

NETHERLANDS

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

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

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

IN 2008

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: **Netherlands**

Reporting Year:

Laboratory name	Description	Contribution
CVI	Central Veterinary Institute	
VMDC	Veterinary Microbiological Diagnostic Centre	
PVE	Product Boards for Livestock, Meat and Eggs	
PDV	Product Board Animal Feed	
GD	Animal Health Service	
RIVM	National Institute for Public Health and the Environment	
VWA	Food and Consumer Product Safety Authority	

PREFACE

This report is submitted to the European Commission in accordance with Article 9 of Council Directive 2003/99/ EC*. The information has also been forwarded to the European Food Safety Authority (EFSA).

The report contains information on trends and sources of zoonoses and zoonotic agents in Netherlands during the year 2008 .

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.

* Directive 2003/ 99/ EC of the European Parliament and of the Council of 12 December 2003 on the monitoring of zoonoses and zoonotic agents, amending Decision 90/ 424/ EEC and repealing Council Directive 92/ 117/ EEC, OJ L 325, 17.11.2003, p. 31

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1. ANIMAL POPULATIONS

The relevance of the findings on zoonoses and zoonotic agents has to be related to the size and nature of the animal population in the country.

Table Susceptible animal populations

Animal species	Category of animals	Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
			Year		Year		Year		Year
Cattle (bovine animals)	calves (under 1 year)			1419153		565804		2348	
	dairy cows and heifers			504077		1466134		26764	
	in total			1923230		3890195		43433	
	meat production animals					1203219		12954	
	mixed herds							10494	
Ducks	breeding flocks, unspecified - in total					56079		13	
	in total					986781		82	
	meat production flocks					930702		69	
Gallus gallus (fowl)	breeding flocks for egg production line - in total					852447		60	
	breeding flocks for meat production line - in total					7248780		321	
	breeding flocks, unspecified - in total					8107227		381	
	broilers			451544937		44357773		698	
	in total			465117987		96700237		2496	
	laying hens			13573050		44241237		1446	

Table Susceptible animal populations

Animal species	Category of animals	Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
			Year		Year		Year		Year
Goats	animals over 1 year					231204			
	animals under 1 year					123674			
	in total			102507		354878		10605	
	meat production animals					101366			
	milk goats					253512			
	mixed herds							12961	
Lamas	in total							6	
Pigs	breeding animals - unspecified - sows and gilts					1221571			
	fattening pigs					5838974			
	in total			14616683		12026467		8249	
Sheep	animals over 1 year			59218		607055			
	animals under 1 year (lambs)			589774		605901			
	in total					1212956		28956	
	mixed herds							12961	

Table Susceptible animal populations

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	Category of animals		Year		Year		Year		Year
Solipeds, domestic	horses - in total			1828		144078		16109	
Turkeys	breeding flocks, unspecified - in total					14281		4	
	in total					937810		58	
	meat production flocks					923529		54	
Wild boars	farmed - in total							27	

2. INFORMATION ON SPECIFIC ZOOSES AND ZOONOTIC AGENTS

Zoonoses are diseases or infections, which are naturally transmissible directly or indirectly between animals and humans. Foodstuffs serve often as vehicles of zoonotic infections. Zoonotic agents cover viruses, bacteria, fungi, parasites or other biological entities that are likely to cause zoonoses.

2.1 SALMONELLOSIS

2.1.1 General evaluation of the national situation

2.1.2 Salmonellosis in humans

2.1.3 Salmonella in foodstuffs

Table Salmonella in poultry meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - Survey - EU baseline survey ¹⁾	VWA	slaughter		479	68	0	2	
Meat from broilers (Gallus gallus) - fresh - at retail - Monitoring	VWA		25g	1408	108	3	1	104
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail - Monitoring	VWA		25g	108	15			15
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail	VWA		25g	104	0			
Meat from broilers (Gallus gallus) - meat products - raw but intended to be eaten cooked - at retail	VWA		25g	1	0			
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - at retail - Monitoring	VWA		25g	2	0			
Meat from duck - at retail	VWA		25g	5	0			
Meat from other poultry species ²⁾	VWA		25g	2	0			
Meat from other poultry species - at retail ³⁾	VWA		25g	2	0			

Table Salmonella in poultry meat and products thereof

Comments:

- 1) inclusive caeca
- 2) pheasant
- 3) ostrich

Table Salmonella in milk and dairy products

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk - at retail - Surveillance - official controls - suspect sampling	VWA	single	25g	16	0			
Dairy products (excluding cheeses) - cream - made from raw or low heat-treated milk - at retail - Surveillance - official controls - suspect sampling	VWA	single	25g	8	0			
Dairy products (excluding cheeses) - dairy desserts - at retail - Surveillance - official controls - suspect sampling	VWA	single	25g	16	0			
Dairy products (excluding cheeses) - ice-cream - at retail - Surveillance - official controls - suspect sampling	VWA	single	25g	31	0			
Milk, cows' - pasteurised milk - at retail - Surveillance - official controls - suspect sampling ¹⁾	VWA	single	25g	2	0			

Comments:¹⁾ carton

Table Salmonella in red meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Meat from bovine animals - fresh - at retail - Monitoring	VWA	single	25g	265	0			
Meat from bovine animals - meat preparation - intended to be eaten raw - at retail - Monitoring ¹⁾	VWA	single	25g	1062	2	1	1	
Meat from bovine animals - meat preparation - intended to be eaten cooked - at retail - Monitoring	VWA	single	25g	54	2			2
Meat from bovine animals - meat products - cooked, ready-to-eat - at retail - Monitoring	VWA	single	25g	320	2			2
Meat from bovine animals - meat products - raw but intended to be eaten cooked - at retail - Monitoring	VWA	single	25g	0				
Meat from other animal species or not specified - fresh - at retail - Monitoring	VWA	single	25g	2	0			
Meat from other animal species or not specified - meat preparation - at retail - Monitoring	VWA	single	25g	7	1			1
Meat from other animal species or not specified - meat products - cooked, ready-to-eat - at retail - Monitoring	VWA	single	25g	478	6		4	2
Meat from other animal species or not specified - minced meat - at retail - Monitoring	VWA	single	25g	9	1			1
Meat from pig - fresh - at retail - Monitoring	VWA	single	25g	319	9	1	3	5
Meat from pig - meat preparation - intended to be eaten cooked - at retail - Monitoring	VWA	single	25g	65	1		1	
Meat from pig - meat products - cooked, ready-to-eat - at retail - Monitoring	VWA	single	25g	3	0			
Meat from pig - meat products - raw but intended to be eaten cooked - at retail - Monitoring	VWA	single	25g	525	0			

Table Salmonella in red meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Meat from pig - minced meat - intended to be eaten cooked - at retail - Monitoring	VWA	single	25g	22	0			
Meat from sheep - fresh - at retail - Monitoring	VWA	single	25g	88	1			1
Meat from sheep - meat preparation - intended to be eaten cooked - at retail - Monitoring	VWA	single	25g	5	0			
Meat from sheep - meat products - cooked, ready -to-eat - at retail - Monitoring	VWA	single	25g	3	0			
Meat from sheep - minced meat - at retail - Monitoring	VWA	single	25g	8	0			

Comments:

¹⁾ filet americain

Table Salmonella in other food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Crustaceans - unspecified - cooked - at retail - Surveillance - official controls - suspect sampling	VWA	single	25g	20	0			
Eggs - table eggs - at retail - Surveillance - official controls - suspect sampling	VWA	single	25g	9	0			
Fishery products, unspecified - cooked - at retail - Surveillance - official controls - suspect sampling	VWA	single	25g	40	0			
Live bivalve molluscs - at retail - Surveillance - official controls - suspect sampling	VWA	single	25g	9	0			
Molluscan shellfish - cooked - at retail - Surveillance - official controls - suspect sampling	VWA	single	25g	10	0			
Spices and herbs - at retail - Monitoring	VWA	single	25g	1768	69	1	1	67
Vegetables - at cutting plant ¹⁾	VWA	single	25g	655	1		1	
Vegetables - at cutting plant - Surveillance - official controls - suspect sampling ²⁾	VWA	single	25g	298	1			1

Comments:

¹⁾ lettuce

²⁾ endive

2.1.4 Salmonella in animals

Table Salmonella in breeding flocks of Gallus gallus

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Hadar	S. Infantis	S. Typhimurium	S. Virchow	Salmonella spp., unspecified
Gallus gallus (fowl) - grandparent breeding flocks for egg production line - at farm - Control and eradication programmes		GD	flock	28	0						
Gallus gallus (fowl) - grandparent breeding flocks for egg production line - at farm - Control and eradication programmes (faeces)		PVE	flock	18	0						
Gallus gallus (fowl) - grandparent breeding flocks for meat production line		GD	flock	102	0						
Gallus gallus (fowl) - grandparent breeding flocks for meat production line - Control and eradication programmes (faeces)		PVE	flock	130	1						1
Gallus gallus (fowl) - parent breeding flocks for egg production line - day-old chicks - at farm - Control and eradication programmes (box paper)		PVE	flock	56	0						
Gallus gallus (fowl) - parent breeding flocks for egg production line - during production period - at farm - Control and eradication programmes		GD	flock	115	0						
Gallus gallus (fowl) - parent breeding flocks for egg production line - during production period - at farm - Control and eradication programmes (faeces)		PVE	flock	68	0						
Gallus gallus (fowl) - parent breeding flocks for egg production line - during rearing period - at farm - Control and eradication programmes		GD	flock	55	1					1	
Gallus gallus (fowl) - parent breeding flocks for egg production line - during rearing period - at farm - Control and eradication programmes (faeces)		PVE	flock	56	1						1

Table Salmonella in breeding flocks of Gallus gallus

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Hadar	S. Infantis	S. Typhimurium	S. Virchow	Salmonella spp., unspecified
Gallus gallus (fowl) - parent breeding flocks for meat production line - day-old chicks - Control and eradication programmes (box paper)		PVE	flock	412	0						
Gallus gallus (fowl) - parent breeding flocks for meat production line - during production period		GD	flock	306	3				3		
Gallus gallus (fowl) - parent breeding flocks for meat production line - during production period - Control and eradication programmes (faeces)		PVE	flock	675	4	3			1		
Gallus gallus (fowl) - parent breeding flocks for meat production line - during rearing period		GD	flock	309	2	1			1		
Gallus gallus (fowl) - parent breeding flocks for meat production line - during rearing period - Control and eradication programmes (faeces)		PVE	flock	412	3				3		

Table Salmonella in other poultry

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Heidelberg	S. Infantis	S. Typhimurium	S. Virchow	S. Gallinarum
Gallus gallus (fowl) - broilers - day-old chicks - at farm - Control and eradication programmes (box paper)		PVE	flock	27777	130	4			2		
Gallus gallus (fowl) - broilers - during rearing period - at farm - Control and eradication programmes (faeces)		PVE	flock	23823	713	1			5		
Gallus gallus (fowl) - broilers - during rearing period - at slaughterhouse - Survey - EU baseline survey (caeca)		VWA		486	17						
Gallus gallus (fowl) - laying hens - during production period - at farm - Control and eradication programmes		GD	flock	373	90	58		2	13	1	5
Gallus gallus (fowl) - laying hens - during production period - at farm - Control and eradication programmes (faeces)		PVE	flock	2346	62	61			1		
Gallus gallus (fowl) - laying hens - during rearing period - at farm - Control and eradication programmes		GD	flock	813	15	12	1	1	1		
Gallus gallus (fowl) - laying hens - during rearing period - at farm - Control and eradication programmes (blood)		PVE	flock	1116	0						

	Salmonella spp., unspecified
Gallus gallus (fowl) - broilers - day-old chicks - at farm - Control and eradication programmes (box paper)	124
Gallus gallus (fowl) - broilers - during rearing period - at farm - Control and eradication programmes (faeces)	707

Table Salmonella in other poultry

	Salmonella spp., unspecified
Gallus gallus (fowl) - broilers - during rearing period - at slaughterhouse - Survey - EU baseline survey (caeca)	
Gallus gallus (fowl) - laying hens - during production period - at farm - Control and eradication programmes	11
Gallus gallus (fowl) - laying hens - during production period - at farm - Control and eradication programmes (faeces)	
Gallus gallus (fowl) - laying hens - during rearing period - at farm - Control and eradication programmes	
Gallus gallus (fowl) - laying hens - during rearing period - at farm - Control and eradication programmes (blood)	

Table Salmonella in other birds

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Ducks - in total - Clinical investigations	GD	animal	12	0			
Geese - in total - Clinical investigations	GD	animal	5	0			
Guinea fowl - in total - Clinical investigations	GD	animal	20	1		1	
Owls - in total - Clinical investigations	GD	animal	1	0			
Parrots - in total - Clinical investigations	GD	animal	5	0			
Pigeons - in total - Clinical investigations	GD	animal	20	1		1	

Table Salmonella in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Anatum	S. Dublin	S. Enteritidis	S. Montevideo	S. Typhimurium	S. group B	S. enterica subsp. arizonae
Birds - in total - Clinical investigations (faeces)	VMDC	animal	110	9						9	
Cats - in total - Clinical investigations (faeces)	VMDC	animal	211	1							1
Cattle (bovine animals) - - faeces - Clinical investigations	GD	animal	3947	179		123			21		
Cattle (bovine animals) - calves (under 1 year) - at farm - Surveillance (faeces)	VWA	holding	171	11		7		2	1		
Cattle (bovine animals) - dairy cows - at farm - Surveillance (faeces)	VWA	holding	157	2	1				1		
Cattle (bovine animals) - in total - Clinical investigations	GD	animal	3469	85		79			6		
Deer - - faeces - Clinical investigations	GD	animal	5	0							
Dogs - in total - Clinical investigations (faeces)	VMDC	animal	407	6						5	
Goats - - faeces - Clinical investigations	GD	animal	51	0							
Goats - in total - Clinical investigations	GD	animal	310	0							
Kangaroos - - faeces - Clinical investigations	GD	animal	1	0							
Lamas - - faeces - Clinical investigations	GD	animal	2	0							
Pigs - - faeces - Clinical investigations	GD	animal	909	95					78		
Pigs - in total - Clinical investigations	GD	animal	3695	53					49		
Reptiles - in total - Clinical investigations (faeces)	VMDC	animal	10	2							2
Sheep - - faeces - Clinical investigations	GD	animal	37	1							
Sheep - in total - Clinical investigations	GD	animal	685	1							
Solipeds, domestic - - faeces	GD	animal	53	1							

Table Salmonella in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Anatum	S. Dublin	S. Enteritidis	S. Montevideo	S. Typhimurium	S. group B	S. enterica subsp. arizonae
Solipeds, domestic - donkeys - - faeces - Clinical investigations	GD	animal	3	0							
Solipeds, domestic - horses - - faeces - Clinical investigations	GD	animal	176	11		1			6		
Solipeds, domestic - horses - in total - Clinical investigations (faeces)	VMDC	animal	198	1						1	
Zoo animals, all - at zoo - Clinical investigations	GD	animal	38	0							

	S. group C	Salmonella spp., unspecified	S. Typhimurium-FT 290
Birds - in total - Clinical investigations (faeces)			
Cats - in total - Clinical investigations (faeces)			
Cattle (bovine animals) - - faeces - Clinical investigations		35	
Cattle (bovine animals) - calves (under 1 year) - at farm - Surveillance (faeces)			1
Cattle (bovine animals) - dairy cows - at farm - Surveillance (faeces)			
Cattle (bovine animals) - in total - Clinical investigations			
Deer - - faeces - Clinical investigations			
Dogs - in total - Clinical investigations (faeces)	1		
Goats - - faeces - Clinical investigations			
Goats - in total - Clinical investigations			
Kangaroos - - faeces - Clinical investigations			

Table Salmonella in other animals

	S. group C	Salmonella spp., unspecified	S. Typhimurium-FT 290
Lamas - - faeces - Clinical investigations			
Pigs - - faeces - Clinical investigations		17	
Pigs - in total - Clinical investigations		4	
Reptiles - in total - Clinical investigations (faeces)			
Sheep - - faeces - Clinical investigations		1	
Sheep - in total - Clinical investigations		1	
Solipeds, domestic - - faeces		1	
Solipeds, domestic - donkeys - - faeces - Clinical investigations			
Solipeds, domestic - horses - - faeces - Clinical investigations		4	
Solipeds, domestic - horses - in total - Clinical investigations (faeces)			
Zoo animals, all - at zoo - Clinical investigations			

2.1.5 Salmonella in feedingstuffs

Table Salmonella in feed material of animal origin

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Carrau	S. Enteritidis	S. Typhimurium	S. group E	S. group C1	Salmonella spp., unspecified
Feed material of land animal origin - animal fat - Monitoring	PDV	batch	25g	3	0						
Feed material of land animal origin - dairy products - Monitoring	PDV	batch	25g	565	0						
Feed material of land animal origin - egg powder - Monitoring	PDV	batch	25g	9	0						
Feed material of land animal origin - greaves - Monitoring	PDV	batch	25g	24	7	1			2	3	1
Feed material of land animal origin - meat and bone meal - Monitoring	PDV	batch	25g	15	0						
Feed material of land animal origin - meat meal - Monitoring	PDV	batch	25g	53	1				1		
Feed material of marine animal origin - fish meal - Monitoring	PDV	batch	25g	291	0						
Feed material of marine animal origin - fish oil - Monitoring	PDV	batch	25g	3	0						

Table Salmonella in other feed matter

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Agona	S. Alachua	S. Carrau	S. Cerro	S. Cubana	S. Derby
Feed material of cereal grain origin - barley derived - Monitoring	PDV	batch	25g	175	0						
Feed material of cereal grain origin - maize - Monitoring	PDV	batch	25g	367	1						
Feed material of cereal grain origin - maize - derived - Monitoring	PDV	batch	25g	153	1						
Feed material of cereal grain origin - wheat derived - Monitoring	PDV	batch	25g	1516	2						
Feed material of oil seed or fruit origin - groundnut derived - Monitoring	PDV	batch	25g	1	0						
Feed material of oil seed or fruit origin - linseed derived - Monitoring	PDV	batch	25g	53	0						
Feed material of oil seed or fruit origin - palm kernel derived - Monitoring	PDV	batch	25g	134	0						
Feed material of oil seed or fruit origin - rape seed derived - Monitoring	PDV	batch	25g	4453	51	5			1	22	3
Feed material of oil seed or fruit origin - soya (bean) derived - Monitoring	PDV	batch	25g	5777	100	5	2	2		1	2
Feed material of oil seed or fruit origin - sunflower seed derived - Monitoring	PDV	batch	25g	618	4						
Other feed material - legume seeds and similar products - Monitoring	PDV	batch	25g	81	0						
Other feed material - other seeds and fruits - Monitoring	PDV	batch	25g	48	1						
Other feed material - tubers, roots and similar products - Monitoring	PDV	batch	25g	171	1						

Table Salmonella in other feed matter

	S. Enteritidis	S. Havana	S. Infantis	S. Lexington	S. Livingstone	S. Llandoff	S. Mbandaka	S. Meleagridis	S. Minnesota	S. Montevideo	S. Newport
Feed material of cereal grain origin - barley derived - Monitoring											
Feed material of cereal grain origin - maize - Monitoring					1						
Feed material of cereal grain origin - maize - derived - Monitoring											
Feed material of cereal grain origin - wheat derived - Monitoring					1						
Feed material of oil seed or fruit origin - groundnut derived - Monitoring											
Feed material of oil seed or fruit origin - linseed derived - Monitoring											
Feed material of oil seed or fruit origin - palm kernel derived - Monitoring											
Feed material of oil seed or fruit origin - rape seed derived - Monitoring							2				1
Feed material of oil seed or fruit origin - soya (bean) derived - Monitoring		2	4	7	5		6	1	3	2	
Feed material of oil seed or fruit origin - sunflower seed derived - Monitoring						2					
Other feed material - legume seeds and similar products - Monitoring											
Other feed material - other seeds and fruits - Monitoring											
Other feed material - tubers, roots and similar products - Monitoring										1	

Table Salmonella in other feed matter

	S. Oranienburg	S. Orion	S. Ouakam	S. Panama	S. Rissen	S. Schwarzengr und	S. Senftenberg	S. Soerenga	S. Tennessee	S. Typhimuriu m	S. group B
Feed material of cereal grain origin - barley derived - Monitoring											
Feed material of cereal grain origin - maize - Monitoring											
Feed material of cereal grain origin - maize - derived - Monitoring											
Feed material of cereal grain origin - wheat derived - Monitoring											
Feed material of oil seed or fruit origin - groundnut derived - Monitoring											
Feed material of oil seed or fruit origin - linseed derived - Monitoring											
Feed material of oil seed or fruit origin - palm kernel derived - Monitoring											
Feed material of oil seed or fruit origin - rape seed derived - Monitoring	1						5		1		1
Feed material of oil seed or fruit origin - soya (bean) derived - Monitoring		1	3	1	8	1	4	1	1		1
Feed material of oil seed or fruit origin - sunflower seed derived - Monitoring							2				
Other feed material - legume seeds and similar products - Monitoring											
Other feed material - other seeds and fruits - Monitoring							1				
Other feed material - tubers, roots and similar products - Monitoring											

Table Salmonella in other feed matter

	S. group E	S. group G	Salmonella spp., unspecified
Feed material of cereal grain origin - barley derived - Monitoring			
Feed material of cereal grain origin - maize - Monitoring			
Feed material of cereal grain origin - maize - derived - Monitoring			1
Feed material of cereal grain origin - wheat derived - Monitoring			1
Feed material of oil seed or fruit origin - groundnut derived - Monitoring			
Feed material of oil seed or fruit origin - linseed derived - Monitoring			
Feed material of oil seed or fruit origin - palm kernel derived - Monitoring			
Feed material of oil seed or fruit origin - rape seed derived - Monitoring	1	2	6
Feed material of oil seed or fruit origin - soya (bean) derived - Monitoring			37
Feed material of oil seed or fruit origin - sunflower seed derived - Monitoring			
Other feed material - legume seeds and similar products - Monitoring			
Other feed material - other seeds and fruits - Monitoring			
Other feed material - tubers, roots and similar products - Monitoring			

Table Salmonella in compound feedingstuffs

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Adelaide	S. Agona	S. Anatum	S. Enteritidis	S. Kentucky	S. Livingstone
Compound feedingstuffs for cattle - final product - Monitoring	PDV	batch	25g	2229	11		1				
Compound feedingstuffs for fish - Monitoring	PDV	batch	25g	1	0						
Compound feedingstuffs for horses - Monitoring	PDV	batch	25g	41	0						
Compound feedingstuffs for pigs - final product - Monitoring	PDV	batch	25g	2543	8			4			1
Compound feedingstuffs for poultry (non specified) - final product - Monitoring	PDV	batch	25g	119	0						
Compound feedingstuffs for poultry - laying hens - final product - Monitoring	PDV	batch	25g	3007	12	1			1	1	
Compound feedingstuffs for poultry -breeders - final product - Monitoring	PDV	batch	25g	1581	2						
Compound feedingstuffs for rabbits - Monitoring	PDV	batch	25g	8	0						
Compound feedingstuffs for sheep - Monitoring	PDV	batch	25g	29	0						
Compound feedingstuffs for poultry - broilers - final product - Monitoring	PDV	batch	25g	1840	1						1
Pet food - dog snacks (pig ears, chewing bones) - Monitoring	PVE	batch	25g	30	0						

	S. Mbandaka	S. Mons	S. Ohio	S. Senftenberg	S. Surrey	S. Tennessee	S. Typhimurium	S. group C	S. group G	Salmonella spp., unspecified
Compound feedingstuffs for cattle - final product - Monitoring		1	2	2	2	1			1	1
Compound feedingstuffs for fish - Monitoring										
Compound feedingstuffs for horses - Monitoring										

Table Salmonella in compound feedingstuffs

	S. Mbandaka	S. Mons	S. Ohio	S. Senftenberg	S. Surrey	S. Tennessee	S. Typhimurium	S. group C	S. group G	Salmonella spp., unspecified
Compound feedingstuffs for pigs - final product - Monitoring				2						1
Compound feedingstuffs for poultry (non specified) - final product - Monitoring										
Compound feedingstuffs for poultry - laying hens - final product - Monitoring	3			2		1	1	1		1
Compound feedingstuffs for poultry -breeders - final product - Monitoring	1			1						
Compound feedingstuffs for rabbits - Monitoring										
Compound feedingstuffs for sheep - Monitoring										
Compound feedingstuffs for poultry - broilers - final product - Monitoring										
Pet food - dog snacks (pig ears, chewing bones) - Monitoring										

2.1.6 Salmonella serovars and phagetype distribution

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

Table Salmonella serovars in animals

Serovars	Gallus gallus (fowl) - broilers		Gallus gallus (fowl) - laying hens		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry	
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
Sources of isolates												
Number of isolates in the laboratory		453		59		85		917		671		
Number of isolates serotyped	0	400	0	49	0	81	0	758	0	574	0	0
Number of isolates per serovar												
S. Anatum		3				1		29		3		
S. Bovismorbificans						3		22				
S. Brandenburg						1		56		1		
S. Derby				1		1		172		1		
S. Dublin						53		4				
S. Enteritidis		26		23				11		63		
S. Gallinarum biovar Gallinarum				6						8		

Table Salmonella serovars in animals

Serovars	Gallus gallus (fowl) - broilers		Gallus gallus (fowl) - laying hens		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry		
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	
	Number of isolates in the laboratory	453		59		85		917		671			
	Number of isolates serotyped	0	400	0	49	0	81	0	758	0	574	0	0
	Number of isolates per serovar												
S. Goldcoast								65					
S. Hadar		12						4		13			
S. Indiana		9						3		15			
S. Infantis		32						33		52			
S. Livingstone		2		5				58		9			
S. London								112					
S. Mbandaka		28		1				6		29			
S. Tennessee		3		4						7			
S. Typhimurium		10		7		20		125		26			
S. Virchow		6		1				1		8			
S. Paratyphi B var. Java		260		1		2		2		323			
S. I 1,4,5,12:i:2ef nat		7						25		14			

