09-12	Cattle (bovine animals) - dairy cows	Source of information		Diag
	Sheep	Source of information		Diag
	Goats	Source of information		Diag
	Pigs	Source of information		Diag
	Solipeds	Source of information		Diag
	Gallus gallus - broilers - at farm	Source of information		Diag
	Gallus gallus - broilers - at slaughter	Source of information		Diag
	Other poultry	Source of information		Diag
	Pet animals - dogs	Source of information		Diag
	Pet animals - cats	Source of information		Diag
	Wildlife	Source of information		Diag
	Cattle (bovine animals) - others	Source of information		Diag
2005-09-12	Cattle (bovine animals) - dairy cows	Epidemiological unit		Samples
	Cattle (bovine animals) - dairy cows	Units tested		0
	Cattle (bovine animals) - dairy cows	Units positive		0
	Sheep	Epidemiological unit		Samples
	Sheep	Units tested		717
	Sheep	Units positive		2
	Goats	Epidemiological unit		Samples

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	Goats	Units tested	16
	Goats	Units positive	0
	Pigs	Epidemiological unit	Samples
	Pigs	Units tested	273
	Pigs	Units positive	1
	Solipeds	Epidemiological unit	Samples
	Solipeds	Units tested	1263
	Solipeds	Units positive	0
	Gallus gallus - broilers - at farm	Epidemiological unit	Samples
	Gallus gallus - broilers - at farm	Units tested	0
	Gallus gallus - broilers - at slaughter	Epidemiological unit	Samples
	Gallus gallus - broilers - at slaughter	Units tested	0
	Other poultry	Epidemiological unit	Samples
	Other poultry	Units tested	0
	Pet animals - dogs	Epidemiological unit	Samples
	Pet animals - dogs	Units tested	331
	Pet animals - dogs	Units positive	3
	Pet animals - cats	Epidemiological unit	Samples
	Pet animals - cats	Units tested	23
	Pet animals - cats	Units positive	0
	Wildlife	Epidemiological unit	Samples
	Wildlife	Units tested	0
	Cattle (bovine animals) - others	Source of information	Diag
	Cattle (bovine animals) - others	Epidemiological unit	Samples
	Cattle (bovine animals) - others	Units tested	0
	other	Source of information	Diag
	other	Epidemiological unit	Samples
	other	Units tested	0
	Cattle (bovine animals) - dairy cows	C. jejuni	0
	Cattle (bovine animals) - dairy cows	C. coli	0
	Cattle (bovine animals) - dairy cows	C. lari	0
	Cattle (bovine animals) - dairy cows	C. upsaliensis	0
	Sheep	C. coli	2
	Sheep	C. jejuni	0
	Sheep	C. lari	0
	Sheep	C. upsaliensis	0
	Goats	C. coli	0
	Goats	C. jejuni	0
	Goats	C. lari	0
	Goats	C. upsaliensis	0
	Pigs	C. coli	0
	Pigs	C. jejuni	1
	Pigs	C. lari	0
	Pigs	C. upsaliensis	0
	Solipeds	C. coli	0
	Solipeds	C. jejuni	0
	Solipeds	C. lari	0
	Solipeds	C. upsaliensis	0
	Pet animals - dogs	C. coli	0
	Pet animals - dogs	C. jejuni	3
	Pet animals - dogs	C. lari	0
	Pet animals - dogs	C. upsaliensis	0
	Pet animals - cats	C. coli	0
	Pet animals - cats	C. jejuni	0
	Pet animals - cats	C. lari	0
	Pet animals - cats	C. upsaliensis	0
2005-09-12	Cattle (bovine animals) - unspecified	Source of information	Diag
	Cattle (bovine animals) - unspecified	Epidemiological unit	Samples
	Cattle (bovine animals) - unspecified	Units tested	4375
	Cattle (bovine animals) - unspecified	Units positive	35
	Gallus gallus - unspecified	Source of information	Diag
	Gallus gallus - unspecified	Epidemiological unit	Samples
	Gallus gallus - unspecified	Units tested	300
	Gallus gallus - unspecified	Units positive	4
	Cattle (bovine animals) - unspecified	C. jejuni	35
	Cattle (bovine animals) - unspecified	C. coli	0
	Cattle (bovine animals) - unspecified	C. lari	0
	Cattle (bovine animals) - unspecified	C. upsaliensis	0
	Gallus gallus - unspecified	C. jejuni	4
	Gallus gallus - unspecified	C. upsaliensis	0

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

A. Listeriosis in humans

Case definition

Listeriosis (*Listeria monocytogenes*) (EU)

Clinical description

Infection caused by *L. monocytogenes*, which may produce any of several clinical syndromes, including stillbirth, listeriosis of the newborn, meningitis, bacteraemia or localised infections.

Laboratory criteria for diagnosis

Isolation of *L. monocytogenes* from a normally sterile site (e.g. blood or cerebrospinal fluid or, less commonly, joint, pleural or pericardial fluid)

Case classification

Possible: N/A

Probable: N/A

Confirmed: A clinically compatible case that is laboratory confirmed

Notification system in place

Notifiable since 2004

Table 7.2.A Listeriosis in man - species/serotype distribution

		Cases	Cases Inc
Listeria		11	0.28081261
		11	0.28081261
Listeria spp. congenital cases deaths		0	

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-12-09	Listeria spp.	Cases	10	11
	Listeria spp.	Cases Inc	.25528	0.28081261
	congenital cases	Cases		0

Table 7.2.B Listeriosis in man - age distribution

Age Distribution	L. monocytogenes			Listeria spp.		
	All	M	F	All	M	F
<1 year						
1 to 4 years						
5 to 14 years						
15 to 24 years						
25 to 44 years				4	1	3
45 to 64 years				3	2	1
65 years and older				3	1	2
Age unknown				1	1	
Total :	0	0	0	11	5	6

The following amendments were made :

Date of modification	Zoonose	Line	Column	Old value	New value
2005-12-09	Listeria spp.	45 to 64 years	All	3	3
	Listeria spp.	45 to 64 years	M	2	2

2.3.3. Listeria in foodstuffs

Table 7.1 Listeria monocytogenes in food

	Source of information	Remarks	Epidemiological unit	Sample weight	Definition used	Units tested	<100 cfu/g	>100 cfu/g	Listeria spp.	L. monocytogenes
Bovine meat										
meat products										
ready-to-eat										
- at processing plant (1)	CMCL & CVRL					613			14	0
- at retail (Qualitative method)	OFML					615			11	17
- at retail (Quantitative method) (11)	OFML					640	637	3		
Pig meat										
meat products										
ready-to-eat										
- at processing plant (2)	CMCL & CVRL					7659			436	0
- at retail (Qualitative method)	OFML					1567			65	64
- at retail (Quantitative method) (12)	OFML					1587	1583	4		
Poultry meat										
meat products										
ready to eat										
- at processing plant (3)	CMCL & CVRL					3720			78	1
- at retail (Qualitative method)	OFML					1601			57	27
- at retail (Quantitative method) (13)	OFML					1667	1665	2		
Other meat										
meat products										
ready-to-eat										
- at processing plant (4)	CMCL & CVRL					3157			31	1
- at retail (Qualitative method) (24)	OFML					743			27	10
- at retail (Quantitative method) (25)	OFML					734	734	0		
Cheeses										
- at processing plant	DSL					1513				13

- at retail (Qualitative method)	OFML					894			3	34
- at retail (Quantitative method) (14)	OFML					901	899	2	4	897
Dairy products										
other products										
ready-to-eat										
- at processing plant	DSL					1248				0
- at retail (Qualitative method)	OFML					450			1	0
- at retail (Quantitative method)	OFML					688	688	0		
Fishery products										
fish										
smoked										
- at processing plant (Qualitative method)	DCMNR					44			0	1
- at processing plant (Quantitative method) (6)	DCMNR					19	19	0		
- at retail (Qualitative method)	OFML					29			2	2
- at retail (Quantitative method) (15)	OFML					30	30	0		
other										
- at processing plant - environmental sample	DCMNR					1			0	0
ready-to-eat										
- at processing plant (10)	DCMNR & CVRL					305			18	6
- at retail (Qualitative method)	OFML					439			9	18
- at retail (Quantitative method) (16)	OFML					460	460	0		
Other milk										
raw										
- at processing plant (7)	DSL & CVRL					20			0	0
- at retail (Qualitative method)	OFML					6			0	0
- at retail (Quantitative method)	OFML					5	5	0		
heat-treated										
- at processing plant (8)	DSL & CVRL					232			0	0
- at retail (Qualitative method)	OFML					18			0	0
- at retail (Quantitative method)	OFML					19	19	0		
Meat from sheep										
meat products										
ready-to-eat										
- at processing plant	CVRL					36			3	

- at retail (Qualitative method)	OFML					46			2	1
- at retail (Quantitative method) (17)	OFML					49	47	2		
Egg products										
- at processing plant	CVRL					117			1	
- at retail (Qualitative method)	OFML					460			10	13
- at retail (Quantitative method) (18)	OFML					472	472	0		
Prepared food, ready to eat										
- at processing plant	CVRL					4852			103	
- at retail (Qualitative method)	OFML					2627			68	112
- at retail (Quantitative method) (19)	OFML					2871	2871	0		
Food grade water										
- at processing plant	CVRL					77			1	
Fruit & Vegetables										
- at processing plant (9)	CVRL					1911			29	
- at retail (Qualitative method)	OFML					279			9	13
- at retail (Quantitative method) (20)	OFML					320	317	3		
Venison										
meat products										
ready to eat										
- at retail (Qualitative method)	OFML					2			0	0
- at retail (Quantitative method)	OFML					2	2	0		
Foods not specified										
- at processing plant	CVRL					3338			135	
Fats and oils										
- at retail (Qualitative method)	OFML					1			0	0
- at retail (Quantitative method)	OFML					1	1	0		
Soups										
- at retail (Qualitative method)	OFML					354			1	1
- at retail (Quantitative method) (21)	OFML					372	372	0		
Cereals and bakery products										
- at retail (Qualitative method)	OFML					429			13	11
- at retail (Quantitative method) (22)	OFML					529	529	0		
Spices and herbs										

- at retail (Qualitative method)	OFML					6			0	0
- at retail (Quantitative method)	OFML					4	4	0		
Non-alcoholic beverages										
- at retail (Qualitative method)	OFML					2			1	0
- at retail (Quantitative method)	OFML					3	3	0		
Ices and desserts										
- at retail (Qualitative method)	OFML					181			7	3
- at retail (Quantitative method) (23)	OFML					251	251	0		
Confectionery products and pastes										
- at retail (Qualitative method)	OFML					11			0	0
- at retail (Quantitative method)	OFML					12	12	0		
Foodstuffs intended for special nutritional uses										
- at retail (Qualitative method)	OFML					1			0	0
- at retail (Quantitative method)	OFML					3	3	0		
Rabbit meat										
meat products										
ready-to-eat										
- at retail (Qualitative method)	OFML					1			0	0
- at retail (Quantitative method)	OFML					1	1	0		
Mixed meat										
meat products										
ready-to-eat										
- at retail (Qualitative method)	OFML					102			2	5
- at retail (Quantitative method) (26)	OFML					104	101	3		
Nut and nut products										
- at retail (Qualitative method)						1			0	0
- at retail (Quantitative method)						1	1	0		
Other food										
- at processing plant (-environmental sample)	CVRL					20496			1199	

(1) : Qualitative tests only.

Bovine/meat products/RTE/at processing/CMCL=27.No positives. Bovine/meat products/RTE/at processing/CVRL=586.Positive=14.

(2) : Qualitative tests only. Pigmeat/meat products/RTE/CMCL=77.No positives.Pigmeat/meat products/RTE/CVRL=7582.Positives=436

(3) : Qualitative tests only. Poultry meat/ready to eat/CMCL=85. Positive = 1. Poultry meat/ready to eat/CVRL=3635.Positives=78

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- (4) : Other meat/not stated/at processing/CMCL=95. Positive=1.Other meat/mixed at processing/CMCL=3.No positives.Other meat/not stated/at processing/CVRL =3059.Positives=31
- (5) : fishery products/fish/smoked/at processing/DCMNR/L.monocytogenes qualitative tests
- (6) : Quantitative tests only.
- (7) : Qualitative tests only.Other milk/Raw/at processing/DSL=2.No positives. Other milk/Raw /at processing/CVRL=18.No positives,
- (8) : Qualitative tests only. Other milk/heat treated/at processing/DSL=95.No positives.Other milk/heat treated/at processing/CVRL=137. No positives.
- (9) : Includes 82 mushroom samples
- (10) : Qualitative test only. Fishery products/other/at processing/DCMNR=23.Positive=6.Fishery products/other/at processing/CVRL=282.Positive=18.
- (11) : Of the 637 <100, 14 Positive,623 Negative for Lm. Of the 3 >= 100, 3 Positive for Lm.
- (12) : Of the 1583 <100, 55 positive,1528 negative for Lm. Of the 4 >= 100, 4 positive for Lm. 5 positives for Lm had no quantitative test performed.
- (13) : Of the 1665 <100,24 positive,1641 negative for Lm. Of the 2 >= 100, 1 positive, 1 no qualitative test performed. 2 positives for Lm had no quantitative test performed.
- (14) : Of the 899 <100, 31 positive,868 negative for Lm. Of the 2>=100,2 positive for Lm. 1 positive for Lm had no quantitative test performed.
- (15) : Of the 30 <100, 2 positive, 28 negative for Lm.
- (16) : Of the 460 <100,18 positive, 442 negative for Lm.
- (17) : Of the 47 <100, 0 positive for Lm. Of the 2 >= 100, 1 positive, 1 no qualitative test performed.
- (18) : Of the 472 <100, 13 positive, 459 negative for Lm.
- (19) : Of the 2871 <100, 112 positive, 2759 negative for Lm.
- (20) : Of the 317 <100, 11 positive, 306 negative for Lm. Of the 3>= 100, 2 positive, 1 no qualitative test performed.
- (21) : Of the 372 <100, 1 positive, 371 negative for Lm.
- (22) : Of the 529 < 100, 11 positive, 518 negative for Lm.
- (23) : Of the 251 <100, 3 positive, 248 negative for Lm.
- (24) : Other meat/not stated/meat products/RTE/Qualitative method/at retail/OFML=743. 37 positive.
- (25) : Other meat/not stated/meat products/RTE/Quantitative method/at retail/OFML=734. No positives.Of the 734<100,10 positive,724 negative for Lm.
- (26) : Of the 101 <100, 2 positive , 99 negative for Lm. Of the 3>=100, 3 positive for Lm.

Footnote

Non-RTE foods tested for Listeria from the DSL,CMCL & CVRL have not been included in this table. Listeria testing as follows:CMCL & DSL - each sample tested qualitatively for L.monocytogenes only.CVRL - each sample tested qualitatively for L. spp.only. DCMNR - each sample tested qualitatively for L.monocytogenes OR quantitatively for L.monocytogenes OR qualitatively for L.spp.

OFMLs -each sample tested qualitatively and quantitatively (usually)for L.spp.and L.monocytogenes. The column "L.monocytogenes > 100" includes samples with results for L.monocytogenes ">100" AND "=100". Prepared food RTE/>100=1:This refers to a Listeria species other than L.monocytogenes.In all other cases entries in the column ">100cfu/g" refer to L.monocytogenes.

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-09-27	Cheeses - at retail (Quantitative method)	<100 cfu/g	897	899
	Cheeses - at retail (Quantitative method)	>100 cfu/g	4	2
2005-10-07	Prepared food, ready to eat - at retail (Quantitative method)	>100 cfu/g	1	0
2005-10-07	Prepared food, ready to eat - at retail (Quantitative method)	<100 cfu/g	2870	2871

2.4. VEROCYTOTOXIC ESCHERICHIA COLI

2.4.1. General evaluation of the national situation

2.4.2. Verocytotoxic Escherichia coli in humans

A. Verotoxigenic Escherichia coli infections in humans

Case definition

Enterohaemorrhagic Escherichia coli (E. coli of serogroup known to be toxin producing) (EU)

Clinical description

Clinical picture compatible with enterohaemorrhagic E. coli infection, e.g. diarrhoea (often bloody) and abdominal cramps. Illness may be complicated by haemolytic uraemic syndrome (HUS) or thrombotic thrombocytopenic purpura (TTP). Cases may also be asymptomatic**.

Laboratory criteria for diagnosis

One of the following:

- ; Isolation of E. coli belonging to a sero-group known to cause enterohaemorrhagic disease
- ; Serological confirmation in patients with HUS or TTP
- ; For probable cases: detection of genes coding for Stx1/Stx2 production

Case classification

Possible: N/A

Probable: A laboratory confirmed isolate without clinical information or a case with clinical symptoms that has an epidemiological link*

Confirmed: A clinically compatible case that is laboratory confirmed

** The description in the EU case definition document has been elaborated upon here.

Notification system in place

Notifiable since 2004

Table 11.3.A Verocytotoxic Escherichia coli infections in man - species/serotype distribution

Pathogenic Escherichia coli	Cases	Cases Inc	Autochthone Inc	Autochthone cases	Imported Inc	Imported cases
HUS	4	.10211	.10211	4		
- clinical cases						
- lab. confirmed cases	4	.10211	.10211	4		
- caused by O157 (VT+)	2	.05106	.05106	2		
- caused by other VTEC	2	.05106	.05106	2		
E.coli infect. (except HUS)	57	1.45512	1.27642	50		
- laboratory confirmed	57	1.45512	1.27642	50	.17870	7
- caused by O157 (VT+)	50	1.27642	1.12325	44	.15317	6
- caused by other VTEC	7	.1787	.15317	6	.02553	1

Table 11.3.B Verocytotoxic Escherichia coli infections in man - age distribution

Age Distribution	Verotoxigenic E. coli (VTEC)			VTEC O 157:H7			VTEC non-O 157		
	All	M	F	All	M	F	All	M	F
<1 year				1	1	0			
1 to 4 years(1)				13	8	5	6	5	1
5 to 14 years(2)				7	6	1	2	2	
15 to 24 years				6	1	5			
25 to 44 years				10	3	7			
45 to 64 years				9	4	5			
65 years and older				6	3	3	1	1	
Age unknown									
Total :	0	0	0	52	26	26	9	8	1

(1) : 3 HUS cases in this age group

(2) : 1 HUS case in this age group

2.4.3. Pathogenic *Escherichia coli* in foodstuffs

Table 11.2 Verocytotoxic *Escherichia coli* in food

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	VTEC O 157	VTEC O 157:H7
Bovine meat								
fresh								
- at processing plant	CVRL				6715	10	10	
- at retail	OFML				1	0		
meat products								
non-ready-to-eat								
- at processing plant	CVRL				309	1	1	
ready-to-eat								
- at processing plant	CVRL				42	0		
- at retail	OFML				9	0		
minced meat								
- at retail	OFML				6	0		
Pig meat								
fresh								
- at processing plant	CVRL				189	0		
meat products								
non-ready-to-eat								
- at processing plant	CVRL				110	2	2	
ready-to-eat								
- at processing plant	CVRL				55	0		
- at retail	OFML				91	0		
Poultry meat								
fresh								
- at processing plant	CVRL				4	0		
Meat from sheep								
fresh								
- at processing plant	CVRL				120	1	1	
meat products								
non-ready-to-eat								
- at processing plant	CVRL				26	0		
ready-to-eat								
- at processing plant	CVRL				8	0		
Dairy products								
Dairy products, not specified								