Table Salmonella serovars in animals

Serovars	Gallus gallus (fowl) - broilers		Gallus gallus (fowl) - laying hens		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry	
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
Sources of isolates												
Number of isolates in the laboratory		453		59		85		917		671		
Number of isolates serotyped	0	400	0	49	0	81	0	758	0	574	0	0
Number of isolates per serovar												
S. I 4,5,12:d:2ef nat		2						30		2		

Table Salmonella serovars in food

Serovars	Other food		Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Other poultry		Other products of animal origin	
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
	Sources of isolates		Number of isolates in the laboratory		Number of isolates serotyped		Number of isolates per serovar					
	83	0	33	0	12	0	208	0	0	0	0	0
S. Aberdeen	10											
S. Abony	1											
S. Agona							3					
S. Altona	3											
S. Anatum			2				1					
S. Augustenborg	9											
S. Braenderup							1					
S. Brandenburg					1							
S. Derby	1		1		1		1					
S. Dublin	1		12									
S. Enteritidis	3		1		1		3					
S. Hadar	1						5					

Table Salmonella serovars in food

Serovars	Other food		Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Other poultry		Other products of animal origin	
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
	Sources of isolates		Number of isolates in the laboratory		Number of isolates serotyped		Number of isolates per serovar					
	83	0	33	0	12	0	208	0	0	0	0	0
S. Heidelberg	1											
S. Hvitittingfoss	9											
S. Indiana							5					
S. Infantis	3						13					
S. Javiana	1											
S. Livingstone					2		1					
S. Mbandaka							5					
S. Montevideo			2									
S. Newport	2						2					
S. Ohio							5					
S. Panama	5											
S. Rissen	2						1					

Table Salmonella serovars in food

Serovars	Other food		Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Other poultry		Other products of animal origin	
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
	Sources of isolates		Number of isolates in the laboratory		Number of isolates serotyped		Number of isolates per serovar					
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
S. Saintpaul							1					
S. Schwarzengrund	1											
S. Senftenberg	2											
S. Stanley	2											
S. Thompson	3											
S. Typhimurium	4		13		6		3					
S. Virchow	2						2					
S. Weltevreden	6											
S. Paratyphi B var. Java	2		1				151					
S. enterica subsp. enterica	6		1		1		5					
S. enterica subsp. salamae	3											

Table Salmonella Enteritidis phagetypes in animals

Phagetype	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry		Gallus gallus (fowl) - broilers		Gallus gallus (fowl) - laying hens	
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
Sources of isolates												
Number of isolates in the laboratory				11		63				26		23
Number of isolates phagetyped	0	0	0	8	0	48	0	0	0	19	0	18
Number of isolates per type												
PT 1				1		1						1
PT 4						19				5		11
PT 6				1		2				2		
PT 8				5		16				8		2
PT 21						8				4		2
PT 6a				1								
PT 7						2						2

Table Salmonella Enteritidis phagetypes in food

Phagetype	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Other poultry		Other products of animal origin	
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
Sources of isolates										
Number of isolates in the laboratory										
Number of isolates phagetyped	1	0	1	0	3	0	0	0	3	0
Number of isolates per type										
Other									3	
6a	1				1					
8			1		2					

Table Salmonella Typhimurium phage types in animals

Phagetype	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry		Gallus gallus (fowl) - broilers		Gallus gallus (fowl) - laying hens	
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
Sources of isolates												
Number of isolates in the laboratory		20		125		26				10		7
Number of isolates phagetyped	0	13	0	73	0	23	0	0	0	9	0	6
Number of isolates per type												
FT 507		4		28		8				5		
DT 15a		1		3		3						2
FT 506		3		24		6				1		3
FT 350				2								
FT 2				1		1						
FT 508		1										
FT 510				2		3				3		
FT 301				1								
FT 296				2								
FT 60				1								
FT 655				4		1						1
FT 90						1						

Table Salmonella Typhimurium phagetypes in animals

Phagetype	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry		Gallus gallus (fowl) - broilers		Gallus gallus (fowl) - laying hens	
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
Sources of isolates												
Number of isolates in the laboratory		20		125		26				10		7
Number of isolates phagetyped	0	13	0	73	0	23	0	0	0	9	0	6
Number of isolates per type												
FT 351		1		2								
FT 658				3								
FT 290		3										

Table Salmonella Typhimurium phagetypes in food

Phagetype	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Other poultry		Other products of animal origin	
	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical	Monitoring	Clinical
Sources of isolates										
Number of isolates in the laboratory										
Number of isolates phagetyped	12	0	4	0	3	0	0	0	4	0
Number of isolates per type										
FT 507	1		1		2					
Not typeable	3		1						1	
FT 506	1								1	
FT 508	2									
FT 510			1		1				1	
FT 90									1	
FT 290	3									
FT 300	2									
FT 111			1							

2.1.7 Antimicrobial resistance in Salmonella isolates

Table Antimicrobial susceptibility testing of S. Brandenburg - qualitative data

S. Brandenburg		Pigs	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		18	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	18	0
	Kanamycin	18	0
	Streptomycin	18	3
Amphenicols	Chloramphenicol	18	0
	Florfenicol	18	0
Cephalosporins	Cefotaxim	18	0
	Ceftazidim	18	0
Fluoroquinolones	Ciprofloxacin	18	1
Penicillins	Ampicillin	18	0
Polymyxins	Colistin	18	0
Quinolones	Nalidixic acid	18	1
Sulfonamides	Sulfamethoxazol	18	5
Tetracyclines	Tetracyclin	18	3
Trimethoprim	Trimethoprim	18	4

Table Antimicrobial susceptibility testing of S. Brandenburg in Pigs - quantitative data [Dilution method]

S. Brandenburg Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Pigs																									
		yes																									
		18																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	18	0						2	13	3															
	Kanamycin	8	18	0									17	1													
	Neomycin		0	0																							
	Streptomycin	32	18	3									2	5	8		1		2								
Amphenicols	Chloramphenicol	16	18	0									1	16	1												
	Florfenicol	16	18	0									8	10													
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	18	0			9	8	1																		
	Ceftazidim	2	18	0						14	4																
Fluoroquinolones	Ciprofloxacin	0.06	18	1		2	15		1																		
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	18	0								10	8														
Polymyxins	Colistin	8	18	0										18													
Quinolones	Nalidixic acid	16	18	1									16	1				1									
Sulfonamides	Sulfamethoxazol	256	18	5										10	3							5					
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	18	3								1	7		7	1			2								
Trimethoprim	Trimethoprim	2	18	4							13	1						4									
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of *S. Corvallis* - qualitative data

S. Corvallis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		humans	
		yes	
		15	
		N	n
Aminoglycosides	Gentamicin	15	0
	Kanamycin	15	0
	Streptomycin	15	3
Amphenicols	Chloramphenicol	15	0
	Florfenicol	15	0
Cephalosporins	Cefotaxim	15	0
	Ceftazidim	15	0
Fluoroquinolones	Ciprofloxacin	15	5
Penicillins	Ampicillin	15	0
Polymyxins	Colistin	15	0
Quinolones	Nalidixic acid	15	2
Sulfonamides	Sulfamethoxazol	15	3
Tetracyclines	Tetracyclin	15	3
Trimethoprim	Trimethoprim	15	0

Table Antimicrobial susceptibility testing of *S. Corvallis* in humans - quantitative data [Dilution method]

S. Corvallis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		humans																								
		yes																								
		15																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	15	0						4	10	1														
	Kanamycin	8	15	0										14	1											
	Neomycin		0	0																						
	Streptomycin	32	15	3											11	1				3						
Amphenicols	Chloramphenicol	16	15	0										8	6	1										
	Florfenicol	16	15	0										13	2											
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	15	0				10	4	1																
	Ceftazidim	2	15	0						13	2															
Fluoroquinolones	Ciprofloxacin	0.06	15	5		4	6			1	3	1														
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	15	0								12	3													
Polymyxins	Colistin	8	15	0											15											
Quinolones	Nalidixic acid	16	15	2										8	3	2	2									
Sulfonamides	Sulfamethoxazol	256	15	3											12								3			
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	15	3								6	6						3							
Trimethoprim	Trimethoprim	2	15	0							15															
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Derby - qualitative data

S. Derby		Pigs - Surveillance	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		63	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	63	1
	Kanamycin	63	1
	Streptomycin	63	5
Amphenicols	Chloramphenicol	63	1
	Florfenicol	63	0
Cephalosporins	Cefotaxim	63	0
	Ceftazidim	63	0
Fluoroquinolones	Ciprofloxacin	63	1
Penicillins	Ampicillin	63	6
Polymyxins	Colistin	63	0
Quinolones	Nalidixic acid	63	1
Sulfonamides	Sulfamethoxazol	63	19
Tetracyclines	Tetracyclin	63	9
Trimethoprim	Trimethoprim	63	17

Table Antimicrobial susceptibility testing of S. Derby in Pigs - Surveillance - quantitative data [Dilution method]

S. Derby		Pigs - Surveillance																										
		Isolates out of a monitoring program (yes/no)																										
		Number of isolates available in the laboratory																										
		Antimicrobials:																										
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest		
Aminoglycosides	Gentamicin	2	63	1						7	32	20	3	1														
	Kanamycin	8	63	1										56	6	1												
	Neomycin		0	0																								
	Streptomycin	32	63	5												18	32	8	2		3							
Amphenicols	Chloramphenicol	16	63	1										1	35	26		1										
	Florfenicol	16	63	0										7	53	3												
Cephalosporins	3rd generation cephalosporins		0	0																								
	Cefotaxim	0.5	63	0				3	52	8																		
	Ceftazidim	2	63	0						2	56	5																
Fluoroquinolones	Ciprofloxacin	0.06	63	1		10	48	4	1																			
	Enrofloxacin		0	0																								
Penicillins	Ampicillin	4	63	6							2	21	33	1				6										
Polymyxins	Colistin	8	63	0											63													
Quinolones	Nalidixic acid	16	63	1										53	9				1									
Sulfonamides	Sulfamethoxazol	256	63	19											36	8							19					
	Sulfonamide		0	0																								
Tetracyclines	Tetracyclin	8	63	9								2	50	2					9									
Trimethoprim	Trimethoprim	2	63	17							43	3						17										
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																								

Table Antimicrobial susceptibility testing of S. Dublin - qualitative data

S. Dublin		Cattle (bovine animals) - calves (under 1 year) - veal calves - Surveillance		Pigs - Surveillance		Cattle (bovine animals) - dairy cows - Surveillance	
		Isolates out of a monitoring program (yes/no)				yes	
		Number of isolates available in the laboratory				35	
Antimicrobials:		N	n	N	n	N	n
Aminoglycosides	Gentamicin	8	0			35	0
	Kanamycin	8	0			35	0
	Streptomycin	8	2			35	1
Amphenicols	Chloramphenicol	8	1			35	1
	Florfenicol	8	1			35	1
Cephalosporins	Cefotaxim	8	0			35	0
	Ceftazidim	8	0			35	0
Fluoroquinolones	Ciprofloxacin	8	1			35	1
Fully sensitive	Fully sensitive	8	7			35	33
Penicillins	Ampicillin	8	1			35	2
Polymyxins	Colistin	8	0			35	0
Quinolones	Nalidixic acid	8	1			35	0
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	8	0			35	0
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	8	0			35	0
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	8	0			35	1
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	8	0			35	1
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	8	1			35	0
Sulfonamides	Sulfamethoxazol	8	1			35	2
Tetracyclines	Tetracyclin	8	1			35	1

Table Antimicrobial susceptibility testing of S. Dublin - qualitative data

S. Dublin		Cattle (bovine animals) - calves (under 1 year) - veal calves - Surveillance		Pigs - Surveillance		Cattle (bovine animals) - dairy cows - Surveillance	
Isolates out of a monitoring program (yes/no)		yes				yes	
Number of isolates available in the laboratory		8				35	
Antimicrobials:		N	n	N	n	N	n
Trimethoprim	Trimethoprim	8	0			35	1

Table Antimicrobial susceptibility testing of S. Dublin in Cattle (bovine animals) - dairy cows - Surveillance - quantitative data [Dilution method]

S. Dublin Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Cattle (bovine animals) - dairy cows - Surveillance																									
		yes																									
		35																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	35	0						8	23	4															
	Kanamycin	8	35	0									34	1													
	Neomycin		0	0																							
	Streptomycin	32	35	1										8	22	4		1									
Amphenicols	Chloramphenicol	16	35	1									8	26				1									
	Florfenicol	16	35	1									20	14				1									
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	35	0				28	5	2																	
	Ceftazidim	2	35	0						31	4																
Fluoroquinolones	Ciprofloxacin	0.06	35	1		18	16		1																		
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	35	2							12	16	5					2									
Polymyxins	Colistin	8	35	0										35													
Quinolones	Nalidixic acid	16	35	0										32	2	1											
Sulfonamides	Sulfamethoxazol	256	35	2											31	2							2				
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	35	1								3	15	16				1									
Trimethoprim	Trimethoprim	2	35	1							32	2						1									
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of S. Dublin in calves (under 1 year) - Cattle (bovine animals) - veal calves - Surveillance - quantitative data
[Dilution method]

S. Dublin Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Cattle (bovine animals) - calves (under 1 year) - veal calves - Surveillance																									
		yes																									
		8																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	8	0						2	5	1															
	Kanamycin	8	8	0										8													
	Neomycin		0	0																							
	Streptomycin	32	8	2												1	5		1	1							
Amphenicols	Chloramphenicol	16	8	1										4	3				1								
	Florfenicol	16	8	1										5	2			1									
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	8	0				6	2																		
	Ceftazidim	2	8	0						7	1																
Fluoroquinolones	Ciprofloxacin	0.06	8	1		6	1			1																	
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	8	1							1	6						1									
Polymyxins	Colistin	8	8	0											8												
Quinolones	Nalidixic acid	16	8	1										6	1				1								
Sulfonamides	Sulfamethoxazol	256	8	1											7								1				
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	8	1								1	4	2			1										
Trimethoprim	Trimethoprim	2	8	0							8																
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of *S. Enteritidis* in *Gallus gallus* (fowl) - broilers - Surveillance - quantitative data [Dilution method]

S. Enteritidis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Gallus gallus (fowl) - broilers - Surveillance																									
		yes																									
		24																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	24	0						7	16	1															
	Kanamycin	8	24	0										23	1												
	Neomycin		0	0																							
	Streptomycin	32	24	0									4	20													
Amphenicols	Chloramphenicol	16	24	0										2	20	2											
	Florfenicol	16	24	0									1	15	7	1											
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	24	1				6	16	1					1												
	Ceftazidim	2	24	0						21	2		1														
Fluoroquinolones	Ciprofloxacin	0.06	24	6		4	10	4	1	3	2																
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	24	1							1	12	8	2				1									
Polymyxins	Colistin	8	24	0											24												
Quinolones	Nalidixic acid	16	24	6										16	2			6									
Sulfonamides	Sulfamethoxazol	256	24	0											13	8	3										
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	24	0								2	20	2													
Trimethoprim	Trimethoprim	2	24	0							23	1															
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of *S. Enteritidis* in *Gallus gallus* (fowl) - laying hens - Surveillance - quantitative data [Dilution method]

S. Enteritidis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Gallus gallus (fowl) - laying hens - Surveillance																								
		yes																								
		7																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	7	0						2	5															
	Kanamycin	8	7	0										7												
	Neomycin		0	0																						
	Streptomycin	32	7	0									2	4	1											
Amphenicols	Chloramphenicol	16	7	0											7											
	Florfenicol	16	7	0										5	2											
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	7	0				2	5																	
	Ceftazidim	2	7	0						6	1															
Fluoroquinolones	Ciprofloxacin	0.06	7	0		1	6																			
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	7	0								1	6													
Polymyxins	Colistin	8	7	0											7											
Quinolones	Nalidixic acid	16	7	0										5	2											
Sulfonamides	Sulfamethoxazol	256	7	0											6	1										
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	7	0									7													
Trimethoprim	Trimethoprim	2	7	0							7															
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S.Enteritidis in animals

S. Enteritidis		Cattle (bovine animals) - dairy cows		Cattle (bovine animals) - calves (under 1 year) - veal calves		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
		Isolates out of a monitoring program (yes/no)												yes		yes	
		Number of isolates available in the laboratory												7		24	
		N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin													7	0	24	0
	Kanamycin													7	0	24	0
	Streptomycin													7	0	24	0
Amphenicols	Chloramphenicol													7	0	24	0
	Florfenicol													7	0	24	0
Cephalosporins	Cefotaxim													7	0	24	1
	Ceftazidim													7	0	24	0
Fluoroquinolones	Ciprofloxacin													7	0	24	6
Fully sensitive	Fully sensitive													7	7	24	18
Penicillins	Ampicillin													7	0	24	1
Polymyxins	Colistin													7	0	24	0
Quinolones	Nalidixic acid													7	0	24	6
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial													7	0	24	5
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials													7	0	24	0
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials													7	0	24	1
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials													7	0	24	0
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials													7	0	24	0
Sulfonamides	Sulfamethoxazol													7	0	24	0
Tetracyclines	Tetracyclin													7	0	24	0

Table Antimicrobial susceptibility testing of S.Enteritidis in animals

S. Enteritidis		Cattle (bovine animals) - dairy cows		Cattle (bovine animals) - calves (under 1 year) - veal calves		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)														yes		yes	
Number of isolates available in the laboratory														7		24	
Antimicrobials:		N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n
Trimethoprim	Trimethoprim													7	0	24	0

Table Antimicrobial susceptibility testing of Salmonella in humans, Salmonella Enteritidis

S. Enteritidis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		humans	
		yes	
		492	
		N	n
Aminoglycosides	Gentamicin	492	0
	Kanamycin	492	4
	Streptomycin	492	6
Amphenicols	Chloramphenicol	492	2
	Florfenicol	492	1
Cephalosporins	Cefotaxim	492	0
	Ceftazidim	492	0
Fluoroquinolones	Ciprofloxacin	492	69
Fully sensitive	Fully sensitive	492	418
Penicillins	Ampicillin	492	13
Polymyxins	Colistin	492	0
Quinolones	Nalidixic acid	492	69
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	492	64
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	492	5
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	492	1
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	492	1
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	492	3
Sulfonamides	Sulfamethoxazol	492	6
Tetracyclines	Tetracyclin	492	4
Trimethoprim	Trimethoprim	492	2

Table Antimicrobial susceptibility testing of *S. Enteritidis* in humans - quantitative data [Dilution method]

S. Enteritidis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		humans																									
		yes																									
		492																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	492	0						157	291	40	4														
	Kanamycin	8	492	4										480	8	4											
	Neomycin		0	0																							
	Streptomycin	32	492	6									153	309	20	4		1		5							
Amphenicols	Chloramphenicol	16	492	2								1	23	456	10			2									
	Florfenicol	16	492	1								2	297	189	3	1											
Cephalosporins	Cefotaxim	0.5	492	0				244	227	19	2																
	Ceftazidim	2	492	0						421	69	2															
Fluoroquinolones	Ciprofloxacin	0.06	492	69		32	383	8	6	43	19	1															
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	492	13							3	141	325	10	1			12									
Polymyxins	Colistin	8	492	0											492												
Quinolones	Nalidixic acid	16	492	69										362	59	2	1	1	67								
Sulfonamides	Sulfamethoxazol	256	492	6											210	241	34		1				6				
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	492	4								15	411	59	3		1		3								
Trimethoprim	Trimethoprim	2	492	2							481	8	1					2									
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of S. Goldcoast - qualitative data

S. Goldcoast		Pigs	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		23	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	23	1
	Kanamycin	23	0
	Streptomycin	23	5
Amphenicols	Chloramphenicol	23	0
	Florfenicol	23	0
Cephalosporins	Cefotaxim	23	0
	Ceftazidim	23	0
Fluoroquinolones	Ciprofloxacin	23	0
Penicillins	Ampicillin	23	5
Polymyxins	Colistin	23	0
Quinolones	Nalidixic acid	23	0
Sulfonamides	Sulfamethoxazol	23	6
Tetracyclines	Tetracyclin	23	1
Trimethoprim	Trimethoprim	23	6

Table Antimicrobial susceptibility testing of S. Goldcoast in Pigs - quantitative data [Dilution method]

S. Goldcoast Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Pigs																								
		yes																								
		23																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	23	1						3	13	6		1												
	Kanamycin	8	23	0										20	3											
	Neomycin		0	0																						
	Streptomycin	32	23	5											10	7	1			5						
Amphenicols	Chloramphenicol	16	23	0										2	19	2										
	Florfenicol	16	23	0										13	9	1										
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	23	0				3	19	1																
	Ceftazidim	2	23	0						1	21	1														
Fluoroquinolones	Ciprofloxacin	0.06	23	0		22	1																			
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	23	5								11	7					5								
Polymyxins	Colistin	8	23	0											23											
Quinolones	Nalidixic acid	16	23	0										20	3											
Sulfonamides	Sulfamethoxazol	256	23	6											16	1							6			
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	23	1								1	21						1							
Trimethoprim	Trimethoprim	2	23	6							17							6								
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Hadar in Gallus gallus (fowl) - broilers - quantitative data [Dilution method]

S. Hadar		Gallus gallus (fowl) - broilers																								
		Isolates out of a monitoring program (yes/no)																								
		Number of isolates available in the laboratory																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	13	0							7	5	1													
	Kanamycin	8	13	0										12	1											
	Neomycin		0	0																						
	Streptomycin	32	13	9											1	2	1	8	1							
Amphenicols	Chloramphenicol	16	13	1										2	9	1	1									
	Florfenicol	16	13	0										9	2	2										
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	13	0				4	6	3																
	Ceftazidim	2	13	0						9	4															
Fluoroquinolones	Ciprofloxacin	0.06	13	13						10	3															
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	13	2								8	2	1				2								
Polymyxins	Colistin	8	13	0											13											
Quinolones	Nalidixic acid	16	13	13															13							
Sulfonamides	Sulfamethoxazol	256	13	2											8	3							2			
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	13	11								1		1				11								
Trimethoprim	Trimethoprim	2	13	2							10	1						2								
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Hadar - qualitative data

S. Hadar Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		Gallus gallus (fowl) - broilers	
		yes	
		13	
		N	n
Antimicrobials:			
Aminoglycosides	Gentamicin	13	0
	Kanamycin	13	0
	Streptomycin	13	9
Amphenicols	Chloramphenicol	13	1
	Florfenicol	13	0
Cephalosporins	Cefotaxim	13	0
	Ceftazidim	13	0
Fluoroquinolones	Ciprofloxacin	13	13
Penicillins	Ampicillin	13	2
Polymyxins	Colistin	13	0
Quinolones	Nalidixic acid	13	13
Sulfonamides	Sulfamethoxazol	13	2
Tetracyclines	Tetracyclin	13	11
Trimethoprim	Trimethoprim	13	2

Table Antimicrobial susceptibility testing of *S. Indiana* - qualitative data

S. Indiana Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		Gallus gallus (fowl) - broilers	
		yes	
		13	
		N	n
Antimicrobials:			
Aminoglycosides	Gentamicin	13	0
	Kanamycin	13	0
	Streptomycin	13	0
Amphenicols	Chloramphenicol	13	1
	Florfenicol	13	1
Cephalosporins	Cefotaxim	13	0
	Ceftazidim	13	0
Fluoroquinolones	Ciprofloxacin	13	0
Penicillins	Ampicillin	13	3
Polymyxins	Colistin	13	0
Quinolones	Nalidixic acid	13	0
Sulfonamides	Sulfamethoxazol	13	2
Tetracyclines	Tetracyclin	13	1
Trimethoprim	Trimethoprim	13	2

Table Antimicrobial susceptibility testing of *S. Indiana* in *Gallus gallus* (fowl) - broilers - quantitative data [Dilution method]

S. Indiana Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Gallus gallus (fowl) - broilers																									
		yes																									
		13																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	13	0						1	10	2															
	Kanamycin	8	13	0									11	2													
	Neomycin		0	0																							
	Streptomycin	32	13	0									1	4	6	2											
Amphenicols	Chloramphenicol	16	13	1								1		11				1									
	Florfenicol	16	13	1									8	4		1											
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	13	0				11	2																		
	Ceftazidim	2	13	0						12	1																
Fluoroquinolones	Ciprofloxacin	0.06	13	0		1	11	1																			
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	13	3							2	7	1					3									
Polymyxins	Colistin	8	13	0										13													
Quinolones	Nalidixic acid	16	13	0									11	2													
Sulfonamides	Sulfamethoxazol	256	13	2										9	2							2					
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	13	1								1	11					1									
Trimethoprim	Trimethoprim	2	13	2							11						2										
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of *S. Infantis* - qualitative data

S. Infantis		Pigs		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)		yes		yes	
Number of isolates available in the laboratory		13		28	
Antimicrobials:		N	n	N	n
Aminoglycosides	Gentamicin	13	0	28	3
	Kanamycin	13	0	28	2
	Streptomycin	13	4	28	2
Amphenicols	Chloramphenicol	13	0	28	1
	Florfenicol	13	0	28	0
Cephalosporins	Cefotaxim	13	0	28	2
	Ceftazidim	13	0	28	2
Fluoroquinolones	Ciprofloxacin	13	0	28	0
Penicillins	Ampicillin	13	1	28	3
Polymyxins	Colistin	13	0	28	0
Quinolones	Nalidixic acid	13	0	28	0
Sulfonamides	Sulfamethoxazol	13	2	28	3
Tetracyclines	Tetracyclin	13	1	28	0
Trimethoprim	Trimethoprim	13	3	28	1

Table Antimicrobial susceptibility testing of *S. Infantis* in *Gallus gallus* (fowl) - broilers - quantitative data [Dilution method]