- at processing plant	CVRL				66	0		
ready-to-eat								
- at retail	OFML				184	0		
Fishery products								
fish								
- at processing plant	CVRL				1	0		
- at retail	OFML				3	0		
Turkey meat								
fresh								
- at processing plant	CVRL				3	0		
meat products								
non-ready-to-eat								
- at processing plant	CVRL				1	0		
ready-to-eat								
- at processing plant	CVRL				23	0		
- at retail	OFML				1	0		
Other meat								
fresh								
- at processing plant (1)	CVRL				546	0		
meat products								
non-ready-to-eat								
- at processing plant (2)	CVRL				7	0		
ready-to-eat								
- at processing plant (3)	CVRL				322	0		
- at retail (6)	OFML				103	0		
minced meat								
- at retail (5)	OFML				1	0		
Fats and oils								
- at processing plant	CVRL				4	0		
Broiler meat								
meat products								
non-ready-to-eat								
- at processing plant	CVRL				1	0		
ready-to-eat								
- at processing plant	CVRL				29	0		
- at retail	OFML				13	0		
fresh								
- at retail	OFML				1	0		
Other milk								
raw								
- at processing plant	CVRL				8	0		
- at retail	OFML				2	0		
Egg products								
- at processing plant	CVRL				1	0		

- at retail	OFML				1	0		
Raw material (liquid egg) for egg products								
- at processing plant	CVRL				1	0		
Prepared food, ready to eat								
- at processing plant	CVRL				82	0		
- at retail	OFML				7	0		
Prepared food, non-ready to eat								
- at processing plant	CVRL				77	0		
Food grade water								
- at processing plant	CVRL				16	0		
Fruit & Vegetables								
- at processing plant (4)	CVRL				333	0		
- at retail	OFML				4	0		
Foods not specified								
- at processing plant	CVRL				509	1	1	
Mixed meat								
meat products								
ready-to-eat								
- at retail	OFML				6	0		
Duck meat								
meat products								
non-ready-to-eat								
- at retail	OFML				1	0		
ready-to-eat								
- at retail	OFML				4	0		
Table eggs								
- at retail	OFML				2	0		
Soups								
- at retail (7)	OFML				8	0		
Cereals and bakery products								
- at retail	OFML				8	0		
Ices and desserts								
- at retail	OFML				2	0		

(1) : Other meat/not stated/fresh/at processing/CVRL=546. No positives.

(2) : Other meat/not stated/meat products/non-RTE/at processing/CVRL=7.No positives.

(3) : Other meat/not stated/meat products/RTE/at processing/CVRL=322.No positives.

(4) : Includes 43 mushroom samples

(5) : Other meat/not stated/minced meat/at retail/OFML=1. No positives.

(6) : Other meat/not stated/meat products/RTE/at retail/OFML=103. No positives.

(7) : Includes broths and sauces

Footnote

CVRL: laboratories use kits that are specific for E.coli O157. Unable to clarify any further.

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

A. Tuberculosis due to *Mycobacterium bovis* in humans

Case definition

Tuberculosis (*Mycobacterium tuberculosis* complex) (EU)

Clinical criteria

- ; A clinician's judgement that clinical and/or radiological signs and/ or symptoms are compatible with tuberculosis

and

- ; A clinician's decision to treat the patient with a full course of anti-tuberculosis therapy.

Laboratory criteria for diagnosis

One of the following:

- ; Isolation of *M. tuberculosis* complex (except *M. bovis* BCG) from any clinical specimen by culture,

- ; Evidence of acid-fast bacilli (AFB) at microscopic examination of spontaneous or induced sputum

Case classification

Classification according to laboratory criteria:

Other than definite: A case that meets the clinical criteria above but does not meet the laboratory criteria of a definite case.

Definite: A case with isolation of *M. tuberculosis* complex (except *M. bovis* BCG) from any clinical specimen. In countries where culture is not routinely available, a case with sputum smear examinations positive for AFB is also considered to be a definite case.

Classification according to the site of disease:

Pulmonary tuberculosis

Tuberculosis of the lung parenchyma or the tracheo-bronchial tree

Extrapulmonary tuberculosis

Tuberculosis affecting any site other than pulmonary as defined above

Classification according to previous anti-tuberculosis treatment:

Never treated

A case who never received a treatment for active tuberculosis in the past or who received antituberculosis drugs for less than one month.

Previously treated

A case who was diagnosed with active tuberculosis in the past and received anti-tuberculosis drugs (excluding preventive therapy) for at least one month.

Case Definitions Version 1.0 Date: 01.01.2004 73

Notification system in place

Tuberculosis notifiable in Ireland since 1948

Table 1.2.A Tuberculosis in man - species/serotype distribution

Mycobacterium	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
		0	0	0	0	0
M. bovis	448					
M. tuberculosis	2					
Mycobacterium spp.	173					
reactivation of previous cases	273					

Table 1.2.B Tuberculosis in man - age distribution

Age Distribution	M. bovis		
	All	M	F
<1 year			
1 to 4 years			
5 to 14 years			
15 to 24 years			
25 to 44 years			
45 to 64 years			
65 years and older	2	1	1
Age unknown			
Total :	2	1	1

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
Goats	lab invest		animal		0		
Pigs	lab invest		animal		0		
Zoo animals	lab invest		animal		0		
Sheep	lab invest		animal		0		

1.1.1 Bovine tuberculosis - IRELAND

MANDATORY	CATTLE		
Number of herds under official control:	124414	Number of animals under official control:	6992264
	OTF bovine herds	OTF bovine herds with status suspended	Bovine herds infected with tuberculosis
Status of herds at year end (a):	119829	588	3852
New cases notified during the year (b):		5140	6882
	Units tested	Units suspected	Units positive
Routine tuberculin test (c) - data concerning herds:	120290	5096	3595
Routine tuberculin test (c) - data concerning animals:	6997539	7859	11988
	Animals slaughtered	Animals suspected	Animals positive
Routine post-mortem examination (d):	1812494	4362	2800
		Herds suspected	Herds confirmed
Follow up of suspected cases in post-mortem examination (e):		4362	478
Follow-up investigation of suspected cases: trace, contacts (f):		7488	427
	Animals tested	Animals suspected	Animals positive
Other routine investigations: exports (g):			
Other routine investigations: tests at AI stations (h):			
	All animals	Positives	Contacts
Animals destroyed (i):			
Animals slaughtered (j):	24601	22967	1634
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	M. bovis isolated	
Bacteriological examination (m):			

1.1.2 Tuberculosis in farmed deer - IRELAND

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

2.6. BRUCELLOSIS

2.6.1. General evaluation of the national situation

2.6.2. Brucellosis in humans

A. Brucellosis in humans

Case definition

Brucellosis (*Brucella* sp.) (EU)

Clinical description

Clinical picture compatible with brucellosis i.e. acute or insidious onset of fever, night sweats, undue fatigue, anorexia, weight loss, headache, or arthralgia.

Laboratory criteria for diagnosis

One of the following:

- ; Demonstration of a specific antibody response (four fold or greater rise)*
- ; Demonstration by immunofluorescence of *Brucella* sp. in a clinical specimen
- ; Isolation of *Brucella* sp. from a clinical specimen

For probable case

A single high titre

Case classification

Possible: N/A

Probable: A clinically compatible case with an epidemiological link,* or a case with an isolated high titre

Confirmed: A clinically compatible case that is laboratory confirmed

Notification system in place

Notifiable since 1948

Table 2.3.A Brucellosis in man - species/serotype distribution

Brucella	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
	60	1.53	0	0	0	0
B. abortus						
B. melitensis						
B. suis						
Brucella spp.	60	1.53				
occupational cases						

Footnote

2 confirmed cases with an incidence of 0.05

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-11-25	Brucella spp.	Cases	5	60
	Brucella spp.	Cases Inc	0.13	1.53

Table 2.3.B Brucellosis in man - age distribution

Age Distribution	B. abortus			B. melitensis			Brucella spp.		
	All	M	F	All	M	F	All	M	F
<1 year							0	0	0
1 to 4 years							0	0	0
5 to 14 years							1	1	0
15 to 24 years							4	3	1
25 to 44 years							18	14	4
45 to 64 years							28	26	2
65 years and older							9	8	1
Age unknown							0	0	0
Total :	0	0	0	0	0	0	60	52	8

Footnote

1 confirmed male case of Brucellosis for age group 15 to 24 years, and 1 confirmed male case of Brucellosis for age group 45 to 64 years.

The following amendments were made :

Date of modification	Zoonose	Line	Column	Old value	New value
2005-11-25	Brucella spp.	<1 year	All		0
	Brucella spp.	<1 year	M		0
	Brucella spp.	<1 year	F		0
	Brucella spp.	1 to 4 years	All	0	0
	Brucella spp.	1 to 4 years	M	0	0
	Brucella spp.	1 to 4 years	F	0	0
	Brucella spp.	5 to 14 years	All	1	1
	Brucella spp.	5 to 14 years	M	1	1
	Brucella spp.	5 to 14 years	F	0	0
	Brucella spp.	15 to 24 years	All	4	4
	Brucella spp.	15 to 24 years	M	3	3
	Brucella spp.	15 to 24 years	F	1	1
	Brucella spp.	25 to 44 years	All	18	18
	Brucella spp.	25 to 44 years	M	14	14
	Brucella spp.	25 to 44 years	F	4	4
	Brucella spp.	45 to 64 years	All	28	28

Brucella spp.	45 to 64 years	M	26	26	26
Brucella spp.	45 to 64 years	F		2	2
Brucella spp.	65 years and older	All		9	9
Brucella spp.	65 years and older	M		8	8
Brucella spp.	65 years and older	F		1	1
Brucella spp.	Age unknown	All		0	0
Brucella spp.	Age unknown	M		0	0
Brucella spp.	Age unknown	F		0	0

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. abortus	B. melitensis	B. suis
Pigs					0			