S. Infantis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Gallus gallus (fowl) - broilers																								
		yes																								
		28																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	28	3						5	15	5		1		2										
	Kanamycin	8	28	2										23	3		1	1								
	Neomycin		0	0																						
	Streptomycin	32	28	2											12	8	6	2								
Amphenicols	Chloramphenicol	16	28	1											19	8			1							
	Florfenicol	16	28	0										3	23	2										
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	28	2					24	1	1				2											
	Ceftazidim	2	28	2							23	3					2									
Fluoroquinolones	Ciprofloxacin	0.06	28	0			24	4																		
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	28	3								10	14	1				3								
Polymyxins	Colistin	8	28	0											28											
Quinolones	Nalidixic acid	16	28	0										26	2											
Sulfonamides	Sulfamethoxazol	256	28	3											21	4							3			
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	28	0								5	18	5												
Trimethoprim	Trimethoprim	2	28	1							25	2						1								
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of *S. Infantis* in Pigs - quantitative data [Dilution method]

S. Infantis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Pigs																								
		yes																								
		13																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	13	0						1	9	2	1													
	Kanamycin	8	13	0										12	1											
	Neomycin		0	0																						
	Streptomycin	32	13	4											4	4	1	3		1						
Amphenicols	Chloramphenicol	16	13	0											10	3										
	Florfenicol	16	13	0										1	12											
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	13	0					12	1																
	Ceftazidim	2	13	0						1	11	1														
Fluoroquinolones	Ciprofloxacin	0.06	13	0		1	12																			
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	13	1								4	8					1								
Polymyxins	Colistin	8	13	0											13											
Quinolones	Nalidixic acid	16	13	0										12	1											
Sulfonamides	Sulfamethoxazol	256	13	2											11								2			
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	13	1									9	3					1							
Trimethoprim	Trimethoprim	2	13	3							10							3								
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of *S. Infantis* in Meat from poultry, unspecified - quantitative data [Dilution method]

S. Infantis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from poultry, unspecified																									
		yes																									
		6																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	4	6	0						5	1													0.25	32		
	Kanamycin	32	6	0									6											4	128		
	Neomycin		0	0																							
	Streptomycin	64	10	0										4	6									2	128		
Amphenicols	Chloramphenicol	32	6	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	2	64		
	Florfenicol	32	6	0									3	3										2	64		
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	2	6	1				4	1					1										0.06	4		
	Ceftazidim	8	6	1						5						1								0.25	16		
Fluoroquinolones	Ciprofloxacin	0.12	6	0			5	1																0.008	8		
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	8	6	1							2	3					1							0.5	32		
Polymyxins	Colistin	16	6	0										6										8	16		
Quinolones	Nalidixic acid	32	6	0									4	2										4	64		
Sulfonamides	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	16	6	0								6												1	64		
Trimethoprim	Trimethoprim	4	6	0						5	1													0.5	32		
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of *S. Kentucky* in humans - quantitative data [Dilution method]

S. Kentucky Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		humans																									
		yes																									
		20																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	20	10						2	5	3				3	6	1									
	Kanamycin	8	20	2										16	2	1				1							
	Neomycin		0	0																							
	Streptomycin	32	20	8										2	4	3	3	3	1	4							
Amphenicols	Chloramphenicol	16	20	2											18				2								
	Florfenicol	16	20	1										14	5				1								
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	20	0				1	8	10	1																
	Ceftazidim	2	20	0						2	8	9	1														
Fluoroquinolones	Ciprofloxacin	0.06	20	13		2	5					1			4	8											
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	20	10								8	2		1			9									
Polymyxins	Colistin	8	20	0											20												
Quinolones	Nalidixic acid	16	20	13										7					13								
Sulfonamides	Sulfamethoxazol	256	20	11											7	1	1						11				
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	20	11								1	8						11								
Trimethoprim	Trimethoprim	2	20	2							18							2									
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of *S. Kentucky* - qualitative data

S. Kentucky		humans	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		20	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	20	10
	Kanamycin	20	2
	Streptomycin	20	8
Amphenicols	Chloramphenicol	20	2
	Florfenicol	20	1
Cephalosporins	Cefotaxim	20	0
	Ceftazidim	20	0
Fluoroquinolones	Ciprofloxacin	20	13
Penicillins	Ampicillin	20	10
Polymyxins	Colistin	20	0
Quinolones	Nalidixic acid	20	13
Sulfonamides	Sulfamethoxazol	20	11
Tetracyclines	Tetracyclin	20	11
Trimethoprim	Trimethoprim	20	2

Table Antimicrobial susceptibility testing of S. Livingstone in Pigs - quantitative data [Dilution method]

S. Livingstone Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Pigs																									
		yes																									
		22																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	22	0						3	10	8	1														
	Kanamycin	8	22	0										21	1												
	Neomycin		0	0																							
	Streptomycin	32	22	3											5	11	3			3							
Amphenicols	Chloramphenicol	16	22	0											18	4											
	Florfenicol	16	22	0										6	15	1											
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	22	0				7	13	2																	
	Ceftazidim	2	22	0						2	18	2															
Fluoroquinolones	Ciprofloxacin	0.06	22	0		3	18	1																			
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	22	0							1	14	6	1													
Polymyxins	Colistin	8	22	0											22												
Quinolones	Nalidixic acid	16	22	0										20	2												
Sulfonamides	Sulfamethoxazol	256	22	6											14	2						6					
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	22	0								1	17	4													
Trimethoprim	Trimethoprim	2	22	6							16							6									
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of *S. Livingstone* - qualitative data

S. Livingstone		Pigs	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		22	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	22	0
	Kanamycin	22	0
	Streptomycin	22	3
Amphenicols	Chloramphenicol	22	0
	Florfenicol	22	0
Cephalosporins	Cefotaxim	22	0
	Ceftazidim	22	0
Fluoroquinolones	Ciprofloxacin	22	0
Penicillins	Ampicillin	22	0
Polymyxins	Colistin	22	0
Quinolones	Nalidixic acid	22	0
Sulfonamides	Sulfamethoxazol	22	6
Tetracyclines	Tetracyclin	22	0
Trimethoprim	Trimethoprim	22	6

Table Antimicrobial susceptibility testing of S. London - qualitative data

S. London		Pigs	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		35	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	35	0
	Kanamycin	35	1
	Streptomycin	35	3
Amphenicols	Chloramphenicol	35	1
	Florfenicol	35	0
Cephalosporins	Cefotaxim	35	0
	Ceftazidim	35	0
Fluoroquinolones	Ciprofloxacin	35	0
Penicillins	Ampicillin	35	3
Polymyxins	Colistin	35	0
Quinolones	Nalidixic acid	35	0
Sulfonamides	Sulfamethoxazol	35	12
Tetracyclines	Tetracyclin	35	2
Trimethoprim	Trimethoprim	35	12

Table Antimicrobial susceptibility testing of S. London in Pigs - quantitative data [Dilution method]

S. London Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Pigs																								
		yes																								
		35																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	35	0						9	21	5														
	Kanamycin	8	35	1										33	1					1						
	Neomycin		0	0																						
	Streptomycin	32	35	3										5	21	5	1		1	2						
Amphenicols	Chloramphenicol	16	35	1										10	24				1							
	Florfenicol	16	35	0									2	32	1											
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	35	0				29	5	1																
	Ceftazidim	2	35	0						34	1															
Fluoroquinolones	Ciprofloxacin	0.06	35	0		12	23																			
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	35	3							1	24	7					3								
Polymyxins	Colistin	8	35	0											35											
Quinolones	Nalidixic acid	16	35	0										35												
Sulfonamides	Sulfamethoxazol	256	35	12											15	8							12			
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	35	2								13	19	1					2							
Trimethoprim	Trimethoprim	2	35	12							23							12								
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of *S. Mbandaka* in *Gallus gallus* (fowl) - broilers - quantitative data [Dilution method]

S. Mbandaka Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Gallus gallus (fowl) - broilers																								
		yes																								
		17																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	17	0							9	8														
	Kanamycin	8	17	1										13	3	1										
	Neomycin		0	0																						
	Streptomycin	32	17	0											11	6										
Amphenicols	Chloramphenicol	16	17	1											3	13	1									
	Florfenicol	16	17	0											16	1										
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	17	0				2	14	1																
	Ceftazidim	2	17	0							15	2														
Fluoroquinolones	Ciprofloxacin	0.06	17	0		10	6	1																		
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	17	1								14	1	1				1								
Polymyxins	Colistin	8	17	0											17											
Quinolones	Nalidixic acid	16	17	0										14	3											
Sulfonamides	Sulfamethoxazol	256	17	1											11	5							1			
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	17	1									6	9	1				1							
Trimethoprim	Trimethoprim	2	17	1							16							1								
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Mbandaka - qualitative data

S. Mbandaka Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		Gallus gallus (fowl) - broilers	
		yes	
		17	
		N	n
Antimicrobials:			
Aminoglycosides	Gentamicin	17	0
	Kanamycin	17	1
	Streptomycin	17	0
Amphenicols	Chloramphenicol	17	1
	Florfenicol	17	0
Cephalosporins	Cefotaxim	17	0
	Ceftazidim	17	0
Fluoroquinolones	Ciprofloxacin	17	0
Penicillins	Ampicillin	17	1
Polymyxins	Colistin	17	0
Quinolones	Nalidixic acid	17	0
Sulfonamides	Sulfamethoxazol	17	1
Tetracyclines	Tetracyclin	17	1
Trimethoprim	Trimethoprim	17	1

Table Antimicrobial susceptibility testing of *S. Panama* in humans - in total - Clinical investigations - quantitative data [Dilution method]

S. Panama Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		humans - in total - Clinical investigations																									
		yes																									
		35																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	35	0						1	27	6	1														
	Kanamycin	8	35	1										33	1	1											
	Neomycin		0	0																							
	Streptomycin	32	35	0										1	8	24	2										
Amphenicols	Chloramphenicol	16	35	0										2	32	1											
	Florfenicol	16	35	0										28	7												
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	35	0				26	9																		
	Ceftazidim	2	35	0						33	2																
Fluoroquinolones	Ciprofloxacin	0.06	35	0		2	32	1																			
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	35	0								25	10														
Polymyxins	Colistin	8	35	0											35												
Quinolones	Nalidixic acid	16	35	0										33	2												
Sulfonamides	Sulfamethoxazol	256	35	0											24	8	3										
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	35	0								14	20	1													
Trimethoprim	Trimethoprim	2	35	0							34	1															
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of *S. Panama* - qualitative data

S. Panama Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		humans - in total	
		yes	
		35	
		N	n
Antimicrobials:			
Aminoglycosides	Gentamicin	35	0
	Kanamycin	35	1
	Streptomycin	35	0
Amphenicols	Chloramphenicol	35	0
	Florfenicol	35	0
Cephalosporins	Cefotaxim	35	0
	Ceftazidim	35	0
Fluoroquinolones	Ciprofloxacin	35	0
Penicillins	Ampicillin	35	0
Polymyxins	Colistin	35	0
Quinolones	Nalidixic acid	35	0
Sulfonamides	Sulfamethoxazol	35	0
Tetracyclines	Tetracyclin	35	0
Trimethoprim	Trimethoprim	35	0

Table Antimicrobial susceptibility testing of S. Saintpaul in humans - in total - Clinical investigations - quantitative data [Dilution method]

S. Saintpaul		humans - in total - Clinical investigations																								
		yes																								
		17																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Antimicrobials:	Gentamicin	2	17	1						1	11	4				1										
	Kanamycin	8	17	1										15	1			1								
	Neomycin		0	0																						
	Streptomycin	32	17	1										1	7	5	3		1							
Amphenicols	Chloramphenicol	16	17	1										1	12	3	1									
	Florfenicol	16	17	1										10	4	2	1									
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	17	0				12	1	3	1															
	Ceftazidim	2	17	0						9	6	1	1													
Fluoroquinolones	Ciprofloxacin	0.06	17	2		2	11	2			1	1														
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	17	4							1	6	3	3				4								
Polymyxins	Colistin	8	17	0											17											
Quinolones	Nalidixic acid	16	17	1										13	2	1			1							
Sulfonamides	Sulfamethoxazol	256	17	4											11	2							4			
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	17	5								1	9	2					5							
Trimethoprim	Trimethoprim	2	17	0							17															
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Saintpaul - qualitative data

S. Saintpaul		humans	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		17	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	17	1
	Kanamycin	17	1
	Streptomycin	17	1
Amphenicols	Chloramphenicol	17	1
	Florfenicol	17	1
Cephalosporins	Cefotaxim	17	0
	Ceftazidim	17	0
Fluoroquinolones	Ciprofloxacin	17	2
Fully sensitive	Fully sensitive	17	11
Penicillins	Ampicillin	17	4
Polymyxins	Colistin	17	0
Quinolones	Nalidixic acid	17	1
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	17	0
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	17	3
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	17	2
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	17	1
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	17	0
Sulfonamides	Sulfamethoxazol	17	4
Tetracyclines	Tetracyclin	17	5
Trimethoprim	Trimethoprim	17	0

Table Antimicrobial susceptibility testing of *S. Typhimurium* in calves (under 1 year) - Cattle (bovine animals) - veal calves - Surveillance - quantitative data [Dilution method]

S. Typhimurium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Cattle (bovine animals) - calves (under 1 year) - veal calves - Surveillance																									
		yes																									
		4																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	4	1							2	1						1									
	Kanamycin	8	4	1										3					1								
	Neomycin		0	0																							
	Streptomycin	32	4	3											1				1	2							
Amphenicols	Chloramphenicol	16	4	1											3				1								
	Florfenicol	16	4	0										2	1	1											
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	4	0				4																			
	Ceftazidim	2	4	0						2	2																
Fluoroquinolones	Ciprofloxacin	0.06	4	0				4																			
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	4	2								2						2									
Polymyxins	Colistin	8	4	0											4												
Quinolones	Nalidixic acid	16	4	0										3	1												
Sulfonamides	Sulfamethoxazol	256	4	3											1								3				
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	4	3									1					3									
Trimethoprim	Trimethoprim	2	4	1							3							1									
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of S.Typhimurium in animals

S. Typhimurium		Cattle (bovine animals) - calves (under 1 year) - veal calves		Cattle (bovine animals) - dairy cows		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
		Isolates out of a monitoring program (yes/no)															
		Number of isolates available in the laboratory															
		Antimicrobials:		N	n	N	n	N	n	N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin	4	1	10	0			68	0							19	0
	Kanamycin	4	1	10	0			68	2							19	0
	Streptomycin	4	3	10	5			68	27							19	15
Amphenicols	Chloramphenicol	4	1	10	4			68	17							19	6
	Florfenicol	4	0	10	4			68	16							19	6
Cephalosporins	Cefotaxim	4	0	10	0			68	0							19	1
	Ceftazidim	4	0	10	0			68	0							19	1
Fluoroquinolones	Ciprofloxacin	4	0	10	0			68	1							19	2
Fully sensitive	Fully sensitive	4	1	10	3			68	16							19	2
Number of multiresistant S. Typhimurium	resistant to other antimicrobials	0	0	3	0			15	2							6	0
	with penta resistance	0	0	3	3			15	13							6	6
Penicillins	Ampicillin	4	2	10	6			68	33							19	13
Polymyxins	Colistin	4	0	10	0			68	0							19	0
Quinolones	Nalidixic acid	4	0	10	0			68	1							19	0
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	4	0	10	1			68	11							19	1
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	4	1	10	0			68	9							19	2
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	4	1	10	2			68	13							19	7
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	4	0	10	3			68	11							19	7
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	4	1	10	1			68	8							19	0

Table Antimicrobial susceptibility testing of S.Typhimurium in animals

S. Typhimurium		Cattle (bovine animals) - calves (under 1 year) - veal calves		Cattle (bovine animals) - dairy cows		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)		yes		yes				yes								yes	
Number of isolates available in the laboratory		4		10				68								19	
Antimicrobials:		N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n
Sulfonamides	Sulfamethoxazol	4	3	10	6			68	38							19	15
Tetracyclines	Tetracyclin	4	3	10	7			68	43							19	14
Trimethoprim	Trimethoprim	4	1	10	1			68	21							19	5

Table Antimicrobial susceptibility testing of S. Typhimurium in Cattle (bovine animals) - dairy cows - Surveillance - quantitative data [Dilution method]

S. Typhimurium		Cattle (bovine animals) - dairy cows - Surveillance																								
		yes																								
		10																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	10	0						1	9															
	Kanamycin	8	10	0										9	1											
	Neomycin		0	0																						
	Streptomycin	32	10	5											4	1			4	1						
Amphenicols	Chloramphenicol	16	10	4										1	4	1			4							
	Florfenicol	16	10	4										1	5			3	1							
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	10	0				3	6	1																
	Ceftazidim	2	10	0						7	3															
Fluoroquinolones	Ciprofloxacin	0.06	10	0		2	8																			
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	10	6								1	3					6								
Polymyxins	Colistin	8	10	0											10											
Quinolones	Nalidixic acid	16	10	0										8	2											
Sulfonamides	Sulfamethoxazol	256	10	6											4								6			
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	10	7									3				2	2	3							
Trimethoprim	Trimethoprim	2	10	1							9							1								
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of *S. Typhimurium* in Pigs - Surveillance - quantitative data [Dilution method]

S. Typhimurium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Pigs - Surveillance																									
		yes																									
		68																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	68	0						11	47	9	1														
	Kanamycin	8	68	2										64	2	2											
	Neomycin		0	0																							
	Streptomycin	32	68	27										1	18	16	6	10	8	9							
Amphenicols	Chloramphenicol	16	68	17										2	49				17								
	Florfenicol	16	68	16										24	28		7	6	3								
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	68	0				36	28	4																	
	Ceftazidim	2	68	0						51	16	1															
Fluoroquinolones	Ciprofloxacin	0.06	68	1		8	58	1		1																	
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	68	33								22	13					33									
Polymyxins	Colistin	8	68	0											68												
Quinolones	Nalidixic acid	16	68	1										58	9				1								
Sulfonamides	Sulfamethoxazol	256	68	38											25	5							38				
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	68	43								3	21	1			17	6	20								
Trimethoprim	Trimethoprim	2	68	21							47							21									
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of S. Typhimurium in Gallus gallus (fowl) - broilers - Surveillance - quantitative data [Dilution method]

S. Typhimurium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Gallus gallus (fowl) - broilers - Surveillance																									
		yes																									
		19																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	19	0						3	10	6															
	Kanamycin	8	19	0									17	2													
	Neomycin		0	0																							
	Streptomycin	32	19	15										3	1		6	3	6								
Amphenicols	Chloramphenicol	16	19	6									1	10	2			6									
	Florfenicol	16	19	6									7	6		5	1										
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	19	1				9	6	2	1			1													
	Ceftazidim	2	19	1						13	5				1												
Fluoroquinolones	Ciprofloxacin	0.06	19	2		1	14	2	2																		
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	19	13								5		1			1	12									
Polymyxins	Colistin	8	19	0										19													
Quinolones	Nalidixic acid	16	19	0										15	4												
Sulfonamides	Sulfamethoxazol	256	19	15										2	2							15					
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	19	14									4	1			6	1	7								
Trimethoprim	Trimethoprim	2	19	5							14							5									
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of *S. Typhimurium* in humans - quantitative data [Dilution method]

S. Typhimurium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		humans																								
		yes																								
		468																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	468	1						26	326	105	10			1										
	Kanamycin	8	468	9										434	25	6				3						
	Neomycin		0	0																						
	Streptomycin	32	468	306										1	74	62	25	57	142	107						
Amphenicols	Chloramphenicol	16	468	224										5	223	16	2	2	220							
	Florfenicol	16	468	198										140	123	7	31	148	19							
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	468	2				177	250	32	7	1	1													
	Ceftazidim	2	468	0						253	202	13														
Fluoroquinolones	Ciprofloxacin	0.06	468	147		24	288	9		139	5	2	1													
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	468	299							1	111	52	5				299								
Polymyxins	Colistin	8	468	1											467	1										
Quinolones	Nalidixic acid	16	468	147										288	33				147							
Sulfonamides	Sulfamethoxazol	256	468	356											77	34	1					2	354			
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	468	331								3	116	15	3		112	77	142							
Trimethoprim	Trimethoprim	2	468	90							372	6						90								
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of Salmonella in humans, Salmonella Typhimurium

S. Typhimurium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		humans	
		yes	
		468	
		N	n
Antimicrobials:			
Aminoglycosides	Gentamicin	468	1
	Kanamycin	468	9
	Streptomycin	468	306
Amphenicols	Chloramphenicol	468	224
	Florfenicol	468	198
Cephalosporins	Cefotaxim	468	2
	Ceftazidim	468	0
Fluoroquinolones	Ciprofloxacin	468	147
Fully sensitive	Fully sensitive	468	67
Number of multiresistant S. Typhimurium	resistant to other antimicrobials	206	12
	with penta resistance	206	192
Penicillins	Ampicillin	468	299
Polymyxins	Colistin	468	1
Quinolones	Nalidixic acid	468	147
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	468	43
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	468	70
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	468	40
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	468	96
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	468	152
Sulfonamides	Sulfamethoxazol	468	356

Table Antimicrobial susceptibility testing of Salmonella in humans, Salmonella Typhimurium

S. Typhimurium		humans	
		yes	
		468	
		N	n
Isolates out of a monitoring program (yes/no)			
Number of isolates available in the laboratory			
Antimicrobials:			
Tetracyclines	Tetracyclin	468	331
Trimethoprim	Trimethoprim	468	90

Table Antimicrobial susceptibility testing of *S. Virchow* - qualitative data

S. Virchow		humans	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		23	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	23	2
	Kanamycin	23	1
	Streptomycin	23	2
Amphenicols	Chloramphenicol	23	1
	Florfenicol	23	0
Cephalosporins	Cefotaxim	23	0
	Ceftazidim	23	0
Fluoroquinolones	Ciprofloxacin	23	16
Penicillins	Ampicillin	23	2
Polymyxins	Colistin	23	0
Quinolones	Nalidixic acid	23	16
Sulfonamides	Sulfamethoxazol	23	7
Tetracyclines	Tetracyclin	23	6
Trimethoprim	Trimethoprim	23	7

Table Antimicrobial susceptibility testing of *S. Virchow* in humans - quantitative data [Dilution method]

S. Virchow Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		humans																								
		yes																								
		23																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	23	2						2	12	7					1	1								
	Kanamycin	8	23	1										20	2					1						
	Neomycin		0	0																						
	Streptomycin	32	23	2									1		2	17	1			2						
Amphenicols	Chloramphenicol	16	23	1										2	19	1			1							
	Florfenicol	16	23	0										13	10											
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	23	0				14	9																	
	Ceftazidim	2	23	0						22	1															
Fluoroquinolones	Ciprofloxacin	0.06	23	16		2	3	2		16																
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	23	2							2	13	6					2								
Polymyxins	Colistin	8	23	0											23											
Quinolones	Nalidixic acid	16	23	16										5	2				16							
Sulfonamides	Sulfamethoxazol	256	23	7											14	2							7			
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	23	6								6	10	1				2	4							
Trimethoprim	Trimethoprim	2	23	7							16							7								
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of *S. Paratyphi* B var. Java - qualitative data

S. Paratyphi B var. Java		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		190	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	190	4
	Kanamycin	190	17
	Streptomycin	190	73
Amphenicols	Chloramphenicol	190	5
	Florfenicol	190	2
Cephalosporins	Cefotaxim	190	43
	Ceftazidim	190	41
Fluoroquinolones	Ciprofloxacin	190	113
Penicillins	Ampicillin	190	121
Polymyxins	Colistin	190	0
Quinolones	Nalidixic acid	190	104
Sulfonamides	Sulfamethoxazol	190	119
Tetracyclines	Tetracyclin	190	51
Trimethoprim	Trimethoprim	190	182

Table Antimicrobial susceptibility testing of S. Paratyphi B var. Java in Gallus gallus (fowl) - broilers - quantitative data [Dilution method]

S. Paratyphi B var. Java Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Gallus gallus (fowl) - broilers																									
		yes																									
		190																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	190	4						126	51	8	1			2	2										
	Kanamycin	8	190	17										169	4					17							
	Neomycin		0	0																							
	Streptomycin	32	190	73										1	2	15	99	35	17	21							
Amphenicols	Chloramphenicol	16	190	5								1	14	116	54		1	4									
	Florfenicol	16	190	2								4	87	77	20	2											
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	190	43				14	78	41	14			1	42												
	Ceftazidim	2	190	41						14	121	12	2	17	6	4	14										
Fluoroquinolones	Ciprofloxacin	0.06	190	113		1	63	13	9	41	33	18	11			1											
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	190	121								27	31	11				121									
Polymyxins	Colistin	8	190	0											190												
Quinolones	Nalidixic acid	16	190	104										61	22	3	1		103								
Sulfonamides	Sulfamethoxazol	256	190	119											43	23	3	2			3	1	115				
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	190	51								5	91	38	5	1	1		49								
Trimethoprim	Trimethoprim	2	190	182							8							182									
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of S. Paratyphi B var. Java in Meat from poultry, unspecified - quantitative data [Dilution method]

S. Paratyphi B var. Java		Meat from poultry, unspecified																											
		Isolates out of a monitoring program (yes/no)																											
		yes																											
		22																											
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest			
Aminoglycosides	Gentamicin	4	22	2	0	0	0	0	0	12	7	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0.25	32		
	Kanamycin	32	22	3	0	0	0	0	0	0	0	0	0	18	1	0	0	0	0	3	0	0	0	0	4	128			
	Neomycin		0	0																									
	Streptomycin	64	22	5	0	0	0	0	0	0	0	0	0	0	0	4	8	5	3	2	0	0	0	0	2	128			
Amphenicols	Chloramphenicol	32	0	0																									
	Florfenicol	32	22	0	0	0	0	0	0	0	0	0	0	12	8	2	0	0	0	0	0	0	0	0	2	64			
Cephalosporins	3rd generation cephalosporins		0	0																									
	Cefotaxim	2	22	8	0	0	0	1	6	7	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0.06	4		
	Ceftazidim	8	22	5	0	0	0	0	0	0	7	5	1	3	1	1	4	0	0	0	0	0	0	0	0	0.25	16		
Fluoroquinolones	Ciprofloxacin	0.12	22	13	0	1	3	3	2	1	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0.008	8		
	Enrofloxacin		0	0																									
Penicillins	Ampicillin	8	22	17	0	0	0	0	0	0	0	2	2	1	0	0	0	17	0	0	0	0	0	0	0	0.5	32		
Polymyxins	Colistin	16	22	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	8	16		
Quinolones	Nalidixic acid	32	22	13	0	0	0	0	0	0	0	0	0	6	2	0	1	0	13	0	0	0	0	0	4	64			
Sulfonamides	Sulfonamide		0	0																									
Tetracyclines	Tetracyclin	16	22	6	0	0	0	0	0	0	0	0	8	8	0	0	0	0	6	0	0	0	0	0	1	64			
Trimethoprim	Trimethoprim	4	22	22	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0.5	32		
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																									

Table Antimicrobial susceptibility testing of Salmonella spp. in Cattle (bovine animals) - dairy cows - Surveillance - quantitative data [Dilution method]

Salmonella spp.		Cattle (bovine animals) - dairy cows - Surveillance																									
		Isolates out of a monitoring program (yes/no)																									
		Number of isolates available in the laboratory																									
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	0	0																							
	Kanamycin	8	0	0																							
	Neomycin		0	0																							
	Streptomycin	32	0	0																							
Amphenicols	Chloramphenicol	16	0	0																							
	Florfenicol	16	0	0																							
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	0	0																							
	Ceftazidim	2	0	0																							
Fluoroquinolones	Ciprofloxacin	0.06	0	0																							
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	0	0																							
Polymyxins	Colistin	8	0	0																							
Quinolones	Nalidixic acid	16	0	0																							
Sulfonamides	Sulfamethoxazol	256	0	0																							
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	0	0																							
Trimethoprim	Trimethoprim	2	0	0																							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of Salmonella spp. in Gallus gallus (fowl) - laying hens - Surveillance - quantitative data [Dilution method]

Salmonella spp. Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		Gallus gallus (fowl) - laying hens - Surveillance																									
		yes																									
		19																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	19	1						2	14	1	1		1												
	Kanamycin	8	19	1									17	1				1									
	Neomycin		0	0																							
	Streptomycin	32	19	1									3	5	8	2	1										
Amphenicols	Chloramphenicol	16	19	0									1	13	5												
	Florfenicol	16	19	0									5	11	3												
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	19	0			6	8	5																		
	Ceftazidim	2	19	0						8	10	1															
Fluoroquinolones	Ciprofloxacin	0.06	19	2		2	13	2		1	1																
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	19	1								13	4	1				1									
Polymyxins	Colistin	8	19	0										19													
Quinolones	Nalidixic acid	16	19	3										14	1	1	1		2								
Sulfonamides	Sulfamethoxazol	256	19	1											16	2							1				
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	19	1								2	12	3	1				1								
Trimethoprim	Trimethoprim	2	19	1							18							1									
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of Salmonella in animals

Salmonella spp.		Cattle (bovine animals) - dairy cows		Cattle (bovine animals) - calves (under 1 year) - veal calves		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)								yes						yes		yes	
Number of isolates available in the laboratory								90						19		93	
Antimicrobials:		N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin							90	1					19	1	93	3
	Kanamycin							90	5					19	1	93	10
	Streptomycin							90	27					19	1	93	14
Amphenicols	Chloramphenicol							90	6					19	0	93	0
	Florfenicol							90	2					19	0	93	0
Cephalosporins	Cefotaxim							90	0					19	0	93	7
	Ceftazidim							90	0					19	0	93	6
Fluoroquinolones	Ciprofloxacin							90	1					19	2	93	16
Fully sensitive	Fully sensitive							90	51					19	16	93	54
Penicillins	Ampicillin							90	19					19	1	93	25
Polymyxins	Colistin							90	0					19	0	93	0
Quinolones	Nalidixic acid							90	1					19	3	93	16
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial							90	5					19	1	93	3
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials							90	13					19	1	93	15
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials							90	12					19	0	93	12
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials							90	7					19	0	93	4
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials							90	2					19	1	93	5
Sulfonamides	Sulfamethoxazol							90	32					19	1	93	25
Tetracyclines	Tetracyclin							90	24					19	1	93	24

Table Antimicrobial susceptibility testing of Salmonella in animals

Salmonella spp.		Cattle (bovine animals) - dairy cows		Cattle (bovine animals) - calves (under 1 year) - veal calves		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)								yes						yes		yes	
Number of isolates available in the laboratory								90						19		93	
Antimicrobials:		N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n
Trimethoprim	Trimethoprim							90	23					19	1	93	10

Table Antimicrobial susceptibility testing of Salmonella spp. in Pigs - Surveillance - quantitative data [Dilution method]

Salmonella spp. Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		Pigs - Surveillance																									
		yes																									
		90																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	90	1						6	67	15	1					1									
	Kanamycin	8	90	5										82	3	2				3							
	Neomycin		0	0																							
	Streptomycin	32	90	27											1	27	29	6	5	1	21						
Amphenicols	Chloramphenicol	16	90	6										4	70	10	1		5								
	Florfenicol	16	90	2										23	64	1	1		1								
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	90	0				35	47	8																	
	Ceftazidim	2	90	0						49	38	3															
Fluoroquinolones	Ciprofloxacin	0.06	90	1		13	76				1																
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	90	19								49	22				1	18									
Polymyxins	Colistin	8	90	0											90												
Quinolones	Nalidixic acid	16	90	1										76	12	1			1								
Sulfonamides	Sulfamethoxazol	256	90	32											39	19							32				
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	90	24								10	48	8				1	23								
Trimethoprim	Trimethoprim	2	90	23							65	2						23									
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of Salmonella spp. in calves (under 1 year) - Cattle (bovine animals) - veal calves - Surveillance - quantitative data [Dilution method]

Salmonella spp.		Cattle (bovine animals) - calves (under 1 year) - veal calves - Surveillance																								
		Isolates out of a monitoring program (yes/no)																								
		Number of isolates available in the laboratory																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	0	0																						
	Kanamycin	8	0	0																						
	Neomycin		0	0																						
	Streptomycin	32	0	0																						
Amphenicols	Chloramphenicol	16	0	0																						
	Florfenicol	16	0	0																						
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	0	0																						
	Ceftazidim	2	0	0																						
Fluoroquinolones	Ciprofloxacin	0.06	0	0																						
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	0	0																						
Polymyxins	Colistin	8	0	0																						
Quinolones	Nalidixic acid	16	0	0																						
Sulfonamides	Sulfamethoxazol	256	0	0																						
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	0	0																						
Trimethoprim	Trimethoprim	2	0	0																						
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of Salmonella spp. in Gallus gallus (fowl) - broilers - Surveillance - quantitative data [Dilution method]

Salmonella spp.		Gallus gallus (fowl) - broilers - Surveillance																									
		yes																									
		93																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	93	3						20	44	24	2			3											
	Kanamycin	8	93	10										76	7			2		8							
	Neomycin		0	0																							
	Streptomycin	32	93	14									1	12	34	29	3	6	1	7							
Amphenicols	Chloramphenicol	16	93	0										2	74	17											
	Florfenicol	16	93	0										28	59	6											
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.5	93	7				34	44	7	1	1	1		5												
	Ceftazidim	2	93	6						45	38	4				4	2										
Fluoroquinolones	Ciprofloxacin	0.06	93	16		6	64	7		10	2	3	1														
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	4	93	25							1	48	16	3		1		24									
Polymyxins	Colistin	8	93	0											93												
Quinolones	Nalidixic acid	16	93	16										66	10	1			16								
Sulfonamides	Sulfamethoxazol	256	93	25											49	17	1	1				1	24				
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	93	24								8	51	9	1			1	23								
Trimethoprim	Trimethoprim	2	93	10							82	1						10									
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of Salmonella spp. in Meat from pig - quantitative data [Dilution method]

Salmonella spp. Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		Meat from pig																											
		yes																											
		6																											
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest			
Aminoglycosides	Gentamicin	4	6	2	0	0	0	0	0	0	4	0	0	0	0	0	1	1	0	0	0	0	0	0	0.25	32			
	Kanamycin	32	6	2	0	0	0	0	0	0	0	0	4	0	0	0	0	0	2	0	0	0	0	0	4	128			
	Neomycin		0	0																									
	Streptomycin	64	6	4	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	0	0	2	128			
Amphenicols	Chloramphenicol	32	6	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	0	0	0	2	64			
	Florfenicol	32	6	1	0	0	0	0	0	0	0	0	0	2	3	0	0	0	1	0	0	0	0	0	2	64			
Cephalosporins	3rd generation cephalosporins		0	0																									
	Cefotaxim	2	6	1	0	0	1	0	3	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0.06	4			
	Ceftazidim	8	6	1	0	0	0	0	0	1	4	0	0	0	0	0	1	0	0	0	0	0	0	0	0.25	16			
Fluoroquinolones	Ciprofloxacin	0.12	6	1	0	1	3	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.008	8			
	Enrofloxacin		0	0																									
Penicillins	Ampicillin	8	6	4	0	0	0	0	0	0	0	2	0	0	0	0	0	4	0	0	0	0	0	0	0.5	32			
Polymyxins	Colistin	16	6	1	0	0	0	0	0	0	0	0	0	5	0	0	1	0	0	0	0	0	0	0	8	16			
Quinolones	Nalidixic acid	32	6	1	0	0	0	0	0	0	0	0	2	0	3	0	0	0	1	0	0	0	0	0	4	64			
Sulfonamides	Sulfonamide		0	0																									
Tetracyclines	Tetracyclin	16	6	4	0	0	0	0	0	0	0	0	1	0	1	0	0	0	4	0	0	0	0	0	1	64			
Trimethoprim	Trimethoprim	4	6	2	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0.5	32			
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																									

Table Antimicrobial susceptibility testing of Salmonella spp. in Meat from poultry, unspecified - quantitative data [Dilution method]

Salmonella spp. Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from poultry, unspecified																											
		yes																											
		41																											
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest			
Aminoglycosides	Gentamicin	4	38	2	0	0	0	0	0	17	14	5	0	0	0	2	0	0	0	0	0	0	0	0	0.25	32			
	Kanamycin	32	41	5	0	0	0	0	0	0	0	0	0	35	1	0	0	0	0	5	0	0	0	0	4	128			
	Neomycin		0	0																									
	Streptomycin	64	41	7	0	0	0	0	0	0	0	0	0	1	6	10	12	5	3	4	0	0	0	0	2	128			
Amphenicols	Chloramphenicol	32	41	2	0	0	0	0	0	0	0	0	0	4	29	4	2	0	2	0	0	0	0	0	2	64			
	Florfenicol	32	41	0	0	0	0	0	0	0	0	0	0	24	14	3	0	0	0	0	0	0	0	0	2	64			
Cephalosporins	3rd generation cephalosporins		0	0																									
	Cefotaxim	2	41	11	0	0	0	7	12	10	1	0	0	0	11	0	0	0	0	0	0	0	0	0	0.06	4			
	Ceftazidim	8	41	8	0	0	0	0	0	6	15	7	1	3	1	2	6	0	0	0	0	0	0	0	0.25	16			
Fluoroquinolones	Ciprofloxacin	0.12	41	19	0	1	13	6	2	2	15	2	0	0	0	0	0	0	0	0	0	0	0	0	0.008	8			
	Enrofloxacin		0	0																									
Penicillins	Ampicillin	8	41	25	0	0	0	0	0	0	0	10	5	1	0	0	0	25	0	0	0	0	0	0	0.5	32			
Polymyxins	Colistin	16	41	0	0	0	0	0	0	0	0	0	0	0	41	0	0	0	0	0	0	0	0	0	8	16			
Quinolones	Nalidixic acid	32	41	19	0	0	0	0	0	0	0	0	0	14	7	0	1	0	19	0	0	0	0	0	4	64			
Sulfonamides	Sulfonamide		0	0																									
Tetracyclines	Tetracyclin	16	41	7	0	0	0	0	0	0	0	0	23	10	0	1	0	0	7	0	0	0	0	0	1	64			
Trimethoprim	Trimethoprim	4	41	29	0	0	0	0	0	0	9	1	2	0	0	0	0	29	0	0	0	0	0	0	0.5	32			
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																									

Table Antimicrobial susceptibility testing of Salmonella spp. in Meat from turkey - quantitative data [Dilution method]

Salmonella spp. Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		Meat from turkey																											
		yes																											
		14																											
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest			
Aminoglycosides	Gentamicin	4	14	2	0	0	0	0	6	0	3	2	1	0	0	1	1	0	0	0	0	0	0	0	0.25	32			
	Kanamycin	32	14	4	0	0	0	0	0	0	0	0	8	0	0	2	0	1	0	3	0	0	0	0	4	128			
	Neomycin		0	0																									
	Streptomycin	64	14	7	0	0	0	0	0	0	0	0	0	0	2	1	0	4	3	4	0	0	0	0	2	128			
Amphenicols	Chloramphenicol	32	14	4	0	0	0	0	0	0	0	0	0	2	6	2	0	0	4	0	0	0	0	0	2	64			
	Florfenicol	32	14	1	0	0	0	0	0	0	0	0	0	6	6	1	0	0	1	0	0	0	0	0	2	64			
Cephalosporins	3rd generation cephalosporins		0	0																									
	Cefotaxim	2	14	1	0	0	2	0	3	2	3	3	0	0	1	0	0	0	0	0	0	0	0	0	0.06	4			
	Ceftazidim	8	14	3	0	0	0	0	2	0	1	2	1	2	3	0	3	0	0	0	0	0	0	0	0.25	16			
Fluoroquinolones	Ciprofloxacin	0.12	14	10	0	0	0	2	2	3	3	3	0	0	0	1	0	0	0	0	0	0	0	0	0.008	8			
	Enrofloxacin		0	0																									
Penicillins	Ampicillin	8	14	7	0	0	0	0	0	0	0	2	3	1	1	0	1	6	0	0	0	0	0	0	0.5	32			
Polymyxins	Colistin	16	14	0	0	0	0	0	0	0	0	0	0	13	0	1	0	0	0	0	0	0	0	0	8	16			
Quinolones	Nalidixic acid	32	14	9	0	0	0	0	0	0	0	0	1	0	1	3	0	1	8	0	0	0	0	0	4	64			
Sulfonamides	Sulfonamide		0	0																									
Tetracyclines	Tetracyclin	16	14	10	0	0	0	0	0	0	0	0	3	1	0	0	0	4	6	0	0	0	0	0	1	64			
Trimethoprim	Trimethoprim	4	14	4	0	0	0	0	0	7	0	1	2	0	0	0	0	4	0	0	0	0	0	0	0.5	32			
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																									

Table Antimicrobial susceptibility testing of Salmonella in humans, Salmonella spp.

Salmonella spp. Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		humans	
		yes	
		430	
		N	n
Antimicrobials:			
Aminoglycosides	Gentamicin	430	7
	Kanamycin	430	20
	Streptomycin	430	121
Amphenicols	Chloramphenicol	430	26
	Florfenicol	430	11
Cephalosporins	Cefotaxim	430	5
	Ceftazidim	430	6
Fluoroquinolones	Ciprofloxacin	430	43
Fully sensitive	Fully sensitive	430	252
Penicillins	Ampicillin	430	117
Polymyxins	Colistin	430	0
Quinolones	Nalidixic acid	430	39
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	430	30
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	430	38
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	430	65
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	430	26
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	430	19
Sulfonamides	Sulfamethoxazol	430	134
Tetracyclines	Tetracyclin	430	126
Trimethoprim	Trimethoprim	430	51

Table Antimicrobial susceptibility testing of Salmonella spp. in humans - quantitative data [Dilution method]

Salmonella spp. Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		humans																								
		430																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	430	7						42	285	81	15	2		2	2	1								
	Kanamycin	8	430	20										384	26	7				13						
	Neomycin		0	0																						
	Streptomycin	32	430	121									3	29	119	130	28	14	14	93						
Amphenicols	Chloramphenicol	16	430	26									1	28	333	42	1	2	23							
	Florfenicol	16	430	11									2	191	212	14	6	1	4							
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	430	5				206	183	33	3			1	4											
	Ceftazidim	2	430	6						268	138	18		1		2	3									
Fluoroquinolones	Ciprofloxacin	0.06	430	43		71	300	16	5	15	15	7	1													
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	430	117							19	178	104	12	2		2	113								
Polymyxins	Colistin	8	430	0											430											
Quinolones	Nalidixic acid	16	430	39										336	50	5	3	1	35							
Sulfonamides	Sulfamethoxazol	256	430	134											220	68	8				2	3	129			
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	430	126								48	195	52	9	2	5	8	111							
Trimethoprim	Trimethoprim	2	430	51							370	7	2	2			1	48								
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Breakpoints for antibiotic resistance testing

Test Method Used	
Disc diffusion	○
Agar dilution	○
Broth dilution	●
E-test	○

Standards used for testing
NCCLS

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
			Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate
Aminoglycosides	Gentamicin	EUCAST/EFSA	2		2	0.25	32				
	Kanamycin	EUCAST/EFSA	8		8	4	128				
	Streptomycin	EUCAST/EFSA	32		32	2	128				
Amphenicols	Chloramphenicol	EUCAST/EFSA	16		16	2	64				
	Florfenicol		16		16	2	64				
Cephalosporins	Cefotaxim	EUCAST/EFSA	0.5		0.5	0.06	4				
	Ceftazidim	EUCSAT/EFSA	2		2	0.25	16				
Fluoroquinolones	Ciprofloxacin	EUCAST/EFSA	0.06		0.06	0.008	8				
Penicillins	Ampicillin	EUCAST/EFSA	4		4	0.5	32				
Polymyxins	Colistin	EUCAST/EFSA	8		8	8	16				
Quinolones	Nalidixic acid		16		16	4	64				
Sulfonamides	Sulfamethoxazol	CLSI	256		256	8	1024				
Tetracyclines	Tetracyclin	EUCAST/EFSA	8		8	1	64				
Trimethoprim	Trimethoprim	EUCAST/EFSA	2		2	0.5	32				

Table Breakpoints for antibiotic resistance testing

Test Method Used	
Disc diffusion	○
Agar dilution	○
Broth dilution	●
E-test	○

Standards used for testing
NCCLS

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	Gentamicin	EUCAST	2		4	0.25	32				
	Kanamycin	EUCAST	16		32	4	128				
	Streptomycin	EUCAST	32		64	2	128				
Amphenicols	Chloramphenicol	EUCAST	16		32	2	32				
	Florfenicol	EUCAST	16		32	2	64				
Cephalosporins	Cefotaxim	EUCAST	1		2	0.06	4				
	Ceftazidim	EUCAST	1		8	0.25	16				
Fluoroquinolones	Ciprofloxacin	EUCAST	0.064		0.12	0.008	8				
Penicillins	Ampicillin	EUCAST	4		8	0.5	32				
Polymyxins	Colistin	EUCAST	8		16	8	16				
Quinolones	Nalidixic acid	EUCAST	16		32	2	64				
Tetracyclines	Tetracyclin	EUCAST	8		16	1	64				
Trimethoprim	Trimethoprim	EUCAST	2		4	0.5	32				

Table Breakpoints for antibiotic resistance testing

Test Method Used	
Disc diffusion	○
Agar dilution	○
Broth dilution	●
E-test	○

Standards used for testing
NCCLS

		Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
			Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	Gentamicin		2		2	0.25	32				
	Kanamycin		8		8	4	128				
	Streptomycin		32		32	2	128				
Amphenicols	Chloramphenicol	EUCAST/EFSA	16		16	2	64				
	Florfenicol		16		16	2	64				
Cephalosporins	Cefotaxim		0.5		0.5	0.06	4				
	Ceftazidim		2		2	0.25	16				
Fluoroquinolones	Ciprofloxacin		0.06		0.06	0.008	8				
Penicillins	Ampicillin		4		4	0.5	32				
Polymyxins	Colistin		8		8	8	16				
Quinolones	Nalidixic acid		16		16	4	64				
Sulfonamides	Sulfamethoxazol	CLSI	256		256	8	1024				
Tetracyclines	Tetracyclin		8		8	1	64				
Trimethoprim	Trimethoprim		2		2	0.5	32				

2.2 CAMPYLOBACTERIOSIS

2.2.1 General evaluation of the national situation

2.2.2 Campylobacteriosis in humans

2.2.3 Campylobacter in foodstuffs

Table Campylobacter in poultry meat

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for thermophilic Campylobacter spp.	C. coli	C. jejuni	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - Survey - EU baseline survey ¹⁾	VWA	slaughter		429	110	17	93			
Meat from broilers (Gallus gallus) - fresh - at retail - Monitoring (objective sampling)	VWA	single	25g	1421	201					201

Comments:

¹⁾ carcass

Table Campylobacter in other food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for thermophilic Campylobacter spp.	C. coli	C. jejuni	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Meat from bovine animals - fresh - at retail - Monitoring (objective sampling)	VWA	single	25g	322	3					3
Meat from bovine animals - meat preparation - at retail - Monitoring (objective sampling)	VWA	single	25g	57	1					1
Meat from bovine animals - minced meat - at retail - Monitoring (objective sampling)	VWA	single	25g	466	2					2
Meat from sheep - fresh - at retail - Monitoring (objective sampling)	VWA	single	25g	73	1					1
Meat from sheep - meat preparation - at retail - Monitoring (objective sampling)	VWA	single	25g	6	0					
Meat from sheep - minced meat - at retail - Monitoring (objective sampling)	VWA	single	25g	7	1					1
Spices and herbs - at retail (objective sampling) ¹⁾	VWA	single	25g	139	0					
Spices and herbs - at retail - Surveillance ²⁾	VWA	single	25g	111	0					
Spices and herbs - at retail - Surveillance (objective sampling)	VWA	single	25g	71	0					
Vegetables - at cutting plant (objective sampling) ³⁾	VWA	single	2.5-25g	178	5					5
Vegetables - at cutting plant - Surveillance ⁴⁾	VWA	single	2.5-25g	463	1					1
Vegetables - at cutting plant - Surveillance (objective sampling) ⁵⁾	VWA	single	2.5-25g	298	1					1

Comments:

- ¹⁾ basil
- ²⁾ coriander
- ³⁾ lettuce diverse
- ⁴⁾ iceberg lettuce
- ⁵⁾ endive

2.2.4 Campylobacter in animals

Table Campylobacter in animals

	Source of information	Sampling unit	Units tested	Total units positive for thermophilic Campylobacter spp.	C. coli	C. jejuni	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Birds - in total - Clinical investigations (faeces)	VMDC	animal	110	9					9
Cats - in total - Clinical investigations	GD	animal	3	0					
Cats - in total - Clinical investigations (faeces)	VMDC	animal	211	19					19
Cattle (bovine animals) - in total - Clinical investigations	GD	animal	3522	23					23
Dogs - in total - Clinical investigations	GD	animal	11	2					2
Dogs - in total - Clinical investigations (faeces)	VMDC	animal	407	64					64
Ducks - in total - Clinical investigations	GD	animal	17	0					
Gallus gallus (fowl) - broilers - at farm - Clinical investigations	GD	flock	1587	4					4
Gallus gallus (fowl) - broilers - at slaughterhouse - Survey - EU baseline survey	VWA		429	104	19	82			3
Goats - in total - Clinical investigations	GD	animal	392	15					15
Monkeys - at farm - Clinical investigations	GD	animal	12	5					5
Reptiles - in total - Clinical investigations (faeces)	VMDC	animal	10	0					
Sheep - in total - Clinical investigations	GD	animal	805	16					16
Solipeds, domestic - horses - in total - Clinical investigations (faeces)	VMDC	animal	198	0					
Turkeys - in total - Clinical investigations	GD	animal	63	0					

2.2.5 Antimicrobial resistance in Campylobacter isolates

Table Antimicrobial susceptibility testing of C. coli in Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring - quantitative data [Dilution method]

C. coli		Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring																									
		Isolates out of a monitoring program (yes/no)																									
		Number of isolates available in the laboratory																									
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	0	0																							
	Neomycin	2	0	0																							
	Streptomycin	4	0	0																							
Amphenicols	Chloramphenicol	16	0	0																							
Fluoroquinolones	Ciprofloxacin	1	0	0																							
Macrolides	Clarithromycin	32	0	0																							
	Erythromycin	16	0	0																							
	Tulathromycin	16	0	0																							
Penicillins	Ampicillin	8	0	0																							
Quinolones	Nalidixic acid	32	0	0																							
Sulfonamides	Sulfamethoxazol		0	0																							
Tetracyclines	Tetracyclin	2	0	0																							

Table Antimicrobial susceptibility testing of C. coli - qualitative data

C. coli		Gallus gallus (fowl) - broilers		Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring		Gallus gallus (fowl) - laying hens - at slaughterhouse - Monitoring		Pigs - at slaughterhouse - Monitoring		Cattle (bovine animals) - dairy cows - at farm - Surveillance		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance	
		Isolates out of a monitoring program (yes/no)						yes		yes		yes	
		Number of isolates available in the laboratory						119		7		50	
		N	n	N	n	N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin	39	1					119	0	7	0	50	5
	Neomycin	39	2					119	3	7	0	50	21
	Streptomycin	39	6					119	104	7	3	50	31
Amphenicols	Chloramphenicol	39	0					119	0	7	0	50	2
Fluoroquinolones	Ciprofloxacin	39	31					119	5	7	6	50	43
Fully sensitive	Fully sensitive	3	7.7					119	0	7	1	50	0
Macrolides	Clarithromycin	39	4					119	22	7	1	50	5
	Erythromycin	39	4					119	24	7	1	50	5
	Tulathromycin	39	5					119	223	7	1	50	5
Penicillins	Ampicillin	39	9					119	54	7	3	50	34
Quinolones	Nalidixic acid	39	32					119	5	7	6	50	43
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	2	5.1					119	13	7	0	50	2
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	6	15.4					119	21	7	3	50	6
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	17	43.6					119	50	7	0	50	6
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	4	10.3					119	28	7	2	50	17
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	7	17.9					119	7	7	1	50	19
Sulfonamides	Sulfamethoxazol	39	8					119	69	7	2	50	21
Tetracyclines	Tetracyclin	39	27					119	94	7	5	50	49