2.1.1 Bovine brucellosis - IRELAND

MANDATORY	CATTLE		
Number of herds under official control:	124583	Number of animals under official control:	7000000
	OBF bovine herds	OBF bovine herds with status suspended	Bovine herds infected with brucellosis
Status of herds at year end (a):(7)	124481	0	102
New cases notified during the year (b):	0	0	283
	Animals tested	Animals suspected	Animals positive
Notification of clinical cases, including abortions (c):	2068	2068	4
	Units tested	Units suspected	Units positive
Routine testing (d1) - data concerning herds:	124583	283	68
Routine testing (d2) - number of animals tested:(1)	4948125	0	664
Routine testing (d3) - number of animals tested individually:(2)	3400000	0	664
		Herds suspected	Herds confirmed
Follow-up investigation of suspected cases: trace, contacts (e):(3)			
	Animals tested	Animals suspected	Animals positive
Other routine investigations: exports (f):(4)			
Other routine investigations: tests at AI stations (g):			
	All animals	Positives	Contacts
Animals destroyed (h):	0	0	0
Animals slaughtered (i):	6015	664	5351
VOLUNTARY	CATTLE		
	Animals tested	Animals suspected	Animals positive
Other investigations: imports (k):(5)			
	Herds tested	Herds suspected	Herds positive
Other investigations: farms at risk (l):			
	Samples tested	Brucella isolated	
Bacteriological examination (m):(6)	2611	17	

(1) : Note 2: On the basis of parallel tests, epidemiological information and herd test history, animals are generally deemed positive or negative

(2) : Note 3: Test data in respect of these categories is included in the total National testing data and it is not possible to extract the data in respect of each category. The figure for the number of animals tested individually is an approximate figure based on population data

(3) : Note 3: Test data in respect of these categories is included in the total National testing data and it is not possible to extract the data in respect of each category. The figure for the number of animals tested individually is an approximate figure based on population data

(4) : Note 3: Test data in respect of these categories is included in the total National testing data and it is not possible to extract the data in respect of each category. The figure for the number of animals tested individually is an approximate figure based on population data

(5) : Note 3: Test data in respect of these categories is included in the total National testing data and it is not possible to extract the data in respect of each category. The figure for the number of animals tested individually is an approximate figure based on population data

(6) : Note 4: 2611 samples tested is made up of 543 sets of lymph glands from seropositive animals (13 brucella positive) plus 2068 aborted fetuses (4 brucella positive) submitted for culture

(7) : Note 1 Currently herds suspected of Br have their status withdrawn rather than suspended

2.1.2 Ovine and caprine brucellosis - IRELAND

MANDATORY	SHEEP AND GOATS		
Number of holdings under official control:	43000	Number of animals under official control:	6800000
	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):	43000	0	0
New cases notified during the year (b):(3)	0	1	0
	Animals tested	Animals suspected	Animals positive
Notification of clinical cases, including abortions (c):	0	0	0
	Units tested	Units suspected	Units positive
Routine testing (d) - data concerning holdings:	1400	0	0
Routine testing (d) - data concerning animals:	24338	4	0
		Holdings suspected	Holdings confirmed
Follow-up investigation of suspected cases: trace, contacts (e):		0	0
	Animals tested	Animals suspected	Animals positive
Other routine investigations: exports (f):(1)	765	1	0
	All animals	Positives	Contacts
Animals destroyed (g):(2)	1	0	0
Animals slaughtered (h):	0	0	0
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):			

(1) : One suspect case of B. Ovis in a single ovine(positive serological reaction) was investigated in 2004. The animal was destroyed and detailed post-mortem and culture was carried out. Follow up testing was also carried out on the remainder of the flock. All investigations showed that the animal and flock was negative for B. Ovis

(2) : One suspect case of B. Ovis in a single ovine(positive serological reaction) was investigated in 2004. The animal was destroyed and detailed post-mortem and culture was carried out. Follow up testing was also carried out on the remainder of the flock. All investigations showed that the animal and flock was negative for B. Ovis

(3) : One suspect case of B. Ovis in a single ovine(positive serological reaction) was investigated in 2004. The animal was destroyed and detailed post-mortem and culture was carried out. Follow up testing was also carried out on the remainder of the flock. All investigations showed that the animal and flock was negative for B. Ovis

2.7. YERSINIOSIS

2.7.1. General evaluation of the national situation

2.7.2. Yersiniosis in humans

A. Yersiniosis in humans

Case definition

Yersiniosis (*Yersinia enterocolitica*, *Yersinia pseudotuberculosis*) (EU)

Clinical description

An illness of variable severity characterised by diarrhoea, fever, nausea, cramps and tenesmus.

Laboratory criteria for diagnosis

Isolation of *Y. enterocolitica* or *pseudotuberculosis* from a clinical specimen

Case classification

Possible: N/A

Probable: A clinically compatible case with an epidemiological link

Confirmed: A case that is laboratory confirmed

Notification system in place

Notifiable since 2004

Table 8.3.A Yersiniosis in man - species/serotype distribution

Yersinia	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
Y. enterocolitica	6	0.1532	0	0	0	0
Yersinia spp.	4	0.1021				
Y. enterocolitica O:3	2	0.0511				
Y. enterocolitica O:9						

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-12-09	Y. enterocolitica	Cases		4
	Y. enterocolitica	Cases Inc		0.1021
	Yersinia spp.	Cases	5	2
2005-12-12	Yersinia spp.	Cases Inc	.1276	0.0511

Table 8.3.B Yersiniosis in man - age distribution

Age Distribution	Y. enterocolitica			Yersinia spp.		
	All	M	F	All	M	F
<1 year				1		1
1 to 4 years				2		1
5 to 14 years				1		1
15 to 24 years						
25 to 44 years				1		1
45 to 64 years						
65 years and older				1		1
Age unknown						
Total :	0	0	0	6	2	4

The following amendments were made :

Date of modification	Zoonose	Line	Column	Old value	New value
2005-12-09	Yersinia spp.	<1 year	All		1
	Yersinia spp.	<1 year	F		1
	Yersinia spp.	1 to 4 years	All	2	2
	Yersinia spp.	1 to 4 years	F	1	1
	Yersinia spp.	25 to 44 years	All	1	1
	Yersinia spp.	25 to 44 years	F	1	1

Table 8.3.C Yersiniosis in man - seasonal distribution

Month	Y. enterocolitica		Yersinia spp.	
	Cases		Cases	
January			0	
February			0	
March			0	
April			0	
May			0	
June			0	
July			0	
August			2	
September			0	
October			0	
November			1	
December			3	
not known				
Total :		0		6

The following amendments were made :

Date of modification	Serovar	Month	Column	Old value	New value
2005-12-09	Yersinia spp.	November	Cases	0	1

2.7.3. Yersinia in foodstuffs**2.7.4. Yersinia in animals****Table 8.1 Yersinia enterocolitica in animals**

	Source of information	Remarks	Epidemiological unit	Units tested	Y. enterocolitica	Y. pseudotuberculosis	Y. enterocolitica O:9	Y. enterocolitica O:3
Cattle (bovine animals)	Diag		Sample	4375	0	2	0	0
Sheep	Diag		Sample	717	0	2	0	0
Goats	Diag		Sample	16	0	0	0	0
Pigs	Diag		Sample	273	0	0	0	0
Solipeds	Diag		Sample	1263	0	0	0	0
Poultry	Diag		Sample	300	0	4	0	0
Pet animals								
dogs	Diag		Sample	331	1	0	0	0
cats	Diag		Sample	23	0	0	0	0

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-09-12	Cattle (bovine animals)	Source of information		Diag
	Cattle (bovine animals)	Units tested		4375
	Sheep	Source of information		Diag
	Sheep	Units tested		717
	Goats	Source of information		Diag
	Goats	Units tested		16
	Pigs	Source of information		Diag
	Pigs	Units tested		273
	Solipeds	Source of information		Diag
	Solipeds	Units tested		1263
	Poultry	Source of information		Diag
	Poultry	Units tested		300
	Pet animals - dogs	Source of information		Diag
	Pet animals - dogs	Units tested		331
	Pet animals - cats	Source of information		Diag
	Pet animals - cats	Units tested		23
	Cattle (bovine animals)	Y. enterocolitica		0
	Cattle (bovine animals)	Y. pseudotuberculosis		2
	Sheep	Y. enterocolitica		0
	Sheep	Y. pseudotuberculosis		2
	Goats	Y. enterocolitica		0
	Goats	Y. pseudotuberculosis		0
	Pigs	Y. enterocolitica		0
	Pigs	Y. pseudotuberculosis		0
	Solipeds	Y. enterocolitica		0
	Solipeds	Y. pseudotuberculosis		0
	Poultry	Y. enterocolitica		0
	Poultry	Y. pseudotuberculosis		4
	Pet animals - dogs	Y. enterocolitica		1
	Pet animals - dogs	Y. pseudotuberculosis		0
	Pet animals - cats	Y. enterocolitica		0
	Pet animals - cats	Y. pseudotuberculosis		0

Ireland 2004 Report on trends and sources of zoonoses

	Cattle (bovine animals)	Y. enterocolitica O:3	0
	Cattle (bovine animals)	Y. enterocolitica O:9	0
	Sheep	Y. enterocolitica O:3	0
	Sheep	Y. enterocolitica O:9	0
	Goats	Y. enterocolitica O:3	0
	Goats	Y. enterocolitica O:9	0
	Pigs	Y. enterocolitica O:3	0
	Pigs	Y. enterocolitica O:9	0
	Solipeds	Y. enterocolitica O:3	0
	Solipeds	Y. enterocolitica O:9	0
	Poultry	Y. enterocolitica O:3	0
	Poultry	Y. enterocolitica O:9	0
	Pet animals - dogs	Y. enterocolitica O:3	0
	Pet animals - dogs	Y. enterocolitica O:9	0
	Pet animals - cats	Y. enterocolitica O:3	0
	Pet animals - cats	Y. enterocolitica O:9	0
2005-09-21	Cattle (bovine animals)	Epidemiological unit	Sample
2005-09-21	Sheep	Epidemiological unit	Sample
	Goats	Epidemiological unit	Sample
	Pigs	Epidemiological unit	Sample
	Solipeds	Epidemiological unit	Sample
	Poultry	Epidemiological unit	Sample
	Pet animals - dogs	Epidemiological unit	Sample
	Pet animals - cats	Epidemiological unit	Sample

2.8. TRICHINELLOSIS

2.8.1. General evaluation of the national situation

2.8.2. Trichinellosis in humans

A. Trichinellosis in humans

Case definition

Trichinosis (Trichinella sp.) (EU)

Clinical description

A disease caused by ingestion of trichinella larvae. The disease has variable clinical manifestations. Common signs and symptoms among symptomatic persons include eosinophilia, fever, myalgia and periorbital edema.