Table Antimicrobial susceptibility testing of C. coli in Cattle (bovine animals) - dairy cows - at farm - Surveillance - quantitative data [Dilution method]

C. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Cattle (bovine animals) - dairy cows - at farm - Surveillance																								
		yes																								
		7																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	7	0						2	4	1														
	Neomycin	2	7	0							5	1	1													
	Streptomycin	4	7	3								3	1				2		1							
Amphenicols	Chloramphenicol	16	7	0									2		4	1										
Fluoroquinolones	Ciprofloxacin	1	7	6					1						2	4										
Macrolides	Clarithromycin	32	7	1									4	1	1				1							
	Erythromycin	16	7	1							1	2	2	1					1							
	Tulathromycin	16	7	1							5		1						1							
Penicillins	Ampicillin	8	7	3										2	2	2	1									
Quinolones	Nalidixic acid	32	7	6										1					4	2						
Sulfonamides	Sulfamethoxazol	256	7	2												1	1	3				1	1			
Tetracyclines	Tetracyclin	2	7	5							1		1						5							

Table Antimicrobial susceptibility testing of *C. coli* in Pigs - at slaughterhouse - Monitoring - quantitative data [Dilution method]

C. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Pigs - at slaughterhouse - Monitoring																									
		yes																									
		119																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	119	0					48	42	29																
	Neomycin	2	119	3						63	38	15	3														
	Streptomycin	4	119	104							5	9	1	1	28	49	9	3	14								
Amphenicols	Chloramphenicol	16	119	0								12	47	51	9												
Fluoroquinolones	Ciprofloxacin	1	119	5				80	28	6					5												
Macrolides	Clarithromycin	32	119	22						3	14	29	37	11	1	2	1	21									
	Erythromycin	16	119	24						4	19	31	35	4	2		2	22									
	Tulathromycin	16	119	23							58	18	17	2		1	2	14	7								
Penicillins	Ampicillin	8	119	54							2	4	27	32	33	3	18										
Quinolones	Nalidixic acid	32	119	5									26	73	15			1	4								
Sulfonamides	Sulfamethoxazol	256	119	69										13	19	17			1	25	35	9					
Tetracyclines	Tetracyclin	2	119	94							12	10	3	2		1	3	7	81								

Table Antimicrobial susceptibility testing of *C. coli* in *Gallus gallus* (fowl) - broilers - quantitative data [Dilution method]

C. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Gallus gallus (fowl) - broilers																								
		yes																								
		39																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	39	1	0	0	0	0	0	29	9	0	0	0	0	1	0	0	0	0	0	0	0	0		
	Neomycin	2	39	2	0	0	0	0	0	0	31	5	1	0	0	1	0	1	0	0	0	0	0	0		
	Streptomycin	4	39	6	0	0	0	0	0	0	0	31	1	1	0	4	1	1	0	0	0	0	0	0		
Amphenicols	Chloramphenicol	16	39	0	0	0	0	0	0	0	0	0	14	11	14	0	0	0	0	0	0	0	0	0		
Fluoroquinolones	Ciprofloxacin	1	39	31	0	0	0	0	7	1	0	0	0	5	11	14	1	0	0	0	0	0	0	0		
Macrolides	Clarithromycin	32	39	4	0	0	0	0	0	0	10	13	11	1	0	0	0	0	4	0	0	0	0	0		
	Erythromycin	16	39	4	0	0	0	0	0	0	14	15	5	1	0	0	0	0	4	0	0	0	0	0		
	Tulathromycin	16	39	4	0	0	0	0	0	0	30	4	0	0	1	0	0	2	2	0	0	0	0	0		
Penicillins	Ampicillin	8	39	10	0	0	0	0	0	1	0	0	0	13	15	1	0	9	0	0	0	0	0	0		
Quinolones	Nalidixic acid	32	39	32	0	0	0	0	0	0	0	0	0	6	1	0	0	3	20	9	0	0	0	0		
Sulfonamides	Sulfamethoxazol		39	39	0	0	0	0	0	0	0	0	0	0	5	10	10	6	2	0	0	3	3	0		
Tetracyclines	Tetracyclin	2	39	27	0	0	0	0	0	0	6	4	2	0	0	0	0	0	27	0	0	0	0	0		

Table Antimicrobial susceptibility testing of *C. coli* in calves (under 1 year) - Cattle (bovine animals) - veal calves - at farm - Surveillance - quantitative data [Dilution method]

C. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance																									
		yes																									
		50																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	50	5					15	17	13						5										
	Neomycin	2	50	21						16	7	6				3	4	14									
	Streptomycin	4	50	31							17	2			3	15	8	2	3								
Amphenicols	Chloramphenicol	16	50	2								1	14	33		2											
Fluoroquinolones	Ciprofloxacin	1	50	43				6	1					13	23	7											
Macrolides	Clarithromycin	32	50	5						2	4	15	17	6	1			5									
	Erythromycin	16	50	5						2	7	19	15	2				5									
	Tulathromycin	16	50	5						25	7	12	1				1	4									
Penicillins	Ampicillin	8	50	34									3	13	27	4	3										
Quinolones	Nalidixic acid	32	50	43									4	3				17	26								
Sulfonamides	Sulfamethoxazol	256	50	21										1	1	12	12	3		4	12	5					
Tetracyclines	Tetracyclin	2	50	49							1							49									

Table Antimicrobial susceptibility testing of C. coli in Gallus gallus (fowl) - laying hens - at slaughterhouse - Monitoring - quantitative data [Dilution method]

C. coli		Gallus gallus (fowl) - laying hens - at slaughterhouse - Monitoring																									
		Isolates out of a monitoring program (yes/no)																									
		Number of isolates available in the laboratory																									
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	0	0																							
	Neomycin	2	0	0																							
	Streptomycin	4	0	0																							
Amphenicols	Chloramphenicol	16	0	0																							
Fluoroquinolones	Ciprofloxacin	1	0	0																							
Macrolides	Clarithromycin	32	0	0																							
	Erythromycin	16	0	0																							
	Tulathromycin	16	0	0																							
Penicillins	Ampicillin	8	0	0																							
Quinolones	Nalidixic acid	32	0	0																							
Sulfonamides	Sulfamethoxazol		0	0																							
Tetracyclines	Tetracyclin	2	0	0																							

Table Antimicrobial susceptibility testing of *C. coli* - qualitative data

C. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		Meat from broilers (<i>Gallus gallus</i>)	
		yes	
		15	
		N	n
Antimicrobials:			
Aminoglycosides	Gentamicin	15	0
	Neomycin	15	0
	Streptomycin	15	3
Amphenicols	Chloramphenicol	15	0
Fluoroquinolones	Ciprofloxacin	15	7
Macrolides	Clarithromycin	15	1
	Erythromycin	15	1
	Tulathromycin	15	1
Penicillins	Ampicillin	15	6
Quinolones	Nalidixic acid	15	7
Sulfonamides	Sulfamethoxazol	15	6
Tetracyclines	Tetracyclin	15	13

Table Antimicrobial susceptibility testing of *C. coli* in Meat from poultry, unspecified - quantitative data [Dilution method]

C. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from poultry, unspecified																									
		yes																									
		15																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	15	0						12	3																
	Neomycin	2	15	0							14	1															
Amphenicols	Chloramphenicol	16	15	0								3	6	6													
Fluoroquinolones	Ciprofloxacin	1	15	7					5	3					1	6											
Macrolides	Clarithromycin	8	15	1							2	8	3	1					1								
	Erythromycin	16	15	1							5	4	4	1					1								
	Tulathromycin	4	15	1							12	2						1									
Penicillins	Ampicillin	16	15	6										3	3	3	2	4									
Quinolones	Nalidixic acid	32	15	7										6	2			1	2	4							
Sulfonamides	Sulfamethoxazol	64	15	6											3	1	2	3				3	3				
Tetracyclines	Tetracyclin	2	15	13							1	1		1				2	10								

Table Antimicrobial susceptibility testing of *C. coli* in humans - quantitative data [Dilution method]

C. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		humans																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	0	0																						
	Neomycin	2	0	0																						
	Streptomycin	4	0	0																						
Amphenicols	Chloramphenicol	16	0	0																						
Fluoroquinolones	Ciprofloxacin	1	0	0																						
Macrolides	Clarithromycin	32	0	0																						
	Erythromycin	16	0	0																						
	Tulathromycin	16	0	0																						
Penicillins	Ampicillin	8	0	0																						
Quinolones	Nalidixic acid	32	0	0																						
Sulfonamides	Sulfamethoxazol		0	0																						
Tetracyclines	Tetracyclin	2	0	0																						

Table Antimicrobial susceptibility testing of *C. jejuni* - qualitative data

C. jejuni		Cattle (bovine animals) - dairy cows - at farm - Surveillance		Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring		Gallus gallus (fowl) - laying hens - at slaughterhouse - Monitoring		Pigs - at slaughterhouse - Monitoring		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)		yes								yes		yes	
Number of isolates available in the laboratory		11								21		133	
Antimicrobials:		N	n	N	n	N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin	11	0							21	0	133	1
	Neomycin	11	0							21	1	133	0
	Streptomycin	11	0							21	2	133	6
Amphenicols	Chloramphenicol	11	0							21	0	133	0
Fluoroquinolones	Ciprofloxacin	11	2							21	10	133	84
Fully sensitive	Fully sensitive	11	7							21	4	133	2
Macrolides	Clarithromycin	11	0							21	1	133	4
	Erythromycin	11	0							21	2	133	5
	Tulathromycin	11	0							21	1	133	4
Penicillins	Ampicillin	11	0							21	1	133	56
Quinolones	Nalidixic acid	11	2							21	10	133	88
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	11	3							21	7	133	21
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	11	1							21	8	133	17
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	11	0							21	0	133	25
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	11	0							21	1	133	38
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	11	0							21	1	133	30
Sulfonamides	Sulfamethoxazol	11	0							21	1	133	91
Tetracyclines	Tetracyclin	11	3							21	15	133	70

Table Antimicrobial susceptibility testing of C. jejuni in Pigs - at slaughterhouse - Monitoring - quantitative data [Dilution method]

C. jejuni		Pigs - at slaughterhouse - Monitoring																								
		Isolates out of a monitoring program (yes/no)																								
		Number of isolates available in the laboratory																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	0	0																						
	Neomycin	2	0	0																						
Amphenicols	Chloramphenicol	16	0	0																						
Fluoroquinolones	Ciprofloxacin	1	0	0																						
Macrolides	Erythromycin	16	0	0																						
	Tulathromycin	16	0	0																						
Penicillins	Ampicillin	8	0	0																						
Quinolones	Nalidixic acid	32	0	0																						
Tetracyclines	Tetracyclin	2	0	0																						

Footnote:

Breakpoints of C. coli are filled in.

Table Antimicrobial susceptibility testing of C. jejuni in Gallus gallus (fowl) - laying hens - at slaughterhouse - Monitoring - quantitative data
[Dilution method]

C. jejuni		Gallus gallus (fowl) - laying hens - at slaughterhouse - Monitoring																									
		Isolates out of a monitoring program (yes/no)																									
		Number of isolates available in the laboratory																									
		Antimicrobials:	break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	0	0																							
	Neomycin	2	0	0																							
	Streptomycin	4	0	0																							
Amphenicols	Chloramphenicol	16	0	0																							
Fluoroquinolones	Ciprofloxacin	1	0	0																							
Macrolides	Clarithromycin	32	0	0																							
	Erythromycin	16	0	0																							
	Tulathromycin	16	0	0																							
Penicillins	Ampicillin	8	0	0																							
Quinolones	Nalidixic acid	32	0	0																							
Sulfonamides	Sulfamethoxazol		0	0																							
Tetracyclines	Tetracyclin	2	0	0																							

Footnote:
Breakpoints of C. coli are filled in.

Table Antimicrobial susceptibility testing of C. jejuni in Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring - quantitative data [Dilution method]

C. jejuni		Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring																								
		Isolates out of a monitoring program (yes/no)																								
		Number of isolates available in the laboratory																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	0	0																						
	Neomycin	2	0	0																						
	Streptomycin	4	0	0																						
Amphenicols	Chloramphenicol	16	0	0																						
Fluoroquinolones	Ciprofloxacin	1	0	0																						
Macrolides	Clarithromycin	32	0	0																						
	Erythromycin	16	0	0																						
	Tulathromycin	16	0	0																						
Penicillins	Ampicillin	8	0	0																						
Quinolones	Nalidixic acid	32	0	0																						
Sulfonamides	Sulfamethoxazol		0	0																						
Tetracyclines	Tetracyclin	2	0	0																						

Footnote:

Breakpoints of C. coli are filled in.

Table Antimicrobial susceptibility testing of *C. jejuni* in calves (under 1 year) - Cattle (bovine animals) - veal calves - at farm - Surveillance - quantitative data [Dilution method]

C. jejuni Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance																								
		yes																								
		21																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	1	21	0						13	3	5														
	Neomycin	1	21	1							17	3	1													
	Streptomycin	2	21	2								19							2							
Amphenicols	Chloramphenicol	16	21	0									3	13	5											
Fluoroquinolones	Ciprofloxacin	1	21	10					8	2	1				3	4	3									
Macrolides	Clarithromycin	8	21	1								9	4	6	1				1							
	Erythromycin	4	21	2								10	8	1	1				1							
	Tulathromycin	16	21	1							14	3	3						1							
Penicillins	Ampicillin	16	21	1									1	6	12	1		1								
Quinolones	Nalidixic acid	16	21	10										7	3	1			3	7						
Sulfonamides	Sulfamethoxazol	256	21	1												2	2		13	3		1				
Tetracyclines	Tetracyclin	2	21	15							6							1	14							

Table Antimicrobial susceptibility testing of *C. jejuni* in Cattle (bovine animals) - dairy cows - at farm - Surveillance - quantitative data [Dilution method]

C. jejuni Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Cattle (bovine animals) - dairy cows - at farm - Surveillance																									
		yes																									
		11																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	1	11	0						9	2																
	Neomycin	1	11	0							10	1															
	Streptomycin	2	11	0								11															
Amphenicols	Chloramphenicol	16	11	0								5	6														
Fluoroquinolones	Ciprofloxacin	1	11	2					8	1				1	1												
Macrolides	Clarithromycin	8	11	0							6	4	1														
	Erythromycin	4	11	0							7	4															
	Tulathromycin	16	11	0							10	1															
Penicillins	Ampicillin	16	11	0								2	6	3													
Quinolones	Nalidixic acid	16	11	2									7	2					2								
Sulfonamides	Sulfamethoxazol	256	11	0											1	2	3	4	1								
Tetracyclines	Tetracyclin	2	11	3							8							3									

Table Antimicrobial susceptibility testing of *C. jejuni* in *Gallus gallus* (fowl) - broilers - at slaughterhouse - Survey - EU baseline survey - quantitative data [Dilution method]

C. jejuni Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Gallus gallus (fowl) - broilers - at slaughterhouse - Survey - EU baseline survey																									
		yes																									
		133																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	133	1					130	2							1										
	Neomycin	2	133	0						132	1																
	Streptomycin	4	133	3							126	1	3			1			2								
Amphenicols	Chloramphenicol	16	133	0								72	36	18	7												
Fluoroquinolones	Ciprofloxacin	1	133	84				41	8				5	37	30	12											
Macrolides	Clarithromycin	32	133	4						41	74	13	1				2	2									
	Erythromycin	16	133	5						72	49	7				1		4									
	Tulathromycin	16	133	1							102	26	1		3			1									
Penicillins	Ampicillin	8	133	56						4		4	8	32	29	17	10	29									
Quinolones	Nalidixic acid	32	133	86								4	28	13		2	3	25	58								
Sulfonamides	Sulfamethoxazol		133	133										9	10	23	25	41	18	5	1	1					
Tetracyclines	Tetracyclin	2	133	70							51	8	4	1			3	23	43								

Table Antimicrobial susceptibility testing of *C. jejuni* - qualitative data

C. jejuni Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		Meat from broilers (Gallus gallus)	
		yes	
		164	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	164	0
	Neomycin	164	6
Amphenicols	Chloramphenicol	164	2
Fluoroquinolones	Ciprofloxacin	164	87
Macrolides	Clarithromycin	164	7
	Erythromycin	164	8
	Tulathromycin	164	16
Penicillins	Ampicillin	164	51
Quinolones	Nalidixic acid	164	99
Sulfonamides	Sulfamethoxazol	164	63
Tetracyclines	Tetracyclin	164	72

Table Antimicrobial susceptibility testing of *C. jejuni* in Meat from poultry, unspecified - quantitative data [Dilution method]

C. jejuni Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from poultry, unspecified																									
		yes																									
		164																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	164	0						159	5																
	Neomycin	2	164	6							158				2	2		2									
Amphenicols	Chloramphenicol	16	164	2								68	55	30	9	1	1										
Fluoroquinolones	Ciprofloxacin	1	164	87					60	15	2			7	41	26	13										
Macrolides	Clarithromycin	8	164	7							47	90	13	5	2			2	5								
	Erythromycin	16	164	8							110	36	8	2				1	7								
	Tulathromycin	4	164	16								133	11		4	12		1	1	2							
Penicillins	Ampicillin	16	164	51						13	1	1	5	32	40	21	14	37									
Quinolones	Nalidixic acid	32	164	99									13	30	14	2	6	11	18	70							
Sulfonamides	Sulfamethoxazol	64	164	63											15	13	27	46	32	21	4	3	3				
Tetracyclines	Tetracyclin	2	164	72							77	8	7	3		1	4	19	45								

Table Antimicrobial susceptibility testing of C. jejuni in humans - quantitative data [Dilution method]

C. jejuni		humans																								
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory																										
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	0	0																						
	Neomycin	2	0	0																						
	Streptomycin	4	0	0																						
Amphenicols	Chloramphenicol	16	0	0																						
Fluoroquinolones	Ciprofloxacin	1	0	0																						
Macrolides	Clarithromycin	32	0	0																						
	Erythromycin	16	0	0																						
	Tulathromycin	16	0	0																						
Penicillins	Ampicillin	8	0	0																						
Quinolones	Nalidixic acid	32	0	0																						
Sulfonamides	Sulfamethoxazol		0	0																						
Tetracyclines	Tetracyclin	2	0	0																						

Footnote:

Breakpoints of C. coli are filled in.

Table Antimicrobial susceptibility testing of *C. lari* in *Gallus gallus* (fowl) - broilers - quantitative data [Dilution method]

C. lari Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Gallus gallus (fowl) - broilers																									
		yes																									
		1																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Neomycin	2	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0			
	Streptomycin	4	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0			
Amphenicols	Chloramphenicol	16	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0			
Fluoroquinolones	Ciprofloxacin	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0			
Macrolides	Clarithromycin	32	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0			
	Erythromycin	16	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0			
	Tulathromycin	16	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0			
Penicillins	Ampicillin	8	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0			
Quinolones	Nalidixic acid	32	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0			
Sulfonamides	Sulfamethoxazol		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0			
Tetracyclines	Tetracyclin	2	0	0																							

Table Antimicrobial susceptibility testing of *C. lari* - qualitative data

C. lari		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		1	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	1	0
	Neomycin	1	0
	Streptomycin	1	0
Amphenicols	Chloramphenicol	1	0
Fluoroquinolones	Ciprofloxacin	1	1
Macrolides	Clarithromycin	1	0
	Erythromycin	1	0
	Tulathromycin	1	0
Penicillins	Ampicillin	1	1
Quinolones	Nalidixic acid	1	1
Sulfonamides	Sulfamethoxazol	1	1
Tetracyclines	Tetracyclin	1	0

Table Breakpoints used for antimicrobial susceptibility testing

Test Method Used		Standards used for testing	
Disc diffusion	○	NCCLS	
Agar dilution	○		
Broth dilution	●		
E-test	○		

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	Gentamicin	EUCAST/EFSA	2		2	0.25	32				
	Neomycin		2		2	0.5	64				
	Streptomycin	EUCAST/EFSA	4		4	1	128				
Amphenicols	Chloramphenicol	EUCAST/EFSA	16		16	2	128				
Fluoroquinolones	Ciprofloxacin	EUCAST/EFSA	1		1	0.125	16				
Macrolides	Clarithromycin	EUCAST/EFSA	32		32	0.5	64				
	Erythromycin	EUCAST/EFSA	16		16	0.5	64				
	Tulathromycin	EUCAST/EFSA	16		16	0.5	64				
Penicillins	Ampicillin	EUCAST/EFSA	8		8	0.25	32				
Quinolones	Nalidixic acid	EUCAST/EFSA	32		32	1	128				
Tetracyclines	Tetracyclin	EUCAST/EFSA	2		2	0.5	64				

Footnote:

Breakpoints of C. coli are filled in.

Table Breakpoints used for antimicrobial susceptibility testing

Test Method Used			Standards used for testing								
Disc diffusion			NCCLS								
Agar dilution											
Broth dilution											
E-test											

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
			Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate
Aminoglycosides	Gentamicin	CD 2007-516-EC			2	0.25	32				
	Neomycin	EUCAST			2	0.5	64				
Amphenicols	Chloramphenicol	EUCAST			16	2	128				
Fluoroquinolones	Ciprofloxacin	CD 2007-516-EC			1	0.12	16				
Macrolides	Clarithromycin	own			8	0.5	64				
	Erythromycin	CD 2007-516-EC			16	0.5	64				
	Tulathromycin	own			4	0.5	64				
Penicillins	Ampicillin	EUCAST			16	0.25	32				
Quinolones	Nalidixic acid	EUCAST			32	1	128				
Sulfonamides	Sulfamethoxazol	own			64	8	1024				
Tetracyclines	Tetracyclin	CD 2007-516-EC			2	0.5	64				

Footnote:

The breakpoints of C. coli are filled in.

Table Breakpoints used for antimicrobial susceptibility testing

Test Method Used		Standards used for testing									
Disc diffusion		NCCLS									
Agar dilution											
Broth dilution											
E-test											

		Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content microg	Breakpoint Zone diameter (mm)		
			Susceptible <=	Intermediate	Resistant >	lowest	highest		Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	Gentamicin	EUCAST/EFSA	2		2	0.25	32				
	Neomycin	EUCAST/EFSA	2		2	0.5	64				
	Streptomycin	EUCAST/EFSA	4		4	1	128				
Amphenicols	Chloramphenicol	EUCAST/EFSA	16		16	2	128				
Fluoroquinolones	Ciprofloxacin	EUCAST/EFSA	1		1	0.125	16				
Macrolides	Clarithromycin	EUCAST/EFSA	32		32	0.5	64				
	Erythromycin	EUCAST/EFSA	16		16	0.5	64				
	Tulathromycin	EUCAST/EFSA	16		16	0.5	64				
Penicillins	Ampicillin	EUCAST/EFSA	8		8	0.25	32				
Quinolones	Nalidixic acid	EUCAST/EFSA	32		32	1	128				
Sulfonamides	Sulfamethoxazol	EUCAST/EFSA				8	1024				
Tetracyclines	Tetracyclin	EUCAST/EFSA	2		2	0.5	64				

Footnote:

Breakpoints of C. coli are filled in.

2.3 LISTERIOSIS

2.3.1 General evaluation of the national situation

2.3.2 Listeriosis in humans

2.3.3 Listeria in foodstuffs

Table Listeria monocytogenes in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for L.monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g	Units tested with enumeration method	> detection limit but ≤ 100 cfu/g	L. monocytogenes > 100 cfu/g
Fish - smoked - at retail - Monitoring (objective sampling)	VWA	single	25g	983	140	953	136	964	9	9
Meat from bovine animals - fresh - at retail - Monitoring (objective sampling)	VWA	single		324	3			324	3	0
Meat from bovine animals - meat preparation - at retail - Monitoring (objective sampling)	VWA	single		80	0			80	0	0
Meat from bovine animals - meat products - cooked, ready-to-eat - at retail - Monitoring (objective sampling)	VWA	single		409	7			409	5	2
Meat from bovine animals - minced meat - at slaughterhouse - Monitoring (objective sampling)	VWA	single		459	15			459	13	2
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail - Monitoring (objective sampling)	VWA	single		31	0			31	0	0
Meat from pig - fresh - at retail - Monitoring (objective sampling)	VWA	single		315	3			315	2	1
Meat from pig - meat preparation - at retail - Monitoring (objective sampling)	VWA	single		59	2			59	2	0

Table *Listeria monocytogenes* in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for <i>L.monocytogenes</i>	Units tested with detection method	<i>Listeria monocytogenes</i> presence in x g	Units tested with enumeration method	> detection limit but ≤ 100 cfu/g	<i>L. monocytogenes</i> > 100 cfu/g
Meat from pig - meat products - cooked, ready-to-eat - at retail - Monitoring (objective sampling)	VWA	single		774	10			774	10	0
Meat from pig - minced meat - at retail - Monitoring (objective sampling)	VWA	single		18	1			18	1	0
Meat from sheep - fresh - at retail - Monitoring (objective sampling) ¹⁾	VWA	single		88	2			88	2	0
Meat from sheep - meat products - at retail - Monitoring (objective sampling)	VWA	single		384	3			384	3	0

Comments:¹⁾ lamb

2.3.4 Listeria in animals

Table Listeria in animals

	Source of information	Sampling unit	Units tested	Total units positive for Listeria spp.	L. monocytogenes	Listeria spp., unspecified
Cattle (bovine animals) - in total - Clinical investigations	GD	animal	3556	45		45
Gallus gallus (fowl) - in total - Clinical investigations	GD	flock	1587	0		
Goats - in total - Clinical investigations	GD	animal	320	21		21
Pigs - in total - Clinical investigations	GD	animal	3659	0		
Sheep - in total - Clinical investigations	GD	animal	687	21		21
Turkeys - in total - Clinical investigations	GD	animal	63	0		

2.4 E. COLI INFECTIONS

2.4.1 General evaluation of the national situation

2.4.2 E. coli infections in humans

2.4.3 Escherichia coli, pathogenic in foodstuffs

Table VT E. coli in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC)-VTEC O157	Verotoxigenic E. coli (VTEC)-VTEC non-O157	Verotoxigenic E. coli (VTEC)-VTEC, unspecified
Meat from bovine animals - fresh - at retail - Monitoring (objective sampling)	VWA	single	25g	343	0			
Meat from bovine animals - meat preparation - intended to be eaten raw - at retail - Monitoring (objective sampling) ¹⁾	VWA	single	25g	1036	0			
Meat from bovine animals - meat preparation - intended to be eaten cooked - at retail - Monitoring (objective sampling)	VWA	single	25g	55	1	1		
Meat from bovine animals - meat products - raw but intended to be eaten cooked - at retail - Monitoring (objective sampling)	VWA	single	25g	303	0			
Meat from bovine animals - minced meat - intended to be eaten cooked - at retail - Monitoring (objective sampling)	VWA	single	25g	441	1	1		
Meat from other animal species or not specified - meat preparation - at retail - Monitoring (objective sampling)	VWA	single	25g	3	0			
Meat from other animal species or not specified - meat products - cooked, ready-to-eat - at retail - Monitoring (objective sampling)	VWA	single	25g	87	0			

Table VT E. coli in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Verotoxigeni c E. coli (VTEC)	Verotoxigeni c E. coli (VTEC)- VTEC O157	Verotoxigeni c E. coli (VTEC)- VTEC non-O157	Verotoxigeni c E. coli (VTEC)- VTEC, unspecified
Meat from other animal species or not specified - minced meat - at retail - Monitoring (objective sampling)	VWA	single	25g	9	0			
Meat from pig - fresh - at retail - Monitoring (objective sampling)	VWA	single	25g	746	0			
Meat from pig - meat products - cooked, ready-to-eat - at retail - Monitoring (objective sampling)	VWA	single	25g	358	0			
Meat from pig - minced meat - intended to be eaten cooked - at retail - Monitoring (objective sampling)	VWA	single	25g	5	0			
Meat from sheep - fresh - at retail - Monitoring (objective sampling)	VWA	single	25g	89	0			
Vegetables (surveillance objective sampling) ²⁾	VWA	single	25g	477	0			
Vegetables - Surveillance (objective sampling) ³⁾	VWA	single	25g	298	4	4		
Vegetables - Surveillance - official controls - objective sampling ⁴⁾	VWA	single	25g	172	1	1		

Comments:

- ¹⁾ filet americain
²⁾ iceberg lettuce
³⁾ endive
⁴⁾ diverse lettuce

Footnote:

The E.coli method used for food is specific for VTEC O157. Trypton Soya Broth with novobiocine (mTSB+n)--> immunocapture with VIDAS Immunocapture-Concentration Technique E.coli (VIDAS-ICE)--> CT-SMAC and CHROMagar O157

2.4.4 Escherichia coli, pathogenic in animals

Table VT E. coli in animals

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC)-VTEC O157	Verotoxigenic E. coli (VTEC)-VTEC non-O157	Verotoxigenic E. coli (VTEC)-VTEC, unspecified
Cattle (bovine animals) - calves (under 1 year) - at farm - Surveillance (faeces)	VWA	holding	25g	171	38	38		
Cattle (bovine animals) - dairy cows - at farm - Surveillance (faeces)	VWA	holding	25g	157	7	7		

Footnote:

The E.coli method used for animals is specific for VTEC O157. Trypton Soya Broth with novobiocine (mTSB+n) -> immunocapture with VIDAS Immunocapture-Concentration Technique E. coli (VIDAS-ICE)-> CT-SMAC and CHROMagar O157

2.5 TUBERCULOSIS, MYCOBACTERIAL DISEASES

2.5.1 General evaluation of the national situation

2.5.2 Tuberculosis, mycobacterial diseases in humans

2.5.3 Mycobacterium in animals

Table Tuberculosis in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Mycobacterium spp.	M. bovis	M. tuberculosis	Mycobacterium spp., unspecified
Dogs and cats - in total - Clinical investigations	GD	animal	137	0			
Goats - in total - Clinical investigations	GD	animal	310	0			
Pigs - in total - Clinical investigations	GD	animal	3695	0			
Poultry, unspecified - in total - Clinical investigations	GD	animal	2116	0			
Sheep - in total - Clinical investigations	GD	animal	685	0			

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

Region	Total number of existing bovine		Officially free herds		Infected herds		Routine tuberculin testing		Number of tuberculin tests carried out before the introduction into the herds (Annex A(I)(2)(c) third indent (1) of Directive 64/432/EEC)	Number of animals with suspicious lesions of tuberculosis examined and submitted to histopathological and bacteriological examinations	Number of animals detected positive in bacteriological examination
	Herds	Animals	Number of herds	%	Number of herds	%	Interval between routine tuberculin tests	Number of animals tested			
NEDERLAND	43433	3890195	43427	99.99	6	.01	0	0	0	36	15
Total	43433	3890195	43427	99.99	6	0.01	0	0	0	36	15
Total - 1											

2.6 BRUCELLOSIS

2.6.1 General evaluation of the national situation

2.6.2 Brucellosis in humans

2.6.3 Brucella in animals

Table Brucellosis in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Brucella spp.	B. abortus	B. melitensis	B. suis	Brucella spp., unspecified
Alpacas - at farm - Control and eradication programmes	GD	animal	8	0				
Deer - at farm - Control and eradication programmes	GD	animal	277	0				
Giraffes - at farm - Control and eradication programmes	GD	animal	1	0				
Lamas - at farm - Control and eradication programmes	GD	animal	10	0				
Pigs ¹⁾	VWA	animal	39	0				
Pigs - at farm - Control and eradication programmes	GD	animal	5933	0				

Comments:

¹⁾ samplin of boars in quarantine or SWS on the basis of Directive 88/407/EC

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

Region	Total number of existing bovine		Officially free herds		Infected herds		Surveillance						Investigations of suspect cases								
							Serological tests			Examination of bulk milk			Information about			Epidemiological investigation					
	Herds	Animals	Number of herds	%	Number of herds	%	Number of bovine herds tested	Number of animals tested	Number of infected herds	Number of bovine herds tested	Number of animals or pools tested	Number of infected herds	Number of notified abortions whatever cause	Number of isolations of Brucella infection	Number of abortions due to Brucella abortus	Number of animals tested with serologic al blood tests	Number of suspensd herds	Number of positive animals		Number of animals examined microbio logically	Number of animals positive microbio logically
																		Sero logically	BST		
NEDERLAND	43433	3890195	43433	100	0	0	0	0	0	0	0	0	12581	0	0	12581	50	29		29	0
Total	43433	3890195	43433	100.0	0	0.0	0	0	0	0	0	0	12581	0	0	12581	50	29	0	29	0
Total - 1																					

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

Region	Total number of existing		Officially free herds		Infected herds		Surveillance			Investigations of suspect cases				
	Herds	Animals	Number of herds	%	Number of herds	%	Number of herds tested	Number of animals tested	Number of infected herds	Number of animals tested with serological blood tests	Number of animals positive serologically	Number of animals examined microbiologically	Number of animals positive microbiologically	Number of suspended herds
NEDERLAND	51970	1567834	51970	100	0	0	1484	15376	0	11	0	0	0	0
Total	51970	1567834	51970	100.0	0	0.0	1484	15376	0	11	0	0	0	0
Total - 1														

2.7 YERSINIOSIS

2.7.1 General evaluation of the national situation

2.7.2 Yersiniosis in humans

2.7.3 Yersinia in animals

Table Yersinia in animals

	Source of information	Sampling unit	Units tested	Total units positive for Yersinia spp.	Y. enterocolitic a	Yersinia spp., unspecified	Y. enterocolitic a-O:3	Y. enterocolitic a-O:9	Y. enterocolitic a-unspecified
Cattle (bovine animals) - in total - Clinical investigations	GD	animal	3470	2					2
Goats - in total - Clinical investigations	GD	animal	310	0					
Pigs - in total - Clinical investigations	GD	animal	3721	14					14
Poultry, unspecified - in total - Clinical investigations	GD	flock	1587	0					
Sheep - in total - Clinical investigations	GD	animal	685	1					1

2.8 TRICHINELLOSIS

2.8.1 General evaluation of the national situation

2.8.2 Trichinellosis in humans

2.8.3 Trichinella in animals

Table Trichinella in animals

	Source of information	Sampling unit	Units tested	Total units positive for Trichinella spp.	T. spiralis	Trichinella spp., unspecified
Pigs - at slaughterhouse (Digestive method)	VWA	animal	13999301	0		
Rodents	RIVM	animal	338	7		7
Solipeds, domestic (serology)	RIVM	animal	0	0		0
Wild boars - farmed	VWA	animal	27	0		
Wild boars - wild (Digestive method)	VWA	animal	3164	0		
Wild boars - wild (serology)	RIVM	animal	421	0		

2.9 ECHINOCOCCOSIS

2.9.1 General evaluation of the national situation

2.9.2 Echinococcosis in humans

2.9.3 Echinococcus in animals

Table Echinococcus in animals

	Source of information	Sampling unit	Units tested	Total units positive for Echinococcus spp.	E. granulosus	E. multilocularis	Echinococcus spp., unspecified
Cattle (bovine animals) - at slaughterhouse ¹⁾	RIVM	animal	27	3	3		
Cattle (bovine animals) - in total - Clinical investigations	GD	animal	3469	6			6

Comments:

¹⁾ cattle from Rumania

2.10 TOXOPLASMOSIS

2.10.1 General evaluation of the national situation

2.10.2 Toxoplasmosis in humans

2.10.3 Toxoplasma in animals

Table Toxoplasma in animals

	Source of information	Sampling unit	Units tested	Total units positive for Toxoplasma	T. gondii
Cattle (bovine animals) - in total - Clinical investigations	GD	animal	3469	0	
Goats - in total - Clinical investigations	GD	animal	310	9	9
Sheep (serum)	RIVM	animal	1179	320	320
Sheep - in total - Clinical investigations	GD	animal	685	7	7

2.11 RABIES

2.11.1 General evaluation of the national situation

2.11.2 Rabies in humans

2.11.3 Lyssavirus (rabies) in animals

Table Rabies in animals

	Source of information	Sampling unit	Units tested	Total units positive for Lyssavirus (rabies)	Unspecified Lyssavirus	Classical rabies virus (genotype 1)	European Bat Lyssavirus - unspecified
Bats - wild - in total	VWA	animal	124	11			11
Cats - in total - Clinical investigations	VWA	animal	4	0			
Dogs - in total - Clinical investigations	VWA	animal	4	0			
Ferrets - in total - Clinical investigations	VWA	animal	2	0			
Foxes - wild - in total - Clinical investigations	VWA	animal	7	0			

2.12 Q-FEVER

2.12.1 General evaluation of the national situation

2.12.2 Coxiella (Q-fever) in animals

Table Coxiella burnetii (Q fever) in animals

	Source of information	Sampling unit	Units tested	Total units positive for Coxiella (Q-fever)	C. burnetii
Cattle (bovine animals) - at farm - Clinical investigations (aborted foetus) ¹⁾	GD	animal	1194	3	3
Cattle (bovine animals) - at farm - Surveillance - official controls - selective sampling (blood)	VWA	animal	2	0	
Cattle (bovine animals) - at farm - Surveillance - official controls - selective sampling (vaginal swabs)	VWA	animal	5	2	2
Goats - at farm - Clinical investigations (aborted foetus) ²⁾	GD	animal	88	9	9
Goats - at farm - Surveillance - official controls - selective sampling (blood)	VWA	animal	19	13	13
Goats - at farm - Surveillance - official controls - selective sampling (dust)	VWA	animal	14	7	7
Goats - at farm - Surveillance - official controls - selective sampling (faeces)	VWA	animal	3	2	2
Goats - at farm - Surveillance - official controls - selective sampling (milk)	VWA	animal	3	1	1
Goats - at farm - Surveillance - official controls - selective sampling (vaginal swabs)	VWA	animal	33	19	19
Sheep - at farm - Clinical investigations (aborted foetus) ³⁾	GD	animal	104	6	6

Table *Coxiella burnetii* (Q fever) in animals

	Source of information	Sampling unit	Units tested	Total units positive for <i>Coxiella</i> (Q-fever)	<i>C. burnetii</i>
Sheep - at farm - Surveillance - official controls - selective sampling (blood)	VWA	animal	10	2	2
Sheep - at farm - Surveillance - official controls - selective sampling (vaginal swabs)	VWA	animal	15	5	5

Comments:

- ¹⁾ positives from 2 holdings
- ²⁾ positives from 7 holdings
- ³⁾ positives from 1 holding

3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE

3.1 ENTEROCOCCUS, NON-PATHOGENIC

3.1.1 General evaluation of the national situation

3.1.2 Antimicrobial resistance in Enterococcus, non-pathogenic isolates

Table Antimicrobial susceptibility testing of Enterococcus spp., unspecified in Meat from bovine animals - quantitative data [Dilution method]

Enterococcus spp., unspecified Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from bovine animals																											
		yes																											
		11																											
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highes			
Aminoglycosides	Gentamicin	32	11	11														11						128	1024				
	Streptomycin	512	11	0																11				512	2048				
Amphenicols	Chloramphenicol	32	11	0								1	3	6	1									1	128				
Fluoroquinolones	Ciprofloxacin	4	11	7								1	3	6	1									0.5	64				
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	32	11	8										3			3	4	1					2	256				
	Vancomycin	4	11	3						5	2	1		2				1						0.5	64				
Ionophores	Salinomycin	4	11	2						1	4	2	2	1	1									0.5	64				
Macrolides	Erythromycin	4	11	2							8	1			1				1					1	128				
Orthosomycins	Avilamycin	8	11	1								4	5	1			1							0.25	32				
Oxazolidines	Linezolid	4	11	2						1	1	4	3	1	1									0.25	32				
Penicillins	Ampicillin	8	11	0					4	3	4													0.25	32				
Streptogramins	Quinupristin/Dalfopristin	8	11	0						2	2	1	4	2										0.5	64				
Tetracyclines	Tetracyclines	2	11	4						2	3	2					1	3						0.5	64				

Table Antimicrobial susceptibility testing of Enterococcus spp., unspecified in Meat from sheep - quantitative data [Dilution method]

Enterococcus spp., unspecified Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from sheep																								
		yes																								
		6																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	32	6	6															6						128	1024
	Streptomycin	512	6	0																	6				512	2048
Amphenicols	Chloramphenicol	32	6	0											5	1									1	128
Fluoroquinolones	Ciprofloxacin	4	6	1							3	1	1		1										0.5	64
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	32	6	2										1	1	1	1	1	1						2	256
	Vancomycin	4	6	1								3	2		1										0.5	64
Ionophores	Salinomycin	4	6	0								4	1	1											0.5	64
Macrolides	Erythromycin	4	6	0								6													1	128
Orthosomycins	Avilamycin	8	6	0								1	4	1											0.25	32
Oxazolidines	Linezolid	4	6	0									4	2											0.25	32
Penicillins	Ampicillin	8	6	0							3	2	1												0.25	32
Streptogramins	Quinupristin/Dalfopristin	8	6	0							1			3	2										0.5	64
Tetracyclines	Tetracyclines	2	6	1							3	1	1						1						0.5	64

Table Antimicrobial susceptibility testing of Enterococcus spp., unspecified in Meat from pig - quantitative data [Dilution method]

Enterococcus spp., unspecified Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from pig																								
		yes																								
		7																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	32	7	7															7						128	1024
	Streptomycin	512	7	0																	7				512	2048
Amphenicols	Chloramphenicol	32	7	0											7										1	128
Fluoroquinolones	Ciprofloxacin	4	7	0							1	6													0.5	64
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	32	7	6											1			2	3	1					2	256
	Vancomycin	4	7	1								3	3		1										0.5	64
Ionophores	Salinomycin	4	7	0							1	2	4												0.5	64
Macrolides	Erythromycin	4	7	0								4	3												1	128
Orthosomycins	Avilamycin	8	7	0								1	5	1											0.25	32
Oxazolidines	Linezolid	4	7	0									6	1											0.25	32
Penicillins	Ampicillin	8	7	0								5	2												0.25	32
Streptogramins	Quinupristin/Dalfopristin	8	7	3							1			1	2	3									0.5	64
Tetracyclines	Tetracyclines	2	7	3							1	2	1					3							0.5	64

Table Antimicrobial susceptibility testing of Enterococcus spp., unspecified - qualitative data

Enterococcus spp., unspecified Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from poultry, unspecified		Meat from pig		Meat from sheep		Meat from bovine animals	
		yes		yes		yes		yes	
		21		7		6		11	
		N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin	21	0	7	0	6	0	11	0
	Streptomycin	21	5	7	0	6	0	11	0
Amphenicols	Chloramphenicol	21	0	7	0	6	0	11	0
Fluoroquinolones	Ciprofloxacin	21	3	7	0	6	1	11	0
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	21	11	7	6	6	3	11	8
	Vancomycin	21	2	7	0	6	0	11	1
Ionophores	Salinomycin	21	0	7	0	6	0	11	1
Macrolides	Erythromycin	21	6	7	0	6	0	11	2
Orthosomycins	Avilamycin	21	1	7	0	6	0	11	1
Oxazolidines	Linezolid	21	0	7	0	6	0	11	2
Penicillins	Ampicillin	21	1	7	0	6	0	11	0
Streptogramins	Quinupristin/Dalfopristin	21	8	7	5	6	2	11	2
Tetracyclines	Tetracyclines	21	11	7	3	6	1	11	4

Table Antimicrobial susceptibility testing of Enterococcus spp., unspecified in Meat from poultry, unspecified - quantitative data [Dilution method]

Enterococcus spp., unspecified Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from poultry, unspecified																									
		yes																									
		21																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	32	21	21														21						128	1024		
	Streptomycin	512	21	5																16	1	2	2	512	2048		
Amphenicols	Chloramphenicol	32	21	0									6	12	3									1	128		
Fluoroquinolones	Ciprofloxacin	4	21	3							8	5	3	2	2		1							0.5	64		
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	32	21	11										1	5	4		2	3	5	1				2	256	
	Vancomycin	4	21	7							3	6	2	3	5				2						0.5	64	
Ionophores	Salinomycin	4	21	1							2	6	8	4	1									0.5	64		
Macrolides	Erythromycin	4	16	1								14	1				1							1	128		
Orthosomycins	Avilamycin	8	21	2								1	8	9	1	1		1						0.25	32		
Oxazolidines	Linezolid	4	21	0								2	15	4										0.25	32		
Penicillins	Ampicillin	8	21	1							3	4	7	5	1			1						0.25	32		
Streptogramins	Quinupristin/Dalfopristin	8	0	0																							
Tetracyclines	Tetracyclines	2	21	11								8	1	1			2	2	2	5				0.5	64		

Table Antimicrobial susceptibility testing of *E. faecium* in calves (under 1 year) - Cattle (bovine animals) - veal calves - at farm - Surveillance - quantitative data [Dilution method]

E. faecium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance																								
		yes																								
		46																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	500	46	2										1	1	4	2		36			1	1		128	1024
	Streptomycin	2000	46	20													1	2	1		21	1	9	11	512	2048
Amphenicols	Chloramphenicol	32	46	2										1	31	8	4	2							2	64
	Florfenicol	8	9	0										9											1	64
Fluoroquinolones	Ciprofloxacin	4	46	7							2	12	11	14	6	1									0.5	64
Glycolipids	Flavofosfolipol	16	37	37																1	4	32			4	512
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	128	37	15										2	1			7	12	7	8				2	256
	Vancomycin	4	46	1							23	17	5		1										0.5	64
Ionophores	Salinomycin	4	46	4							2	23	15	2	4										0.5	64
Macrolides	Erythromycin	4	46	30								9	3	4	1	1	1	1		26					1	128
Oxazolidines	Linezolid	4	46	0								2	31	13											0.5	64
Penicillins	Amoxicillin	4	46	3								31	4	8	1			1	1						1	128
Streptogramins	Quinupristin/Dalfopristin	1	46	26							10	10	8	13	5										0.5	64
Tetracyclines	Tetracyclines	2	46	30							10	6					1	3	26						0.5	128

Footnote:

Comment for streptomycin and gentamycin: most isolates were tested for high-level resistance using for streptomycin breakpoint 2000 mg/L and for gentamycin 500 mg/L. See for the ranges the breakpoint table.

Table Antimicrobial susceptibility testing of *E. faecium* in Pigs - at slaughterhouse - Monitoring - quantitative data [Dilution method]

E. faecium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Pigs - at slaughterhouse - Monitoring																								
		yes																								
		80																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	500	80	0										3	9	5	1		62							
	Streptomycin	2000	80	21														8	2	1	44	4	11	10		
Amphenicols	Chloramphenicol	32	80	0											61	14	5									
	Florfenicol	8	18	0										18												
Fluoroquinolones	Ciprofloxacin	4	80	9							7	24	23	17	7	2										
Glycolipids	Flavofosfolipol	16	62	62																2	3	57				
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	128	62	14									1	18	3			14	12	4	10					
	Vancomycin	4	80	1							53	20	5	1					1							
Ionophores	Salinomycin	4	80	28								20	30	2	28											
Macrolides	Erythromycin	4	80	39								5	22	14	2				1	36						
Oxazolidines	Linezolid	4	80	0								1	48	31												
Penicillins	Amoxicillin	4	80	8								29	19	24	5		1		2							
Streptogramins	Quinupristin/Dalfopristin	1	80	71							4	5	18	44	8	1										
Tetracyclines	Tetracyclines	2	80	68							11	1					1	27	40							

Footnote:

Comment for streptomycin and gentamycin: most isolates were tested for high-level resistance using for streptomycin breakpoint 2000 mg/L and for gentamycin 500 mg/L. See for the ranges the breakpoint table.

Table Antimicrobial susceptibility testing of *E. faecium* in Cattle (bovine animals) - dairy cows - at farm - Surveillance - quantitative data [Dilution method]

E. faecium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Cattle (bovine animals) - dairy cows - at farm - Surveillance																									
		yes																									
		47																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	500	47	0									2	6	8			31						128	1024		
	Streptomycin	2000	47	5											1		5	5		30	1	3	2	512	2048		
Amphenicols	Chloramphenicol	32	47	0									2	38	5	2								2	64		
	Florfenicol	8	16	0								1	15											1	64		
Fluoroquinolones	Ciprofloxacin	4	47	3							17	15	12	2	1									0.5	64		
Glycolipids	Flavofosfolipol	16	31	31															5	26				4	512		
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	128	31	7										1			5	18	4	3				2	256		
	Vancomycin	4	47	0						19	26	2												0.5	64		
Ionophores	Salinomycin	4	47	7							5	33	2	6	1									0.5	64		
Macrolides	Erythromycin	4	47	12							21	11	3	3				9						1	128		
Oxazolidines	Linezolid	4	47	0							1	19	27											0.5	64		
Penicillins	Amoxicillin	4	47	4							32	10	1	2			2							1	128		
Streptogramins	Quinupristin/Dalfopristin	1	47	36							9	2	13	19	4									0.5	64		
Tetracyclines	Tetracyclines	2	47	13							24	10			1			3	9						0.5	128	

Footnote:

Comment for streptomycin and gentamycin: most isolates were tested for high-level resistance using for streptomycin breakpoint 2000 mg/L and for gentamycin 500 mg/L. See for the ranges the breakpoint table.

Table Antimicrobial susceptibility testing of E. faecium in Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring - quantitative data [Dilution method]

E. faecium		Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring																								
		yes																								
		197																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	500	197	8										4	41	31	5		107	1		3	5			
	Streptomycin	2000	197	73												1	2	34	19		65	3	33	40		
Amphenicols	Chloramphenicol	32	197	1							1		15	121	27	32	1									
	Florfenicol	8	83	0								8	75													
Fluoroquinolones	Ciprofloxacin	4	197	34							2	20	58	83	27	6	1									
Glycolipids	Flavofosfolipol	16	114	114															3	4	18	89				
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	128	114	53								2	2	6				16	35	4	49					
	Vancomycin	4	197	1							102	79	10	5					1							
Ionophores	Salinomycin	4	197	109							2	21	30	35	107	1		1								
Macrolides	Erythromycin	4	197	125								37	25	10	2	2		1		120						
Oxazolidines	Linezolid	4	197	0								9	133	55												
Penicillins	Amoxicillin	4	197	31								80	46	40	23	3		3	2							
Streptogramins	Quinupristin/Dalfopristin	1	197	140							21	36	31	84	22	3										
Tetracyclines	Tetracyclines	2	197	139							54	4				3	6	28	102							

Footnote:

Comment for streptomycin and gentamycin: most isolates were tested for high-level resistance using for streptomycin breakpoint 2000 mg/L and for gentamycin 500 mg/L. See for the ranges the breakpoint table.