Laboratory criteria for diagnosis

One of the following:

- ; Demonstration of trichinella larvae in tissue obtained by muscle biopsy
- ; Demonstration of a specific trichinella antibody response

Case classification

Possible: N/A

Probable: A clinically compatible case with an epidemiological link*

Confirmed: A clinically compatible case that is laboratory confirmed

Notification system in place

Notifiable since 2004

Table 4.2.A Trichinellosis in man - species/serotype distribution

Trichinella	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
	0	0	0	0	0	0
Trichinella spp.	0	0				

2.8.3. Trichinella in animals

Table 4.1 Trichinella in animals

	Source of information	Remarks	Epidemiological unit	Animals tested	Animals positive
Pigs (1)	CMCL			3801	0
Solipeds	CMCL			58	0
Wildlife					
wild boars	CMCL			0	0

(1) : CMCL = Central Meat Control Laboratory

2.9. ECHINOCOCCOSIS

2.9.1. General evaluation of the national situation

2.9.2. Echinococcosis in humans

A. Echinococcus spp in humans

Case definition

Echinococcosis (*Echinococcus* sp.) (EU)

Clinical description

Clinical picture compatible with echinococcosis, which may produce any of several clinical syndromes, varying with cyst size and location.

Laboratory criteria for diagnosis

One of the following:

- ; Histopathology

- ; A combination of imaging techniques and serological tests (e.g. indirect haemagglutination, immunodiffusion, immunoblot assay)

Case classification

Possible: N/A

Probable: N/A

Confirmed: A clinically compatible case that is laboratory confirmed

Notification system in place

Notifiable since 2004

Table 9.2.A Echinococcosis in man - species/serotype distribution

Echinococcus	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
	0	0	0	0	0	0
E. granulosus						
E. multilocularis						
Echinococcus spp.	0	0				

2.9.3. Echinococcus in animals

Table 9.1 Echinococcus sp. in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Echinococcus spp.	E. granulosus	E. multilocularis
Cattle (bovine animals) (1)	CMCL			0			
Sheep				0			
Goats				0			
Pigs				0			
Solipeds				0			
Pet animals							
dogs				0			
cats				0			
Wildlife							
foxes				0			
other				0			

(1) : CMCL= Central Meat Control Laboratory

Ireland is free of Echinococcus. Monitoring uses passive surveillance methods

2.10. TOXOPLASMOSIS

2.10.1. General evaluation of the national situation

2.10.2. Toxoplasmosis in humans

A. Toxoplasmosis in humans

Case definition

Toxoplasmosis (*Toxoplasma gondii*) (EU)

Clinical description

A protozoan disease which presents with an acute illness with one or more of the following: lymphadenopathy, encephalitis, chorioretinitis, dysfunction of the central nervous system. Congenital infections may also occur with hydrocephalus, microcephalus, intracerebral calcification, convulsions, cerebral retardation.

Laboratory criteria for diagnosis

One of the following:

- ; Demonstration of a specific toxoplasma antibody response
- ; Demonstration of the agent in body tissues or fluids or isolation in animals or cell culture
- ; Detection of toxoplasma nucleic acid

Case classification

Possible: N/A

Probable: N/A

Confirmed: A clinically compatible case that is laboratory confirmed

Toxoplasmosis (congenital)

Clinical description

Congenital infection with *T. gondii* can result in a wide spectrum of clinical manifestations from asymptomatic or subclinical infection, aseptic meningitis in infancy, to severe multisystem involvement with hydrocephalus or microcephaly, chorioretinitis, thrombocytopenic purpura and hepatosplenomegaly. Children with congenital infection, even those with subclinical disease, are also at risk of later reactivation of chorioretinitis particularly toward the end of the first and into the second decade of life.

Laboratory criteria for diagnosis

One of the following:

- ; Histologic diagnosis of tachyzoites in infant tissues or body fluids
- ; Isolation of the parasite from an infant, usually from tissue obtained postmortem or on biopsy. (This requires animal or tissue culture inoculation and is not readily available).
- ; Detection of *T. gondii* by PCR testing of infant blood, CSF or tissue

Serologic testing.

The serologic diagnosis of congenital toxoplasmosis is confounded both by the passive transfer of maternal IgG antibody and the fact that tests for toxoplasma specific IgM antibody can be negative in up to 50% of congenitally infected infants.

- ; Detection of toxoplasma specific IgM antibodies in cord blood or in the infant's blood is evidence of specific antibody synthesis by the infected infant in utero.

- ; Detection of toxoplasma specific IgA antibodies is also highly suggestive of infant infection.

Infant levels of toxoplasma specific IgG will normally equal or exceed those of the mother (due

to active transfer of IgG by the placenta). However IgG levels that are fourfold those of the mother are highly suggestive of infant infection and demonstration of rising IgG levels in sequential infant sera is conclusive evidence of congenital infection.

Case classification

Possible: Clinical symptoms compatible with congenital toxoplasmosis

Probable: Clinical symptoms suggestive of congenital toxoplasmosis with evidence of recent maternal infection (Maternal toxoplasma IgM positive

Confirmed: One of the following:

- ; Detection of *T. gondii* by PCR testing in the infant
- ; Presence of toxoplasma specific IgM
- ; Rising toxoplasma specific IgG in sequential infant sera

Notification system in place

Notifiable since 2004

Table 10.2.A Toxoplasmosis in man - species/serotype distribution

Toxoplasma		Cases	Cases Inc
Toxoplasma spp.		33	0.842437831
congenital cases		33	0.842437831

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-12-12	Toxoplasma spp.	Cases	26	33
	Toxoplasma spp.	Cases Inc	.6637	0.842437831

Table 10.2.B Toxoplasmosis in man - age distribution

Age Distribution	Toxoplasma spp.		
	All	M	F
<1 year	0	0	0
1 to 4 years	0	0	0
5 to 14 years	1	1	0
15 to 24 years	8	5	3
25 to 44 years	19	5	14
45 to 64 years	3	1	2
65 years and older	1	0	1
Age unknown	1	0	1
Total :	33	12	21

The following amendments were made :

Date of modification	Zoonose	Line	Column	Old value	New value
2005-12-09	Toxoplasma spp.	15 to 24 years	All	8	8
	Toxoplasma spp.	15 to 24 years	M	5	5
	Toxoplasma spp.	15 to 24 years	F	3	3
	Toxoplasma spp.	25 to 44 years	All	19	19
	Toxoplasma spp.	25 to 44 years	M	5	5
	Toxoplasma spp.	25 to 44 years	F	14	14
	Toxoplasma spp.	Age unknown	All	1	1
	Toxoplasma spp.	Age unknown	F	1	1

2.10.3. Toxoplasma in animals

Table 10.1 Toxoplasma gondii in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive
Cattle (bovine animals)	Diag		Sample	38	1
Sheep	Diag		Sample	642	75
Goats	Diag		Sample	2	0
Pigs	Diag		Sample	0	0
Solipeds	Diag		Sample	0	0
Pet animals					
dogs	Diag		Sample	5	0
cats	Diag		Sample	1	0
other	Diag		Sample	8	1

Footnote

Latex Agglutination Test (positive titre $\geq 1/1024$)

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-09-12	Cattle (bovine animals)	Units tested		38
	Cattle (bovine animals)	Units positive		1
	Cattle (bovine animals)	Source of information		Diag
	Cattle (bovine animals)	Epidemiological unit		Sample
	Sheep	Units tested		642
	Sheep	Units positive		75
	Sheep	Source of information		Diag
	Sheep	Epidemiological unit		Sample
	Goats	Units tested		2
	Goats	Units positive		0
	Goats	Source of information		Diag
	Goats	Epidemiological unit		Sample
	Pigs	Units tested		0
	Pigs	Units positive		0
	Pigs	Source of information		Diag
	Pigs	Epidemiological unit		Sample
	Solipeds	Units tested		0
	Solipeds	Units positive		0
	Solipeds	Source of information		Diag
	Solipeds	Epidemiological unit		Sample
	Pet animals - dogs	Epidemiological unit		Sample
	Pet animals - dogs	Units tested		5
	Pet animals - dogs	Units positive		0
	Pet animals - dogs	Source of information		Diag
	Pet animals - cats	Epidemiological unit		Sample
	Pet animals - cats	Units tested		1
	Pet animals - cats	Units positive		0
	Pet animals - cats	Source of information		Diag
	other	Source of information		Diag
	other	Epidemiological unit		Sample

	other	Units tested	8
	other	Units positive	1

2.11. RABIES

2.11.1. General evaluation of the national situation

2.11.2. Rabies in humans

A. Rabies in humans

Case definition

Rabies (Rabies virus) (EU)

Clinical description

Rabies is an acute encephalomyelitis that almost always progresses to coma or death within 10 days after the first symptom.