Table Antimicrobial susceptibility testing of *E. faecium* - qualitative data

E. faecium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring		Pigs - at slaughterhouse - Monitoring		Cattle (bovine animals) - dairy cows - at farm - Surveillance		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance	
		yes		yes		yes		yes	
		197		80		47		46	
		N	n	N	n	N	n	N	n
Antimicrobials:									
Aminoglycosides	Gentamicin	197	8	80	0	47	0	46	2
	Streptomycin	197	73	80	21	47	5	46	20
Amphenicols	Chloramphenicol	197	1	80	0	47	0	46	2
	Florfenicol	83	0	18	0	16	0	9	0
Fluoroquinolones	Ciprofloxacin	197	34	80	9	47	3	46	7
Fully sensitive	Fully sensitive	197	6	80	0	47	1	46	1
Glycolipids	Flavofosfolipol	114	197	62	80	31	47	37	46
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	114	53	62	14	31	7	37	15
	Vancomycin	197	1	80	1	47	0	46	1
Ionophores	Salinomycin	197	109	80	28	47	7	46	4
Macrolides	Erythromycin	197	125	80	39	47	12	46	30
Oxazolidines	Linezolid	197	0	80	0	47	0	46	0
Penicillins	Amoxicillin	197	31	80	8	47	4	46	3
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	197	8	80	2	47	6	46	0
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	197	13	80	6	47	8	46	2
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	197	33	80	6	47	14	46	13
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	197	32	80	26	47	11	46	10
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	197	105	80	40	47	7	46	20

Table Antimicrobial susceptibility testing of *E. faecium* - qualitative data

E. faecium		Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring		Pigs - at slaughterhouse - Monitoring		Cattle (bovine animals) - dairy cows - at farm - Surveillance		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance	
Isolates out of a monitoring program (yes/no)		yes		yes		yes		yes	
Number of isolates available in the laboratory		197		80		47		46	
Antimicrobials:		N	n	N	n	N	n	N	n
Streptogramins	Quinupristin/Dalfopristin	197	140	80	71	47	36	46	26
Tetracyclines	Tetracyclines	197	139	80	68	47	13	46	30

Table Antimicrobial susceptibility testing of *E. faecium* in Meat from poultry, unspecified - quantitative data [Dilution method]

E. faecium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from poultry, unspecified																									
		yes																									
		49																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	32	49	49														49						128	1024		
	Streptomycin	512	49	9																40	2	3	4	512	2048		
Amphenicols	Chloramphenicol	32	49	0									1	28	16	4								1	128		
Fluoroquinolones	Ciprofloxacin	4	49	11						2	10	10	16	10	1									0.5	64		
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	32	49	44										4		1	4	19	7	14				2	256		
	Vancomycin	4	49	0						12	22	6	9											0.5	64		
Ionophores	Salinomycin	4	49	14							9	11	15	13	1									0.5	64		
Macrolides	Erythromycin	4	49	21							11	11	6	1		1		3	16					1	128		
Orthosomycins	Avilamycin	8	49	2							3	10	24	10	1		1							0.25	32		
Oxazolidines	Linezolid	4	49	1							3	18	27	1										0.25	32		
Penicillins	Ampicillin	8	49	1						2	4	16	21	5		1								0.25	32		
Streptogramins	Quinupristin/Dalfopristin	8	49	2							1	8	6	30	2	2								0.5	64		
Tetracyclines	Tetracyclines	2	49	26							18	5					2	6	18					0.5	64		

Table Antimicrobial susceptibility testing of *E. faecium* in Meat from sheep - quantitative data [Dilution method]

E. faecium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from sheep																									
		yes																									
		2																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	32	2	2														2						128	1024		
	Streptomycin	512	2	0																2				512	2048		
Amphenicols	Chloramphenicol	32	2	0									1		1									1	128		
Fluoroquinolones	Ciprofloxacin	4	2	0								1	1											0.5	64		
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	32	2	1												1			1					2	256		
	Vancomycin	4	2	0						2														50.	64		
Ionophores	Salinomycin	4	2	0							2													0.5	64		
Macrolides	Erythromycin	4	2	0								2												1	128		
Orthosomycins	Avilamycin	8	2	0								1		1										0.25	32		
Oxazolidines	Linezolid	4	2	0								1	1											0.25	32		
Penicillins	Ampicillin	8	2	0						1	1													0.25	32		
Streptogramins	Quinupristin/Dalfopristin	8	2	0						1	1													0.5	64		
Tetracyclines	Tetracyclines	2	2	0						2														0.5	64		

Table Antimicrobial susceptibility testing of *E. faecium* - qualitative data

E. faecium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from pig		Meat from sheep		Meat from poultry, unspecified		Meat from bovine animals	
		yes		yes		yes		yes	
		8		2		49		22	
		N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin	8	0	2	0	49	0	22	0
	Streptomycin	8	0	2	0	49	9	22	0
Amphenicols	Chloramphenicol	8	0	2	0	49	0	22	0
Fluoroquinolones	Ciprofloxacin	8	1	2	0	49	11	22	4
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	8	8	2	1	49	44	22	18
	Vancomycin	8	0	2	0	49	0	22	0
Ionophores	Salinomycin	8	0	2	0	49	1	22	0
Macrolides	Erythromycin	8	3	2	0	49	21	22	2
Orthosomycins	Avilamycin	8	0	2	0	49	1	22	0
Oxazolidines	Linezolid	8	0	2	0	49	1	22	1
Penicillins	Ampicillin	8	0	2	0	49	1	22	0
Streptogramins	Quinupristin/Dalfopristin	8	0	2	0	49	4	22	1
Tetracyclines	Tetracyclines	8	1	2	0	49	26	22	2

Table Antimicrobial susceptibility testing of E. faecium in Meat from pig - quantitative data [Dilution method]

E. faecium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from pig																								
		yes																								
		8																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	32	8	8															8						128	1024
	Streptomycin	512	8	0																	8				512	2048
Amphenicols	Chloramphenicol	32	8	0										1	5	2									1	128
Fluoroquinolones	Ciprofloxacin	4	8	1							1		5	1		1									0.5	64
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	32	8	8														2	4	1	1				2	256
	Vancomycin	4	8	0							3	5													0.5	64
Ionophores	Salinomycin	4	8	0								1	4	3											0.5	64
Macrolides	Erythromycin	4	8	3								1	1	3	2					1					1	128
Orthosomycins	Avilamycin	8	8	0								1	2	3	2										0.25	32
Oxazolidines	Linezolid	4	8	0									3	5											0.25	32
Penicillins	Ampicillin	8	8	0						1	1	3	2		1										0.25	32
Streptogramins	Quinupristin/Dalfopristin	8	8	0								1	1	6											0.5	64
Tetracyclines	Tetracyclines	2	8	1							6	1						1							0.5	64

Table Antimicrobial susceptibility testing of *E. faecium* in Meat from bovine animals - quantitative data [Dilution method]

E. faecium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from bovine animals																								
		yes																								
		22																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	32	22	22															22						128	1024
	Streptomycin	512	22	0																	22				512	208
Amphenicols	Chloramphenicol	32	22	0										1	16	4	1								1	128
Fluoroquinolones	Ciprofloxacin	4	22	4							2	7	6	3	3	1									0.5	64
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	32	22	18											2		2	5	9	3	1				2	256
	Vancomycin	4	22	0							9	7	5	1											0.5	64
Ionophores	Salinomycin	4	22	0								6	14	2											0.5	64
Macrolides	Erythromycin	4	22	2								7	4	9	1					1					1	128
Orthosomycins	Avilamycin	8	22	0									7	9	6										0.25	32
Oxazolidines	Linezolid	4	22	1									6	15	1										0.25	32
Penicillins	Ampicillin	8	22	0						4	3	7	8												0.25	32
Streptogramins	Quinupristin/Dalfopristin	8	22	0							3	5	3	10	1										0.5	64
Tetracyclines	Tetracyclines	2	22	2							17	3						1	1						0.5	64

Table Antimicrobial susceptibility testing of *E. faecium* in humans - quantitative data [Dilution method]

E. faecium Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		humans																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	500	0	0																						
	Streptomycin	2000	0	0																						
Amphenicols	Chloramphenicol	32	0	0																						
Fluoroquinolones	Ciprofloxacin	4	0	0																						
Glycolipids	Flavofosfolipol	16	0	0																						
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	128	0	0																						
	Vancomycin	4	0	0																						
Ionophores	Salinomycin	4	0	0																						
Macrolides	Erythromycin	4	0	0																						
Oxazolidines	Linezolid	4	0	0																						
Penicillins	Amoxicillin	4	0	0																						
Streptogramins	Quinupristin/Dalfopristin	32	0	0																						
Tetracyclines	Tetracyclines	2	0	0																						

Table Antimicrobial susceptibility testing of E. faecalis in Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring - quantitative data [Dilution method]

E. faecalis		Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring																								
		yes																								
		216																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	500	216	6											16	47	3		138	6	1		5			
	Streptomycin	2000	216	97												1		4	27		86	1	42	55		
Amphenicols	Chloramphenicol	32	216	19								3	1	6	162	23	2	16	3							
	Florfenicol	8	68	0									4	64												
Fluoroquinolones	Ciprofloxacin	4	216	10							25	161	19	1		1	5	4								
Glycolipids	Flavofosfolipol	16	148	0										145	3											
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	128	148	38													9	68	33	3	35					
	Vancomycin	4	216	0							1	102	96	17												
Ionophores	Salinomycin	4	216	30							7	57	22	100	29	1										
Macrolides	Erythromycin	4	216	176								26	5	9	1	5	4	1		165						
Oxazolidines	Linezolid	4	216	0							1	40	169	6												
Penicillins	Amoxicillin	4	216	0								206	7	3												
Streptogramins	Quinupristin/Dalfopristin	32	216	1							1	1	1	4	57	137	14	1								
Tetracyclines	Tetracyclines	2	216	190							12	13	1				28	68	94							

Footnote:

Comment for streptomycin and gentamycin: most isolates were tested for high-level resistance using for streptomycin breakpoint 2000 mg/L and for gentamycin 500 mg/L. See for the ranges the breakpoint table.

Table Antimicrobial susceptibility testing of *E. faecalis* in Pigs - at slaughterhouse - Monitoring - quantitative data [Dilution method]

E. faecalis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Pigs - at slaughterhouse - Monitoring																								
		yes																								
		50																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	500	50	2											1	4			43				2			
	Streptomycin	2000	50	13															2		34	1	3	10		
Amphenicols	Chloramphenicol	32	50	2											43	5		1	1							
	Florfenicol	8	5	0										5												
Fluoroquinolones	Ciprofloxacin	4	50	3							9	30	8			1	1	1								
Glycolipids	Flavofosfolipol	16	45	0										44	1											
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	128	45	8													1	25	11	1	7					
	Vancomycin	4	50	1								24	18	7	1											
Ionophores	Salinomycin	4	50	0							2	35	2	11												
Macrolides	Erythromycin	4	50	22								10	9	9						22						
Oxazolidines	Linezolid	4	50	0								3	44	3												
Penicillins	Amoxicillin	4	50	0								49	1													
Streptogramins	Quinupristin/Dalfopristin	32	50	1									1		20	27	1	1								
Tetracyclines	Tetracyclines	2	50	44							3	3				1	14	16	13							

Footnote:

Comment for streptomycin and gentamycin: most isolates were tested for high-level resistance using for streptomycin breakpoint 2000 mg/L and for gentamycin 500 mg/L. See for the ranges the breakpoint table.

Table Antimicrobial susceptibility testing of *E. faecalis* - qualitative data

E. faecalis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring		Pigs - at slaughterhouse - Monitoring		Cattle (bovine animals) - dairy cows - at farm - Surveillance		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance	
		yes		yes		yes		yes	
		216		50		16		28	
		N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin	216	6	50	2	16	0	28	2
	Streptomycin	216	97	50	13	16	3	28	13
Amphenicols	Chloramphenicol	216	19	50	2	16	2	28	8
	Florfenicol	68	0	5	0	5	0	7	0
Fluoroquinolones	Ciprofloxacin	216	10	50	3	16	1	28	2
Fully sensitive	Fully sensitive	216	6	50	1	16	0	28	0
Glycolipids	Flavofosfolipol	148	0	45	0	11	0	21	0
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	148	38	45	8	11	0	21	8
	Vancomycin	216	0	50	1	16	0	28	0
Ionophores	Salinomycin	216	30	50	0	16	0	28	2
Macrolides	Erythromycin	216	176	50	22	16	7	28	17
Oxazolidines	Linezolid	216	0	50	0	16	0	28	0
Penicillins	Amoxicillin	216	0	50	0	16	0	28	0
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	216	13	50	5	16	4	28	10
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	216	26	50	19	16	6	28	1
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	216	70	50	10	16	3	28	1
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	216	74	50	8	16	2	28	4
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	216	27	50	7	16	1	28	12

Table Antimicrobial susceptibility testing of *E. faecalis* - qualitative data

E. faecalis		Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring		Pigs - at slaughterhouse - Monitoring		Cattle (bovine animals) - dairy cows - at farm - Surveillance		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance	
Isolates out of a monitoring program (yes/no)		yes		yes		yes		yes	
Number of isolates available in the laboratory		216		50		16		28	
Antimicrobials:		N	n	N	n	N	n	N	n
Streptogramins	Quinupristin/Dalfopristin	216	1	50	1	16	1	28	3
Tetracyclines	Tetracyclines	216	190	50	44	16	13	28	22

Table Antimicrobial susceptibility testing of *E. faecalis* in calves (under 1 year) - Cattle (bovine animals) - veal calves - at farm - Surveillance - quantitative data [Dilution method]

E. faecalis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance																								
		yes																								
		28																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	500	28	2											3	3	1		19				2			
	Streptomycin	2000	28	13															3	1	10	1	5	8		
Amphenicols	Chloramphenicol	32	28	8											19	1		7	1							
	Florfenicol	8	7	0										7												
Fluoroquinolones	Ciprofloxacin	4	28	2							3	18	5				2									
Glycolipids	Flavofosfolipol	16	21	0										21												
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	128	21	8														5	8	2	6					
	Vancomycin	4	28	0								15	9	4												
Ionophores	Salinomycin	4	28	2							1	20		5	2											
Macrolides	Erythromycin	4	28	17								4	5	2						17						
Oxazolidines	Linezolid	4	28	0								4	22	2												
Penicillins	Amoxicillin	4	28	0								27	1													
Streptogramins	Quinupristin/Dalfopristin	32	28	3											12	12	1	3								
Tetracyclines	Tetracyclines	2	28	22								6				1	3	4	14							

Footnote:

Comment for streptomycin and gentamycin: most isolates were tested for high-level resistance using for streptomycin breakpoint 2000 mg/L and for gentamycin 500 mg/L. See for the ranges the breakpoint table.

Table Antimicrobial susceptibility testing of E. faecalis in Cattle (bovine animals) - dairy cows - at farm - Surveillance - quantitative data [Dilution method]

E. faecalis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Cattle (bovine animals) - dairy cows - at farm - Surveillance																								
		yes																								
		16																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	500	16	0												3	1		11	1						
	Streptomycin	2000	16	3															2	1	10		2	1		
Amphenicols	Chloramphenicol	32	16	2											14			1	1							
	Florfenicol	8	5	0										5												
Fluoroquinolones	Ciprofloxacin	4	16	1								13	2				1									
Glycolipids	Flavofosfolipol	16	11	0										11												
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	128	11	0													2	6	3							
	Vancomycin	4	16	0								7	8	1												
Ionophores	Salinomycin	4	16	0							2	10		4												
Macrolides	Erythromycin	4	16	7								5		4	1		1			5						
Oxazolidines	Linezolid	4	16	0								1	15													
Penicillins	Amoxicillin	4	16	0								15	1													
Streptogramins	Quinupristin/Dalfopristin	32	16	1											7	7	1	1								
Tetracyclines	Tetracyclines	2	16	13								3					3	4	6							

Footnote:

Comment for streptomycin and gentamycin: most isolates were tested for high-level resistance using for streptomycin breakpoint 2000 mg/L and for gentamycin 500 mg/L. See for the ranges the breakpoint table.

Table Antimicrobial susceptibility testing of *E. faecalis* in Meat from poultry, unspecified - quantitative data [Dilution method]

E. faecalis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from poultry, unspecified																								
		yes																								
		217																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	32	217	217															210	1	1	1	4		128	1024
	Streptomycin	512	217	80																	137	5	17	58	512	2048
Amphenicols	Chloramphenicol	32	217	17										5	150	44	1	8	9						1	128
Fluoroquinolones	Ciprofloxacin	4	217	6							15	147	43	6		1	5								0.5	64
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	32	217	199										1	1	2	14	96	57		46				2	256
	Vancomycin	4	217	1								98	92	26	1										0.5	64
Ionophores	Salinomycin	4	217	15							23	78	33	68	14	1									0.5	64
Macrolides	Erythromycin	4	217	117								70	28	2		2	4		1	110					1	128
Orthosomycins	Avilamycin	8	217	6								2	156	46	7			6							0.25	32
Oxazolidines	Linezolid	4	217	0								13	198	6											0.25	32
Penicillins	Ampicillin	8	217	0							2	175	40												0.25	32
Streptogramins	Quinupristin/Dalfopristin	8	217	146							1				70	122	22	2							0.5	64
Tetracyclines	Tetracyclines	2	217	157							38	21	1				36	61	60						0.5	64

Table Antimicrobial susceptibility testing of *E. faecalis* - qualitative data

E. faecalis		Meat from pig		Meat from sheep		Meat from poultry, unspecified		Meat from bovine animals	
Isolates out of a monitoring program (yes/no)		yes		yes		yes		yes	
Number of isolates available in the laboratory		44		15		217		68	
Antimicrobials:		N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin	44	1	15	1	217	7	68	0
	Streptomycin	44	0	15	3	217	80	68	2
Amphenicols	Chloramphenicol	44	1	15	0	217	17	68	0
Fluoroquinolones	Ciprofloxacin	44	0	15	0	217	6	68	0
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	44	3	15	1	217	46	68	3
	Vancomycin	44	0	15	0	217	1	68	0
Ionophores	Salinomycin	44	0	15	0	217	1	68	0
Macrolides	Erythromycin	44	2	15	3	217	117	68	2
Orthosomycins	Avilamycin	44	0	15	0	217	0	68	0
Oxazolidines	Linezolid	44	0	15	0	217	0	68	0
Penicillins	Ampicillin	44	0	15	0	217	0	68	0
Streptogramins	Quinupristin/Dalfopristin	44	0	15	0	217	2	68	0
Tetracyclines	Tetracyclines	44	9	15	11	217	157	68	10

Table Antimicrobial susceptibility testing of *E. faecalis* in Meat from bovine animals - quantitative data [Dilution method]

E. faecalis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from bovine animals																								
		yes																								
		68																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	32	68	68															68						128	1024
	Streptomycin	512	68	2																	66		1	1	512	2048
Amphenicols	Chloramphenicol	32	68	0										2	62	4									1	128
Fluoroquinolones	Ciprofloxacin	4	66	0								42	23	1											0.5	64
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	32	68	55											1		12	31	21	2	1				2	256
	Vancomycin	4	68	0								29	33	6											0.5	64
Ionophores	Salinomycin	4	68	0							9	43	16												0.5	64
Macrolides	Erythromycin	4	68	2								40	19	7						2					1	128
Orthosomycins	Avilamycin	8	68	0							1	5	37	23	2										0.25	32
Oxazolidines	Linezolid	4	68	0									62	6											0.25	32
Penicillins	Ampicillin	8	68	0						1	5	49	13												0.25	32
Streptogramins	Quinupristin/Dalfopristin	8	68	33							2	2	1	2	28	31	2								0.5	64
Tetracyclines	Tetracyclines	2	68	10							34	24						8	2						0.5	64

Table Antimicrobial susceptibility testing of *E. faecalis* in Meat from sheep - quantitative data [Dilution method]

E. faecalis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from sheep																								
		yes																								
		15																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	32	15	15															14	1					128	1024
	Streptomycin	512	15	3																	12		1	2	512	2048
Amphenicols	Chloramphenicol	32	15	0											15										1	128
Fluoroquinolones	Ciprofloxacin	4	15	0							2	9	4												0.5	64
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	32	15	11											1	1	2	6	4		1				2	256
	Vancomycin	4	15	0								6	7	2											0.5	64
Ionophores	Salinomycin	4	15	0							1	12	2												0.5	64
Macrolides	Erythromycin	4	15	3								9	3							3					1	128
Orthosomycins	Avilamycin	8	15	0								2	6	6	1										0.25	32
Oxazolidines	Linezolid	4	15	0									12	3											0.25	32
Penicillins	Ampicillin	8	15	0							1	11	3												0.25	32
Streptogramins	Quinupristin/Dalfopristin	8	15	10										1	4	9	1								0.5	64
Tetracyclines	Tetracyclines	2	15	11							1	3						2	9						0.5	64

Table Antimicrobial susceptibility testing of E. faecalis in Meat from pig - quantitative data [Dilution method]

E. faecalis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from pig																									
		yes																									
		44																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	32	44	44														43			1			128	1024		
	Streptomycin	512	44	0																44				512	2048		
Amphenicols	Chloramphenicol	32	43	1										36	6		1							1	128		
Fluoroquinolones	Ciprofloxacin	4	44	0						4	25	15												0.5	64		
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	32	44	38										1		5	25	10	3					2	256		
	Vancomycin	4	44	0							14	26	4											0.5	64		
Ionophores	Salinomycin	4	44	1						3	30	10		1										0.5	64		
Macrolides	Erythromycin	4	44	2							24	11	7						2					1	128		
Orthosomycins	Avilamycin	8	44	0							2	28	13	1										0.25	32		
Oxazolidines	Linezolid	4	44	0								36	8											0.25	32		
Penicillins	Ampicillin	8	44	0							1	32	10	1										0.25	32		
Streptogramins	Quinupristin/Dalfopristin	8	44	21							2	3			18	21								0.6	64		
Tetracyclines	Tetracyclines	2	44	9							20	13	2					7	2					0.5	64		

Table Antimicrobial susceptibility testing of *E. faecalis* in humans - quantitative data [Dilution method]

E. faecalis Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		humans																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	500	0	0																						
	Streptomycin	2000	0	0																						
Amphenicols	Chloramphenicol	32	0	0																						
Fluoroquinolones	Ciprofloxacin	4	0	0																						
Glycolipids	Flavofosfolipol	16	0	0																						
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	128	0	0																						
	Vancomycin	4	0	0																						
Ionophores	Salinomycin	4	0	0																						
Macrolides	Erythromycin	4	0	0																						
Oxazolidines	Linezolid	4	0	0																						
Penicillins	Amoxicillin	4	0	0																						
Streptogramins	Quinupristin/Dalfopristin	32	0	0																						
Tetracyclines	Tetracyclines	2	0	0																						

Table Breakpoints for antibiotic resistance of Enterococcus, non-pathogenic

Test Method Used		Standards used for testing	
Disc diffusion	○	NCCLS	
Agar dilution	○		
Broth dilution	●		
E-test	○		

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	Gentamicin	EUCAST/EFSA	500		500	128	1024				
	Streptomycin	EUCAST/EFSA	2000		2000	512	2048				
Amphenicols	Chloramphenicol	EUCAST/EFSA	32		32	2	64				
	Florfenicol	EUCAST/EFSA	8		8	1	64				
Fluoroquinolones	Ciprofloxacin	EUCAST/EFSA	4		4	0.5	64				
Glycolipids	Flavofosfolipol	EUCAST/EFSA	16		16	4	512				
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	EUCAST/EFSA	128		128	2	256				
	Vancomycin	EUCAST/EFSA	4		4	0.5	64				
Ionophores	Salinomycin	EUCAST/EFSA	4		4	0.5	64				
Macrolides	Erythromycin	EUCAST/EFSA	4		4	1	128				
Oxazolidinones	Linezolid	CLSI	4		4	0.5	64				
Penicillins	Amoxicillin	EUCAST/EFSA	4		4	1	128				
Streptogramins	Quinupristin/Dalfopristin	EUCAST/EFSA	32		32	0.5	64				
Tetracyclines	Tetracyclines	EUCAST/EFSA	2		2	0.5	128				

Table Breakpoints for antibiotic resistance of Enterococcus, non-pathogenic

Footnote:

Breakpoints of E. faecalis are filled in.E. faecium has different breakpoints for: Flavomycin (E. faecium is intrinsic resistant, so no breakpoints available), Quino/dalfo: 1.
For streptomycin: most of the isolates were tested for high level resistance (range: 512 - 2048 and breakpoint 2000. A few isolates are tested differently: range 8-1024, breakpoint Efu 128 and Efa 512).
For gentamycin: most of the isolates were tested for high-level resistance (range 128 - 1024, breakpoint 500), a few isolates are tested differently: (range 4 - 512, breakpoint 32).

Table Breakpoints for antibiotic resistance of Enterococcus, non-pathogenic

Test Method Used		Standards used for testing									
Disc diffusion		○	NCCLS								
Agar dilution		○									
Broth dilution		●									
E-test		○									

		Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content microg	Breakpoint Zone diameter (mm)		
			Susceptible <=	Intermediate	Resistant >	lowest	highest		Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	Gentamicin	EUCAST			32	128	1024				
	Streptomycin	EUCAST			512	512	2048				
Amphenicols	Chloramphenicol	EUCAST			32	1	128				
Fluoroquinolones	Ciprofloxacin	EUCAST			4	0.5	64				
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	EUCAST			32	2	256				
	Vancomycin	EUCAST			4	0.5	64				
Ionophores	Salinomycin	EUCAST			4	0.5	64				
Macrolides	Erythromycin	EUCAST			4	1	128				
Orthosomycins	Avilamycin	EUCAST			8	0.25	32				
Oxazolidines	Linezolid	EUCAST			4	0.25	32				
Penicillins	Ampicillin	EUCAST			8	0.25	32				
Streptogramins	Quinupristin/Dalfopristin	EUCAST			8	0.5	64				
Tetracyclines	Tetracyclines	EUCAST			2	0.5	64				

Table Breakpoints for antibiotic resistance of Enterococcus, non-pathogenic

Test Method Used		Standards used for testing									
Disc diffusion		○	NCCLS								
Agar dilution		○									
Broth dilution		●									
E-test		○									

		Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content microg	Breakpoint Zone diameter (mm)		
			Susceptible <=	Intermediate	Resistant >	lowest	highest		Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	Gentamicin	EUCAST/EFSA	500		500	128	1024				
	Streptomycin	EUCAST/EFSA	2000		2000	512	2048				
Amphenicols	Chloramphenicol	EUCAST/EFSA	32		32	2	64				
Fluoroquinolones	Ciprofloxacin	EUCAST/EFSA	4		4	0.5	64				
Glycolipids	Flavofosfolipol	EUCAST/EFSA	16		16	4	512				
Glycopeptides (Cyclic peptides, Polypeptides)	Bacitracin	EUCAST/EFSA	128		128	2	256				
	Vancomycin	EUCAST/EFSA	4		4	0.5	64				
Ionophores	Salinomycin	EUCAST/EFSA	4		4	0.5	64				
Macrolides	Erythromycin	EUCAST/EFSA	4		4	1	128				
Oxazolidines	Linezolid	CLSI	4		4	0.5	64				
Penicillins	Amoxicillin	EUCAST/EFSA	4		4	1	128				
Streptogramins	Quinupristin/Dalfopristin	EUCAST/EFSA	32		32	0.5	64				
Tetracyclines	Tetracyclines	EUCAST/EFSA	2		2	0.5	128				

Table Breakpoints for antibiotic resistance of Enterococcus, non-pathogenic

Footnote:

Breakpoints of E. faecalis are filled in.