Laboratory criteria for diagnosis

One of the following:

- ; Detection by direct fluorescent antibody of viral antigens in a clinical specimen (preferably the brain or the nerves surrounding hair follicles in the nape of the neck)
- ; Isolation (in cell culture or in a laboratory animal) of rabies virus from saliva, cerebrospinal fluid (CSF), or central nervous system tissue
- ; Identification of a rabies-neutralising antibody titre (complete neutralisation) in the serum or CSF of an unvaccinated person
- ; Detection of rabies nucleic acid in clinical specimen

Case classification

Possible: A clinically compatible case without laboratory confirmation

Probable: N/A

Confirmed: A clinically compatible case that is laboratory confirmed

Notification system in place

Notifiable since 1976

2.11.3. Lyssavirus (rabies) in animals

Table 5.1 Rabies in animals

	Source of information	Remarks	Animals tested	Animals positive
Cattle (bovine animals) (1)	Diag		0	0
Sheep	Diag		0	0
Goats	Diag		0	0
Pigs	Diag		0	0
Solipeds	Diag		0	0
Wildlife				
bats	Diag		0	0
foxes	Diag		0	0
other	Diag		0	0
all	Diag		0	0
Pet animals				
dogs	Diag		0	0
cats	Diag		0	0
other	Diag		0	0

(1) : Ireland is recognised as being officially free of Rabies by the OIE

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-09-12	Cattle (bovine animals)	Source of information		Diag
	Cattle (bovine animals)	Animals tested		0
	Sheep	Source of information		Diag
	Sheep	Animals tested		0
	Goats	Source of information		Diag
	Goats	Animals tested		0
	Pigs	Source of information		Diag
	Pigs	Animals tested		0
	Solipeds	Source of information		Diag
	Solipeds	Animals tested		0
	Wildlife - bats	Source of information		Diag
	Wildlife - bats	Animals tested		0
	Wildlife - foxes	Source of information		Diag
	Wildlife - foxes	Animals tested		0
	Wildlife - other	Source of information		Diag
	Wildlife - other	Animals tested		0
	Pet animals - dogs	Source of information		Diag
	Pet animals - dogs	Animals tested		0
	Pet animals - cats	Source of information		Diag
	Pet animals - cats	Animals tested		0
	Pet animals - other	Source of information		Diag
	Pet animals - other	Animals tested		0
	Wildlife - all	Source of information		Diag
	Wildlife - all	Animals tested		0

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

Table 13.1 Antimicrobial susceptibility testing of E.coli in animals

	E.coli													
	Cattle (bovine animals)		Pigs		Sheep		Goats		Solipeds - horses		Gallus gallus		Turkeys	
Isolates out of a monitoring program	No		No		No		No		No		No			
Number of isolates available in the laboratory	29603		649		1428		56		460		826			
Antimicrobials:	N	%R	N	%R	N	%R	N	%R	N	%R	N	%R	N	%R
Tetracycline														
Oxytetracyclin	1986	77%	67	95.5%	118	47.5%	3	100%	36	52.8%	63	74.6%		
Tetracyclin	1374	77.4%	11	81.8%	64	53.1%	4	75%	7	28.6%	18	38.9%		
Amphenicols														
Florfenicol	1151	29.7%	27	18.5%	87	10.3%	1	0%	14	14.3%	61	4.9%		
Cephalosporin														
Cephalothin	1241	49.3%	5	80%	8	62.5%	3	0%	10	80%	25	92%		
Fluoroquinolones														
Enrofloxacin	3075	26.5%	78	19.2%	184	6%	4	0%	49	4.1%	81	4.9%		
Trimethoprim	365	78.9%	1	100%	3	0%	0	0%	4	25%	3	100%		
Sulfonamides														
Sulfisoxazol (sulfafurazol)	27	92.6%	5	80%	7	100%	0	0%	10	90%	25	100%		
Aminoglycosides														
Streptomycin	481	72.1%	5	100%	8	100%	0	0%	21	52.4%	25	80%		
Neomycin	3298	70.9%	72	62.5%	156	46.2%	7	71.4%	48	60.4%	71	54.9%		
Kanamycin	157	22.9%	0	0%	0	0%	0	0%	0	0%	0	0%		
Apramycin	2625	25.7%	66	40.9%	124	14.5%	4	25%	32	9.4%	64	6.3%		
Framycetin	3285	13.3%	78	2.6%	177	5.1%	7	0%	47	4.3%	79	5.1%		
Spectinomycin	184	90.2%	5	80%	7	28.6%	0	0%	15	60%	25	32%		
Macrolides														
Erythromycin	480	86.5%	5	100%	7	100%	3	100%	10	100%	25	100%		
Lincosamides														
Lincomycin(1)	157	3.2%	0	0%	0	0%	0	0%	0	0%	0	0%		
Coumarin glycosides														
Novobiocin	156	96.2%	0	0%	0	0%	0	0%	0	0%	0	0%		
Trimethoprim + sulfonamides														
Trimethoprim + Sulfamethoxazol	2819	60.9%	77	83.1%	181	28.2%	4	75%	39	66.7%	78	48.7%		
Penicillins														
Amoxicillin	126	33.3%	5	80%	7	71.4%	3	33%	10	90%	25	92%		
Amoxicillin/ clavulanic acid(2)	2743	27.8%	71	21.1%	146	13%	4	0%	38	18.4%	69	10.1%		
Ampicillin	1777	76.6%	61	82%	94	53.2%	3	100%	43	60.5%	56	89.3%		
Penicillin	636	96.7%	5	100%	8	100%	3	100%	21	100%	25	100%		
Cloxacillin	612	93%	0	0%	1	100%	3	100%	10	100%	0	0%		
Polymyxins														
Polymyxin B	156	9.6%	0	0%	0	0%	0	0%	0	0%	0	0%		

(1) : Lincomycin/Neomycin

(2) : Clavulated Amoxycillin: Cattle - N 596 ; %R 19.5

Pigs - N 5 ; %R 0.0

Poultry Gallus Gallus - N 8 ; %R 0.0

Sheep - N 40 ; %R 2.5

The following amendments were made :

Date of modification	Species	Antimicrobial	Column	Old value	New value
2005-09-12	Cattle (bovine animals)	isolates out of monitoring			No

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Cattle (bovine animals)	number of isolates		29603
Pigs	isolates out of monitoring		No
Pigs	number of isolates		649
Gallus gallus	isolates out of monitoring		No
Gallus gallus	number of isolates		826
Sheep	isolates out of monitoring		No
Sheep	number of isolates		1428
Goats	isolates out of monitoring		No
Goats	number of isolates		56
Solipeds - horses	isolates out of monitoring		No
Solipeds - horses	number of isolates		460
Cattle (bovine animals)	Florfenicol	N	1151
Cattle (bovine animals)	Florfenicol	%R	29.7
Cattle (bovine animals)	Ampicillin	N	1777
Cattle (bovine animals)	Ampicillin	%R	76.6
Cattle (bovine animals)	Enrofloxacin	N	3075
Cattle (bovine animals)	Enrofloxacin	%R	26.5
Cattle (bovine animals)	Trimethoprim	N	365
Cattle (bovine animals)	Trimethoprim	%R	78.9
Cattle (bovine animals)	Streptomycin	N	481
Cattle (bovine animals)	Streptomycin	%R	72.1
Cattle (bovine animals)	Neomycin	N	3298
Cattle (bovine animals)	Neomycin	%R	70.9
Cattle (bovine animals)	Kanamycin	N	157
Cattle (bovine animals)	Kanamycin	%R	22.9
Cattle (bovine animals)	Amoxicillin	N	126
Cattle (bovine animals)	Amoxicillin	%R	33.3
Cattle (bovine animals)	Amoxicillin/ clavulanic acid	N	2743
Cattle (bovine animals)	Amoxicillin/ clavulanic acid	%R	27.8
Cattle (bovine animals)	Apramycin	N	2625
Cattle (bovine animals)	Apramycin	%R	25.7
Cattle (bovine animals)	Framycetin	N	3285
Cattle (bovine animals)	Framycetin	%R	13.3
Cattle (bovine animals)	Spectinomycin	N	184
Cattle (bovine animals)	Spectinomycin	%R	90.2
Cattle (bovine animals)	Oxytetracyclin	N	1986
Cattle (bovine animals)	Oxytetracyclin	%R	77
Cattle (bovine animals)	Penicillin	N	636
Cattle (bovine animals)	Penicillin	%R	96.7
Cattle (bovine animals)	Sulfisoxazol (sulfafurazol)	N	27
Cattle (bovine animals)	Sulfisoxazol (sulfafurazol)	%R	92.6
Cattle (bovine animals)	Cephalothin	N	1241
Cattle (bovine animals)	Cephalothin	%R	49.3
Cattle (bovine animals)	Erythromycin	N	480
Cattle (bovine animals)	Erythromycin	%R	86.5
Cattle (bovine animals)	Lincomycin	N	157
Cattle (bovine animals)	Lincomycin	%R	3.2
Cattle (bovine animals)	Novobiocin	N	156
Cattle (bovine animals)	Novobiocin	%R	96.2
Pigs	Florfenicol	N	27
Pigs	Florfenicol	%R	18.5
Pigs	Ampicillin	N	61
Pigs	Ampicillin	%R	82
Pigs	Enrofloxacin	N	78
Pigs	Enrofloxacin	%R	19.2
Pigs	Trimethoprim	N	1
Pigs	Trimethoprim	%R	100
Pigs	Streptomycin	N	5
Pigs	Streptomycin	%R	100
Pigs	Neomycin	N	72
Pigs	Neomycin	%R	62.5
Pigs	Kanamycin	N	0
Pigs	Kanamycin	%R	0
Pigs	Amoxicillin	N	5
Pigs	Amoxicillin	%R	80
Pigs	Amoxicillin/ clavulanic acid	N	71
Pigs	Amoxicillin/ clavulanic acid	%R	21.1
Pigs	Apramycin	N	66
Pigs	Apramycin	%R	40.9
Pigs	Framycetin	N	78
Pigs	Framycetin	%R	2.6
Pigs	Spectinomycin	N	5

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Pigs	Spectinomycin	%R	80
Pigs	Oxytetracyclin	N	67
Pigs	Oxytetracyclin	%R	95.5
Pigs	Penicillin	N	5
Pigs	Penicillin	%R	100
Pigs	Sulfisoxazol (sulfafurazol)	N	5
Pigs	Sulfisoxazol (sulfafurazol)	%R	80
Pigs	Cephalothin	N	5
Pigs	Cephalothin	%R	80
Pigs	Erythromycin	N	5
Pigs	Erythromycin	%R	100
Pigs	Lincomycin	N	0
Pigs	Lincomycin	%R	0
Pigs	Novobiocin	N	0
Pigs	Novobiocin	%R	0
Gallus gallus	Florfenicol	N	61
Gallus gallus	Florfenicol	%R	4.9
Gallus gallus	Ampicillin	N	56
Gallus gallus	Ampicillin	%R	89.3
Gallus gallus	Trimethoprim	N	3
Gallus gallus	Trimethoprim	%R	100
Gallus gallus	Streptomycin	N	25
Gallus gallus	Streptomycin	%R	80
Gallus gallus	Neomycin	N	71
Gallus gallus	Neomycin	%R	54.9
Gallus gallus	Kanamycin	N	0
Gallus gallus	Kanamycin	%R	0
Gallus gallus	Amoxicillin	N	5
Gallus gallus	Amoxicillin	%R	80
Gallus gallus	Amoxicillin/ clavulanic acid	N	69
Gallus gallus	Amoxicillin/ clavulanic acid	%R	10.1
Gallus gallus	Apramycin	N	64
Gallus gallus	Apramycin	%R	6.3
Gallus gallus	Framycetin	N	79
Gallus gallus	Framycetin	%R	5.1
Gallus gallus	Spectinomycin	N	25
Gallus gallus	Spectinomycin	%R	32
Gallus gallus	Oxytetracyclin	N	63
Gallus gallus	Oxytetracyclin	%R	74.6
Gallus gallus	Penicillin	N	25
Gallus gallus	Penicillin	%R	100
Gallus gallus	Sulfisoxazol (sulfafurazol)	N	25
Gallus gallus	Sulfisoxazol (sulfafurazol)	%R	100
Gallus gallus	Cephalothin	N	25
Gallus gallus	Cephalothin	%R	92
Gallus gallus	Erythromycin	N	25
Gallus gallus	Erythromycin	%R	100
Gallus gallus	Lincomycin	N	0
Gallus gallus	Lincomycin	%R	0
Gallus gallus	Novobiocin	N	0
Gallus gallus	Novobiocin	%R	0
Sheep	Florfenicol	N	87
Sheep	Florfenicol	%R	10.3
Sheep	Enrofloxacin	N	184
Sheep	Enrofloxacin	%R	6
Sheep	Trimethoprim	N	3
Sheep	Trimethoprim	%R	0
Sheep	Streptomycin	N	8
Sheep	Neomycin	N	156
Sheep	Kanamycin	N	0
Sheep	Streptomycin	%R	100
Sheep	Neomycin	%R	46.2
Sheep	Kanamycin	%R	0
Sheep	Ampicillin	N	94
Sheep	Ampicillin	%R	53.2
Sheep	Amoxicillin	N	7
Sheep	Amoxicillin	%R	71.4
Sheep	Amoxicillin/ clavulanic acid	N	146
Sheep	Amoxicillin/ clavulanic acid	%R	13
Sheep	Apramycin	N	124
Sheep	Apramycin	%R	14.5
Sheep	Framycetin	N	177

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Sheep	Framycetin	%R	5.1
Sheep	Spectinomycin	N	7
Sheep	Spectinomycin	%R	28.6
Sheep	Oxytetracyclin	N	118
Sheep	Oxytetracyclin	%R	47.5
Sheep	Penicillin	N	8
Sheep	Penicillin	%R	100
Sheep	Sulfisoxazol (sulfafurazol)	N	7
Sheep	Sulfisoxazol (sulfafurazol)	%R	100
Sheep	Cephalothin	N	8
Sheep	Cephalothin	%R	62.5
Sheep	Erythromycin	N	7
Sheep	Erythromycin	%R	100
Sheep	Lincomycin	N	0
Sheep	Lincomycin	%R	0
Sheep	Novobiocin	N	0
Sheep	Novobiocin	%R	0
Goats	Florfenicol	N	1
Goats	Florfenicol	%R	0
Goats	Enrofloxacin	N	4
Goats	Enrofloxacin	%R	0
Goats	Trimethoprim	N	0
Goats	Trimethoprim	%R	0
Goats	Streptomycin	N	0
Goats	Neomycin	N	7
Goats	Kanamycin	N	0
Goats	Streptomycin	%R	0
Goats	Neomycin	%R	71.4
Goats	Kanamycin	%R	0
Goats	Ampicillin	N	3
Goats	Ampicillin	%R	100
Goats	Amoxicillin	N	3
Goats	Amoxicillin	%R	33.3
Goats	Amoxicillin/ clavulanic acid	N	4
Goats	Amoxicillin/ clavulanic acid	%R	0
Goats	Apramycin	N	4
Goats	Apramycin	%R	25
Goats	Framycetin	N	7
Goats	Framycetin	%R	0
Goats	Spectinomycin	N	0
Goats	Spectinomycin	%R	0
Goats	Oxytetracyclin	N	3
Goats	Oxytetracyclin	%R	100
Goats	Penicillin	N	3
Goats	Penicillin	%R	100
Goats	Sulfisoxazol (sulfafurazol)	N	0
Goats	Sulfisoxazol (sulfafurazol)	%R	0
Goats	Cephalothin	N	3
Goats	Cephalothin	%R	0
Goats	Erythromycin	N	3
Goats	Erythromycin	%R	100
Goats	Lincomycin	N	0
Goats	Lincomycin	%R	0
Goats	Novobiocin	N	0
Goats	Novobiocin	%R	0
Solipeds - horses	Florfenicol	N	14
Solipeds - horses	Florfenicol	%R	14.3
Solipeds - horses	Enrofloxacin	N	49
Solipeds - horses	Enrofloxacin	%R	4.1
Solipeds - horses	Trimethoprim	N	4
Solipeds - horses	Trimethoprim	%R	25
Solipeds - horses	Streptomycin	N	21
Solipeds - horses	Neomycin	N	48
Solipeds - horses	Kanamycin	N	0
Solipeds - horses	Streptomycin	%R	52.4
Solipeds - horses	Neomycin	%R	60.4
Solipeds - horses	Kanamycin	%R	0
Solipeds - horses	Ampicillin	N	43
Solipeds - horses	Ampicillin	%R	60.5
Solipeds - horses	Amoxicillin	N	10
Solipeds - horses	Amoxicillin	%R	90
Solipeds - horses	Amoxicillin/ clavulanic acid	N	38

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	Solipeds - horses	Amoxicillin/ clavulanic acid	%R		18.4
	Solipeds - horses	Apramycin	N		32
	Solipeds - horses	Apramycin	%R		9.4
	Solipeds - horses	Framycetin	N		47
	Solipeds - horses	Framycetin	%R		4.3
	Solipeds - horses	Spectinomycin	N		15
	Solipeds - horses	Spectinomycin	%R		60
	Solipeds - horses	Oxytetracyclin	N		36
	Solipeds - horses	Oxytetracyclin	%R		52.8
	Solipeds - horses	Penicillin	N		21
	Solipeds - horses	Penicillin	%R		100
	Solipeds - horses	Sulfisoxazol (sulfafurazol)	N		10
	Solipeds - horses	Sulfisoxazol (sulfafurazol)	%R		90
	Solipeds - horses	Cephalothin	N		10
	Solipeds - horses	Cephalothin	%R		80
	Solipeds - horses	Erythromycin	N		10
	Solipeds - horses	Erythromycin	%R		100
	Solipeds - horses	Lincomycin	N		0
	Solipeds - horses	Lincomycin	%R		0
	Solipeds - horses	Novobiocin	N		0
	Solipeds - horses	Novobiocin	%R		0
2005-09-12	Cattle (bovine animals)	Tetracyclin	N		1374
	Cattle (bovine animals)	Tetracyclin	%R		77.4
	Pigs	Tetracyclin	N		11
	Pigs	Tetracyclin	%R		81.8
	Gallus gallus	Tetracyclin	N		18
	Gallus gallus	Tetracyclin	%R		38.9
	Sheep	Tetracyclin	N		64
	Sheep	Tetracyclin	%R		53.1
	Goats	Tetracyclin	N		4
	Goats	Tetracyclin	%R		75
	Solipeds - horses	Tetracyclin	N		7
	Solipeds - horses	Tetracyclin	%R		28.6
2005-09-12	Cattle (bovine animals)	Trimethoprim + Sulfamethoxazol	N		2819
	Cattle (bovine animals)	Trimethoprim + Sulfamethoxazol	%R		60.9
	Pigs	Trimethoprim + Sulfamethoxazol	N		77
	Pigs	Trimethoprim + Sulfamethoxazol	%R		83.1
	Gallus gallus	Trimethoprim + Sulfamethoxazol	N		78
	Gallus gallus	Trimethoprim + Sulfamethoxazol	%R		48.7
	Sheep	Trimethoprim + Sulfamethoxazol	N		181
	Sheep	Trimethoprim + Sulfamethoxazol	%R		28.2
	Goats	Trimethoprim + Sulfamethoxazol	N		4
	Goats	Trimethoprim + Sulfamethoxazol	%R		75
	Solipeds - horses	Trimethoprim + Sulfamethoxazol	N		39
	Solipeds - horses	Trimethoprim + Sulfamethoxazol	%R		66.7
2005-09-16	Cattle (bovine animals)	Cloxacillin	N		612
	Cattle (bovine animals)	Cloxacillin	%R		93
	Pigs	Cloxacillin	N		0
	Pigs	Cloxacillin	%R		0
	Gallus gallus	Cloxacillin	N		0
	Gallus gallus	Cloxacillin	%R		0
	Sheep	Cloxacillin	N		1
	Sheep	Cloxacillin	%R		100
	Goats	Cloxacillin	N		3
	Goats	Cloxacillin	%R		100
	Solipeds - horses	Cloxacillin	N		0
	Solipeds - horses	Cloxacillin	%R		0
2005-09-16	Cattle (bovine animals)	Polymyxin B	N		156
	Cattle (bovine animals)	Polymyxin B	%R		9.6
	Pigs	Polymyxin B	N		0
	Pigs	Polymyxin B	%R		0
	Gallus gallus	Polymyxin B	N		0
	Gallus gallus	Polymyxin B	%R		0
	Sheep	Polymyxin B	N		0
	Sheep	Polymyxin B	%R		0
	Goats	Polymyxin B	N		0
	Goats	Polymyxin B	%R		0
	Solipeds - horses	Polymyxin B	N		0
	Solipeds - horses	Polymyxin B	%R		0
2005-09-21	Gallus gallus	Enrofloxacin	N		81
	Gallus gallus	Enrofloxacin	%R		4.9
	Gallus gallus	Amoxicillin	N	5	25

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	Gallus gallus	Amoxicillin	%R	80	92
	Goats	Amoxicillin	N	3	3
	Goats	Amoxicillin	%R	33.3	33
	Solipeds - horses	Cloxacillin	N	0	10
	Solipeds - horses	Cloxacillin	%R	0	100

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.

Table 12. Foodborne outbreaks in humans

Causative agent	General outbreak	Family outbreak	Total Number in persons			Source	Type of evidence		Location of exposure	Contributing factors
			ill	died	in hospital		Suspected	Confirmed		
1	2	3	4	5	6	7	8	9	10	
unknown	x		4	0	1	Not identified			Restaurant/Cafe'	
Salmonella		x	5	0	0	Not identified		x	Private house	Travel-associated
Campylobacter		x	2	0	2	Not identified		x	Private house	
Salmonella		x	2	0	0	Not identified		x	Private house	Travel-associated
unknown	x		11	0	0	Not identified		x	Function	
Clostridium - C. perfringens	x		14	0	0	Soup		x	Sports club	Inadequate storage/ refrigeration
Staphylococcus - S. aureus	x		8	0	0	Not identified		x		
Salmonella - S. Enteritidis		x	2	0	0	Shellfish		x	Private house	Travel-associated (Italy)
Salmonella - S. Enteritidis		x	3	0	0	Not identified		x	Private house	Travel-associated (UK)
Salmonella - S. Bredeney		x	4	0	0	Chicken		x	Private house	Inadequate cooking; Inadequate refrigeration
Salmonella - S. Typhimurium	x		10	0	3	Desserts made using liquid egg		x	Restaurant/Cafe	Infected foodhandler
Staphylococcus - S. aureus	x		3	0	0	Not identified		x	Hotel	Infected Foodhandler
Food borne viruses - calicivirus (including norovirus) - norovirus (Norwalk-like virus)(1)	x		3	0	0	Oysters		x	Restaurant/Cafe	

(1) : Suspected

The following amendments were made :

Date of modification	Causative agent	Column	Old value	New value
2005-12-08	C. perfringens	General outbreak		x
	C. perfringens	ill		14
	C. perfringens	died		0
	C. perfringens	in hospital		0
	C. perfringens	Source		Soup
	C. perfringens	Confirmed		x
	C. perfringens	Type of evidence		Circumstantial
	C. perfringens	Location of exposure		Sports club

	C. perfringens	Contributing factors		Inadequate storage
2005-12-08	unknown	General outbreak		x
	unknown	ill		4
	unknown	died		0
	unknown	in hospital		1
	unknown	Source		Not identified
	unknown	Confirmed		x
	unknown	Type of evidence		Circumstantial
	unknown	Location of exposure		Restaurant/Cafe'
	Salmonella	Family outbreak		x
	Salmonella	ill		5
2005-12-08	Salmonella	died		0
	Salmonella	in hospital		0
	Salmonella	Source		Not identified
	Salmonella	Suspected		x
	Salmonella	Type of evidence		Circumstantial
	Salmonella	Location of exposure		Private house
	Salmonella	Contributing factors		Travel-associated
	Campylobacter	Family outbreak		x
	Campylobacter	ill		2
	Campylobacter	died		0
2005-12-08	Campylobacter	in hospital		2
	Campylobacter	Source		Not identified
	Campylobacter	Suspected		x
	Campylobacter	Type of evidence		Circumstantial
	Campylobacter	Location of exposure		Private house
	Salmonella	Family outbreak		x
	Salmonella	ill		2
	Salmonella	died		0
	Salmonella	in hospital		0
	Salmonella	Source		Not identified
2005-12-08	Salmonella	Suspected		x
	Salmonella	Type of evidence		Circumstantial
	Salmonella	Location of exposure		Private house
	Salmonella	Contributing factors		Travel-associated
	Salmonella	General outbreak		x
	Salmonella	ill		11
	Salmonella	died		0
	Salmonella	in hospital		0
	Salmonella	Source		Not identified
	Salmonella	Suspected		x
2005-12-08	Salmonella	Type of evidence		Circumstantial
	Salmonella	Location of exposure		Private house
	Salmonella	Contributing factors		Travel-associated
	Salmonella	General outbreak		x
	Salmonella	ill		11
	Salmonella	died		0
	Salmonella	in hospital		0
	Salmonella	Source		Not identified
	Salmonella	Suspected		x
	Salmonella	Type of evidence		Circumstantial
2005-12-08	Salmonella	Location of exposure		Private house
	Salmonella	Contributing factors		Travel-associated
	Salmonella	General outbreak		x
	Salmonella	ill		11
	Salmonella	died		0
	Salmonella	in hospital		0
	Salmonella	Source		Not identified
	Salmonella	Suspected		x
	Salmonella	Type of evidence		Circumstantial
	Salmonella	Location of exposure		Private house
2005-12-08	Salmonella	Contributing factors		Travel-associated
	Salmonella	General outbreak		x
	Salmonella	ill		11
	Salmonella	died		0
	Salmonella	in hospital		0
	Salmonella	Source		Not identified
	Salmonella	Suspected		x
	Salmonella	Type of evidence		Circumstantial
	Salmonella	Location of exposure		Private house
	Salmonella	Contributing factors		Travel-associated
2005-12-08	Salmonella	General outbreak		x
	Salmonella	ill		8
	Salmonella	died		0
	Salmonella	in hospital		0
	Salmonella	Source		Not identified
	Salmonella	Suspected		x
	Salmonella	Type of evidence		Circumstantial
	Salmonella	Location of exposure		Private house
	Salmonella	Contributing factors		Travel-associated
	Salmonella	General outbreak		x
2005-12-08	Salmonella	ill		8
	Salmonella	died		0
	Salmonella	in hospital		0
	Salmonella	Source		Not identified
	Salmonella	Suspected		x
	Salmonella	Type of evidence		Circumstantial
	Salmonella	Location of exposure		Private house
	Salmonella	Contributing factors		Travel-associated
	Salmonella	General outbreak		x
	Salmonella	ill		8

	S. aureus	died	0	
	S. aureus	in hospital	0	
	S. aureus	Source	Not identified	
	S. aureus	Suspected	x	
	S. aureus	Type of evidence	Circumstantial	
2005-12-08	S. Enteritidis	Family outbreak	x	
	S. Enteritidis	ill	2	
	S. Enteritidis	died	0	
	S. Enteritidis	in hospital	0	
	S. Enteritidis	Source	Shellfish	
	S. Enteritidis	Confirmed	x	
	S. Enteritidis	Type of evidence	Circumstantial	
	S. Enteritidis	Location of exposure	Private house	
	S. Enteritidis	Contributing factors	Travel-associated (Italy)	
	S. Enteritidis	Family outbreak	x	
2005-12-08	S. Enteritidis	ill	3	
	S. Enteritidis	died	0	
	S. Enteritidis	in hospital	0	
	S. Enteritidis	Source	Not identified	
	S. Enteritidis	Suspected	x	
	S. Enteritidis	Type of evidence	Circumstantial	
	S. Enteritidis	Location of exposure	Private house	
	S. Enteritidis	Contributing factors	Travel-associated (UK)	
	S. Bredeney	Family outbreak	x	
	S. Bredeney	ill	4	
2005-12-08	S. Bredeney	died	0	
	S. Bredeney	in hospital	0	
	S. Bredeney	Source	Chicken	
	S. Bredeney	Confirmed	x	
	S. Bredeney	Type of evidence	Circumstantial	
	S. Bredeney	Location of exposure	Private house	
	S. Bredeney	Contributing factors	Inadequate cooking; inadequate refrigeration	
	S. Typhimurium	General outbreak	x	
	S. Typhimurium	ill	10	
	S. Typhimurium	died	0	
2005-12-08	S. Typhimurium	in hospital	3	
	S. Typhimurium	Source	Desserts made using liquid egg	
	S. Typhimurium	Confirmed	x	
	S. Typhimurium	Type of evidence	Epidemiological (C/C Study)	
	S. Typhimurium	Location of exposure	Restaurant/Cafe	
	S. Typhimurium	Contributing factors	Infected foodhandler	
	S. aureus	General outbreak	x	
	S. aureus	ill	3	
	S. aureus	died	0	
	S. aureus	in hospital	0	
2005-12-08	S. aureus	Source	Not identified	

2005-12-08	S. aureus	Suspected	x	
	S. aureus	Type of evidence	Circumstantial	
	S. aureus	Location of exposure	Hotel	
	S. aureus	Contributing factors	Infected Foodhandler	
	norovirus (Norwalk-like virus)	General outbreak	x	
	norovirus (Norwalk-like virus)	ill	3	
	norovirus (Norwalk-like virus)	died	0	
	norovirus (Norwalk-like virus)	in hospital	0	
	norovirus (Norwalk-like virus)	Source	Oysters	
	norovirus (Norwalk-like virus)	Suspected	x	
	norovirus (Norwalk-like virus)	Type of evidence	Circumstantial	
	norovirus (Norwalk-like virus)	Location of exposure	Restaurant/Cafe	
	norovirus (Norwalk-like virus)			