3.2 ESCHERICHIA COLI, NON-PATHOGENIC

3.2.1 General evaluation of the national situation

3.2.2 Antimicrobial resistance in Escherichia coli, non-pathogenic

Table Antimicrobial susceptibility testing of E. coli in calves (under 1 year) - Cattle (bovine animals) - veal calves - at farm - Surveillance - quantitative data [Dilution method]

E. coli		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance																								
		yes																								
		153																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Antimicrobials:	Gentamicin	2	153	19							47	72	15	3		3	4	9							0.25	32
	Kanamycin	8	153	42										83	28	6	1	1	1	33					4	128
	Neomycin		0	0																						
	Streptomycin	16	153	68										17	56	12	2	7	14	45					2	128
Aminoglycosides	Chloramphenicol	16	153	29										6	92	26	2		27						2	64
	Florfenicol	16	153	19										16	101	17	3	1	15						2	64
Amphenicols	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.25	153	3				112	28	10		1	1		1										0.06	4
	Ceftazidim	0.5	153	3						129	21	1	1		1										0.25	16
Cephalosporins	Ciprofloxacin	0.06	153	31	1	91	24	6	1	7	8	1	4		2	8									0.008	8
	Enrofloxacin		0	0																						
Fluoroquinolones	Ampicillin	8	153	62								1	22	64	4			62							0.5	32
Penicillins	Colistin	8	153	1											152			1							8	16
Polymyxins	Nalidixic acid	16	153	31										116	6				31						4	64
Quinolones																										

Table Antimicrobial susceptibility testing of E. coli in calves (under 1 year) - Cattle (bovine animals) - veal calves - at farm - Surveillance - quantitative data [Dilution method]

E. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance																								
		yes																								
		153																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Sulfonamides	Sulfamethoxazol	256	153	69											82	1	1						69		8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	153	103								2	21	22	5		1	7	95						1	64
Trimethoprim	Trimethoprim	2	153	65							87		1					65							0.5	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of E. coli in Pigs - at slaughterhouse - Monitoring - quantitative data [Dilution method]

E. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Pigs - at slaughterhouse - Monitoring																								
		yes																								
		296																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	296	7						4	93	152	40	5	1	1									0.25	32
	Kanamycin	8	296	22										192	82	17	2			3					4	128
	Neomycin		0	0																						
	Streptomycin	16	296	165										19	72	40	19	30	41	75					2	128
Amphenicols	Chloramphenicol	16	296	31									2	33	198	32	9	3	19						2	64
	Florfenicol	16	296	3									6	54	214	19	3								2	64
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.25	296	3				256	37						3										0.06	4
	Ceftazidim	0.5	296	4						276	16	1	3												0.25	16
Fluoroquinolones	Ciprofloxacin	0.06	295	4	5	209	75	2		4															0.008	8
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	8	296	105								5	55	120	11			105							0.5	32
Polymyxins	Colistin	8	296	1											295	1									8	16
Quinolones	Nalidixic acid	16	296	6										284	4	2	1		5						4	64
Sulfonamides	Sulfamethoxazol	256	296	169											123	1	2			1		1	168		8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	296	201								6	49	38	2	2	1	42	156						1	64
Trimethoprim	Trimethoprim	2	296	146							142	7	1					146							0.5	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of E. coli in Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring - quantitative data [Dilution method]

E. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring																									
		yes																									
		440																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	440	64							103	221	52	11	2	20	21	10									
	Kanamycin	8	440	95										225	120	21	5		1	68							
	Neomycin		0	0																							
	Streptomycin	16	440	264										24	112	40	16	36	32	180							
Amphenicols	Chloramphenicol	16	440	111										22	246	61	8	13	90								
	Florfenicol	16	440	21										49	297	73	10	1	10								
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.25	440	66				276	92	6	1	3		1	61												
	Ceftazidim	0.5	440	64							344	32	13	21	9	7	9	5									
Fluoroquinolones	Ciprofloxacin	0.06	440	268	3	114	51	4	20	132	76	12	5		9	14											
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	8	440	288								3	38	90	21			288									
Polymyxins	Colistin	8	440	0											440												
Quinolones	Nalidixic acid	16	440	272										162	6		6	17	249								
Sulfonamides	Sulfamethoxazol	256	440	312											123	2		1	2		1	2	309				
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	440	256								16	72	91	5		1	35	220								
Trimethoprim	Trimethoprim	2	440	264							167	8	1					264									
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of E. coli in Cattle (bovine animals) - dairy cows - at farm - Surveillance - quantitative data [Dilution method]

E. coli		Cattle (bovine animals) - dairy cows - at farm - Surveillance																									
		yes																									
		148																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Antimicrobials:	Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory	Gentamicin	2	148	5						1	58	71	13	2		1	1	1						0.25	32	
		Kanamycin	8	148	10									109	29	3			1	6					4	128	
		Neomycin		0	0																						
		Streptomycin	16	148	15									23	95	15	2	2	2	9					2	128	
Amphenicols	Chloramphenicol	16	148	6									7	110	25		1	5						2	64		
	Florfenicol	16	148	4									13	116	15	1		3						2	64		
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.25	148	2			117	28	1					2										0.06	4		
	Ceftazidim	0.5	148	2						138	8			1		1								0.25	16		
Fluoroquinolones	Ciprofloxacin	0.06	148	7	1	105	35		1	1	2	1			1	1								0.008	8		
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	8	148	14								3	24	99	8		14							0.5	32		
Polymyxins	Colistin	8	148	0											148									8	16		
Quinolones	Nalidixic acid	16	148	8										139	1		1		7					4	64		
Sulfonamides	Sulfamethoxazol	256	148	15											132	1							15	8	1024		
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	148	20								12	40	73	3	1		2	17					1	64		
Trimethoprim	Trimethoprim	2	148	9							137	1	1					9						0.5	32		
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of E. coli in animals

E. coli		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring		Gallus gallus (fowl) - laying hens - at slaughterhouse - Monitoring		Cattle (bovine animals) - dairy cows - at farm - Surveillance	
		yes				yes						yes		yes		yes	
		153				296						440		0		148	
		N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n
Antimicrobials:																	
Aminoglycosides	Gentamicin	153	19			296	7					440	64			148	5
	Kanamycin	153	42			296	22					440	95			148	10
	Streptomycin	153	68			296	165					440	264			148	15
Amphenicols	Chloramphenicol	153	29			296	31					440	111			148	6
	Florfenicol	153	19			296	3					440	21			148	4
Cephalosporins	Cefotaxim	153	3			296	3					440	66			148	2
	Ceftazidim	153	3			296	4					440	64			148	2
Fluoroquinolones	Ciprofloxacin	153	31			296	4					440	268			148	7
Fully sensitive	Fully sensitive	153	45			296	68					440	56			148	124
Penicillins	Ampicillin	153	62			296	105					440	288			148	14
Polymyxins	Colistin	153	1			296	1					440	0			148	0
Quinolones	Nalidixic acid	153	31			296	6					440	272			148	8
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	153	27			296	45					440	46			148	8
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	153	14			296	40					440	33			148	3
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	153	11			296	50					440	36			148	1
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	153	21			296	74					440	78			148	3
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	153	35			296	19					440	191			148	9
Sulfonamides	Sulfamethoxazol	153	69			296	169					440	312			148	15

Table Antimicrobial susceptibility testing of E. coli in animals

E. coli		Cattle (bovine animals) - calves (under 1 year) - veal calves - at farm - Surveillance		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring		Gallus gallus (fowl) - laying hens - at slaughterhouse - Monitoring		Cattle (bovine animals) - dairy cows - at farm - Surveillance	
Isolates out of a monitoring program (yes/no)		yes				yes						yes		yes		yes	
Number of isolates available in the laboratory		153				296						440		0		148	
Antimicrobials:		N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n
Tetracyclines	Tetracyclin	153	103			296	201					440	256			148	20
Trimethoprim	Trimethoprim	153	65			296	146					440	264			148	9

Table Antimicrobial susceptibility testing of E. coli in Gallus gallus (fowl) - laying hens - at slaughterhouse - Monitoring - quantitative data [Dilution method]

E. coli		Gallus gallus (fowl) - laying hens - at slaughterhouse - Monitoring																									
		Isolates out of a monitoring program (yes/no)																									
		Number of isolates available in the laboratory																									
		Antimicrobials:																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	2	0	0																							
	Kanamycin	8	0	0																							
	Neomycin		0	0																							
	Streptomycin	16	0	0																							
Amphenicols	Chloramphenicol	16	0	0																							
	Florfenicol	16	0	0																							
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	0.25	0	0																							
	Ceftazidim	0.5	0	0																							
Fluoroquinolones	Ciprofloxacin	0.06	0	0																							
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	8	0	0																							
Polymyxins	Colistin	8	0	0																							
Quinolones	Nalidixic acid	16	0	0																							
Sulfonamides	Sulfamethoxazol	256	0	0																							
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	0	0																							
Trimethoprim	Trimethoprim	2	0	0																							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of E. coli in food

E. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Seeds, sprouted		Meat from sheep		Meat from turkey		Meat from poultry, unspecified		Meat from pig		Meat from bovine animals		Meat from broilers (Gallus gallus)		Meat from other poultry species	
		yes		yes		yes		yes		yes		yes					
		7		8		89		228		17		50					
		N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin	7	0	8	0	89	2	228	8	17	0	50	1				
	Kanamycin	7	1	8	0	89	10	228	28	17	1	50	2				
	Streptomycin	7	1	8	0	89	35	228	112	17	2	50	9				
Amphenicols	Chloramphenicol	7	1	8	0	89	15	228	39	17	2	50	3				
Cephalosporins	Cefotaxim	7	2	8	0	89	3	228	44	17	0	50	3				
	Ceftazidim	7	3	8	0	89	4	228	26	17	0	50	3				
Fluoroquinolones	Ciprofloxacin	7	1	8	0	89	9	228	22	17	1	50	2				
Fully sensitive	Fully sensitive	7	0	8	1	89	1	228	5	17	1	50	4				
Penicillins	Ampicillin	7	2	8	1	89	56	228	153	17	2	50	6				
Polymyxins	Colistin	7	0	8	0	89	0	228	4	17	0	50	1				
Quinolones	Nalidixic acid	7	3	8	0	89	15	228	39	17	1	50	4				
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	7	2	8	6	89	10	228	29	17	10	50	30				
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	7	1	8	1	89	11	228	25	17	1	50	3				
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	7	1	8	0	89	18	228	21	17	2	50	5				
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	7	1	8	0	89	20	228	37	17	1	50	3				
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	7	2	8	0	89	29	228	111	17	2	50	5				
Sulfonamides	Sulfamethoxazol	7	7	8	7	89	85	228	215	17	16	50	46				
Tetracyclines	Tetracyclin	7	7	8	0	89	71	228	129	17	4	50	10				
Trimethoprim	Trimethoprim	7	1	8	0	89	38	228	119	17	3	50	6				

Table Antimicrobial susceptibility testing of E. coli in Meat from poultry, unspecified - quantitative data [Dilution method]

E. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from poultry, unspecified																											
		yes																											
		228																											
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest			
Aminoglycosides	Gentamicin	4	228	8						7	102	103	5	3	1	3	1	3							0.25	32			
	Kanamycin	8	228	28										184	16	4		1	1	22					4	128			
	Neomycin		0	0																									
	Streptomycin	16	228	112									2	37	58	19	15	8	19	70					2	128			
Amphenicols	Chloramphenicol	16	228	39								1	32	141	15	6	6	27							2	64			
	Florfenicol	16	228	3								3	82	126	14	1	1	1							2	64			
Cephalosporins	3rd generation cephalosporins		0	0																									
	Cefotaxim	2	228	44				150	17	2	6	5	4	2	42										0.06	4			
	Ceftazidim	8	228	26						158	11	6	6	9	12	4	22								0.25	16			
Fluoroquinolones	Ciprofloxacin	1	228	22	5	81	24		21	56	14	5	3	3	9	7									0.008	8			
	Enrofloxacin		0	0																									
Penicillins	Ampicillin	8	228	153							2	2	27	40	4	2		151							0.5	32			
Quinolones	Nalidixic acid	16	228	113										112	1	2	5	16	92						4	64			
Sulfonamides	Sulfamethoxazol		228	228											1	5	2	3	2		3	1	211		8	1024			
	Sulfonamide		0	0																									
Tetracyclines	Tetracyclin	8	228	129								9	60	28	2	1	1	51	76						1	64			
Trimethoprim	Trimethoprim	4	228	119							77	19	8	5	3	1	1	114							0.5	32			
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																									

Table Antimicrobial susceptibility testing of E. coli in Meat from bovine animals - quantitative data [Dilution method]

E. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from bovine animals																								
		yes																								
		50																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	4	50	1						1	27	20	1			1									0.25	32
	Kanamycin	8	50	2										42	6	1				1					4	128
	Neomycin		0	0																						
	Streptomycin	16	50	9										17	20	4	2	3	1	3					2	128
Amphenicols	Chloramphenicol	16	50	0											49	1									2	64
	Florfenicol	16	50	2										20	25	3	1		1						2	64
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	2	50	3				41	5				1		3										0.06	4
	Ceftazidim	8	47	0						43	1	1	1	1											0.25	16
Fluoroquinolones	Ciprofloxacin	1	50	2	3	32	9	1	1	2					1	1									0.008	8
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	8	50	6							1		14	25	4	1		5							0.5	32
Quinolones	Nalidixic acid	16	50	4										44	2			1	3						4	64
Sulfonamides	Sulfamethoxazol		50	50											1	2			1		1		45		8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	50	10								3	26	10	1			3	7						1	64
Trimethoprim	Trimethoprim	4	50	6							32	10	1	1	1			5							0.5	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of E. coli in Seeds, sprouted - quantitative data [Dilution method]

E. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Seeds, sprouted																											
		yes																											
		7																											
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest			
Aminoglycosides	Gentamicin	4	7	0						1	4	1	1												0.25	32			
	Kanamycin	8	7	1									6		1										4	128			
	Neomycin		0	0																									
	Streptomycin	16	7	1										4	2			1							2	128			
Amphenicols	Chloramphenicol	16	7	1										5	1	1									2	64			
	Florfenicol	16	7	0									3	2	2										2	64			
Cephalosporins	3rd generation cephalosporins		0	0																									
	Cefotaxim	2	7	2				4			1			2											0.06	4			
	Ceftazidim	8	7	3						4					1	2									0.25	16			
Fluoroquinolones	Ciprofloxacin	1	7	1		3			1	2					1										0.008	8			
	Enrofloxacin		0	0																									
Penicillins	Ampicillin	8	7	2								1	3	1			2								0.5	32			
Quinolones	Nalidixic acid	16	7	3									3		1		2	1							4	64			
Sulfonamides	Sulfamethoxazol		7	7																		7			8	1024			
	Sulfonamide		0	0																									
Tetracyclines	Tetracyclin	8	7	2							1	2	1	1				2							1	64			
Trimethoprim	Trimethoprim	4	7	1							4	1	1				1								0.5	32			
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																									

Table Antimicrobial susceptibility testing of E. coli in Meat from sheep - quantitative data [Dilution method]

E. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from sheep																									
		yes																									
		8																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	4	8	0						5	3													0.25	32		
	Kanamycin	8	8	0									5	3										4	128		
	Neomycin		0	0																							
	Streptomycin	16	8	0									4	4										2	128		
Amphenicols	Chloramphenicol	16	8	0									1	7										2	64		
	Florfenicol	16	8	0									5	3										2	64		
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	2	8	0				8																0.06	4		
	Ceftazidim	8	8	0						8														0.25	16		
Fluoroquinolones	Ciprofloxacin	1	8	0		4	4																	0.008	8		
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	8	8	1									7				1							0.5	32		
Quinolones	Nalidixic acid	16	8	0									8											4	64		
Sulfonamides	Sulfamethoxazol		8	8										1							2	5		8	1024		
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	8	0							2	5	1											1	64		
Trimethoprim	Trimethoprim	4	8	0						8														0.5	32		
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of E. coli in Meat from pig - quantitative data [Dilution method]

E. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from pig																									
		yes																									
		17																									
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest	
Aminoglycosides	Gentamicin	4	17	0						7	8	2												0.25	32		
	Kanamycin	8	17	1									13	3	1									4	128		
	Neomycin		0	0																							
	Streptomycin	16	17	2									2	13				1	1					2	128		
Amphenicols	Chloramphenicol	16	17	2									1	13	1	1		1						2	64		
	Florfenicol	16	17	1									2	14		1								2	64		
Cephalosporins	3rd generation cephalosporins		0	0																							
	Cefotaxim	2	17	0				13	4															0.06	4		
	Ceftazidim	8	17	0						15	2													0.25	16		
Fluoroquinolones	Ciprofloxacin	1	17	1	1	9	6								1									0.008	8		
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	8	17	2							1	6	8		1		1							0.5	32		
Quinolones	Nalidixic acid	16	17	1									16					1						4	64		
Sulfonamides	Sulfamethoxazol		17	17												1						16		8	1024		
	Sulfonamide		0	0																							
Tetracyclines	Tetracyclin	8	16	4							7	4	1					4						1	64		
Trimethoprim	Trimethoprim	4	17	3						9	4	1					3							0.5	32		
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																							

Table Antimicrobial susceptibility testing of E. coli in Meat from turkey - quantitative data [Dilution method]

E. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		Meat from turkey																								
		yes																								
		89																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	4	89	2						1	29	52	5			1		1							0.25	32
	Kanamycin	8	89	10										65	14	3			1	6					4	128
	Neomycin		0	0																						
	Streptomycin	16	89	35										24	25	5	4	7	4	20					2	128
Amphenicols	Chloramphenicol	16	89	15										19	51	4	3	4	8						2	64
	Florfenicol	16	89	0								2	34	47	6										2	64
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	2	89	3				70	13	2		1			3										0.06	4
	Ceftazidim	8	89	4						79	2	3	1			1	3								0.25	16
Fluoroquinolones	Ciprofloxacin	1	89	9	3	46	19	3	1	7		1			4	5									0.008	8
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	8	89	56									15	17	1			56							0.5	32
Quinolones	Nalidixic acid	16	89	15										72	1	1	1		14						4	64
Sulfonamides	Sulfamethoxazol		89	89											3		1			1		1	83		8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	89	71								3	11	3	1	1	1	26	43						1	64
Trimethoprim	Trimethoprim	4	89	38							41	5	4	1	2	1		35							0.5	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of E. coli in humans - quantitative data [Dilution method]

E. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory Antimicrobials:		humans																								
		yes																								
		47																								
		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	47	2						22	22	1		1				1								
	Kanamycin	8	47	2										45						2						
	Neomycin		0	0																						
	Streptomycin	16	47	9										8	30			1	3	5						
Amphenicols	Chloramphenicol	16	47	3										1	41	2		1	2							
	Florfenicol	16	47	1										5	40	1			1							
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.25	47	0				45	2																	
	Ceftazidim	0.5	47	0						47																
Fluoroquinolones	Ciprofloxacin	0.06	47	0		37	10																			
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	8	47	3							1	6	37					3								
Polymyxins	Colistin	8	47	0											47											
Quinolones	Nalidixic acid	16	47	0										47												
Sulfonamides	Sulfamethoxazol	256	47	8											39								8			
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	47	4									38	5					4							
Trimethoprim	Trimethoprim	2	47	3						44								3								
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of E. coli in humans - quantitative data [Dilution method]

Footnote:

This concerns E.coli O157 isolated from humans.

Table Antimicrobial susceptibility testing of E. coli in humans

E. coli Isolates out of a monitoring program (yes/no) Number of isolates available in the laboratory		humans	
		yes	
		47	
		N	n
Antimicrobials:			
Aminoglycosides	Gentamicin	47	2
	Kanamycin	47	2
	Streptomycin	47	9
Amphenicols	Chloramphenicol	47	3
	Florfenicol	47	1
Cephalosporins	Cefotaxim	47	0
	Ceftazidim	47	0
Fluoroquinolones	Ciprofloxacin	47	0
Fully sensitive	Fully sensitive	47	39
Penicillins	Ampicillin	47	3
Polymyxins	Colistin	47	0
Quinolones	Nalidixic acid	47	0
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	47	4
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	47	1
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	47	0
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	47	0
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	47	3
Sulfonamides	Sulfamethoxazol	47	8
Tetracyclines	Tetracyclin	47	4
Trimethoprim	Trimethoprim	47	3

Table Breakpoints used for antimicrobial susceptibility testing

Test Method Used		Standards used for testing	
Disc diffusion	○	NCCLS	
Agar dilution	○		
Broth dilution	⦿		
E-test	○		

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	Gentamicin	EUCAST/EFSA	2		2	0.25	32				
	Kanamycin	EUCAST/EFSA	8		8	4	128				
	Streptomycin	EUCAST/EFSA	16		16	2	128				
Amphenicols	Chloramphenicol	EUCAST/EFSA	16		16	2	64				
	Florfenicol	EUCAST/EFSA	16		16	2	64				
Cephalosporins	Cefotaxim	EUCAST/EFSA	0.25		0.25	0.06	4				
	Ceftazidim	EUCAST/EFSA	0.5		0.5	0.25	16				
Fluoroquinolones	Ciprofloxacin	EUCAST/EFSA	0.06		0.06	0.008	8				
Penicillins	Ampicillin	EUCAST/EFSA	8		8	0.5	32				
Polymyxins	Colistin	EUCAST/EFSA	8		8	8	16				
Quinolones	Nalidixic acid	EUCAST/EFSA	16		16	4	64				
Sulfonamides	Sulfamethoxazol	CLSI	256		256	8	1024				
Tetracyclines	Tetracyclin	EUCAST/EFSA	8		8	1	64				
Trimethoprim	Trimethoprim	EUCAST/EFSA	2		2	0.5	32				

Table Breakpoints used for antimicrobial susceptibility testing

Test Method Used		Standards used for testing	
Disc diffusion	○	NCCLS	
Agar dilution	○		
Broth dilution	●		
E-test	○		

		Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content microg	Breakpoint Zone diameter (mm)		
			Susceptible <=	Intermediate	Resistant >	lowest	highest		Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	Gentamicin	EUCAST			4	0.25	32				
	Kanamycin	EUCAST			8	4	128				
	Streptomycin	EUCAST			16	2	128				
Amphenicols	Chloramphenicol	EUCAST			16	2	64				
	Florfenicol	EUCAST			16	2	64				
Cephalosporins	Cefotaxim	EUCAST			2	0.06	4				
	Ceftazidim	EUCAST			8	0.25	16				
Fluoroquinolones	Ciprofloxacin	EUCAST			1	0.008	8				
Penicillins	Ampicillin	EUCAST			8	0.5	32				
Quinolones	Nalidixic acid	EUCAST			16	4	64				
Tetracyclines	Tetracyclin	EUCAST			8	1	64				
Trimethoprim	Trimethoprim	EUCAST			4	0.5	32				

Table Breakpoints used for antimicrobial susceptibility testing

Test Method Used		Standards used for testing	
Disc diffusion	○	NCCLS	
Agar dilution	○		
Broth dilution	●		
E-test	○		

		Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content microg	Breakpoint Zone diameter (mm)		
			Susceptible <=	Intermediate	Resistant >	lowest	highest		Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	Gentamicin	EUCAST/EFSA	2		2	0.25	32				
	Kanamycin	EUCAST/EFSA	8		8	4	128				
	Streptomycin	EUCAST/EFSA	16		16	2	128				
Amphenicols	Chloramphenicol	EUCAST/EFSA	16		16	2	64				
	Florfenicol	EUCAST/EFSA	16		16	2	64				
Cephalosporins	Cefotaxim	EUCAST/EFSA	0.25		0.25	0.06	4				
	Ceftazidim	EUCAST/EFSA	0.5		0.5	0.25	16				
Fluoroquinolones	Ciprofloxacin	EUCAST/EFSA	0.06		0.06	0.008	8				
Penicillins	Ampicillin	EUCAST/EFSA	8		8	0.5	32				
Polymyxins	Colistin	EUCAST/EFSA	8		8	8	16				
Quinolones	Nalidixic acid	EUCAST/EFSA	16		16	4	64				
Sulfonamides	Sulfamethoxazol	CLSI	256		256	8	1024				
Tetracyclines	Tetracyclin	EUCAST/EFSA	8		8	1	64				
Trimethoprim	Trimethoprim	EUCAST/EFSA	2		2	0.5	32				

Table Breakpoints used for antimicrobial susceptibility testing

Footnote:

This concerns E. coli O157 isolated from humans.

4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS

4.1 HISTAMINE

4.1.1 General evaluation of the national situation

4.1.2 Histamine in foodstuffs

4.2 ENTEROBACTER SAKAZAKII

4.2.1 General evaluation of the national situation

4.2.2 Enterobacter sakazakii in foodstuffs

4.3 STAPHYLOCOCCAL ENTEROTOXINS

4.3.1 General evaluation of the national situation

4.3.2 Staphylococcal enterotoxins in foodstuffs

5. FOODBORNE

Foodborne outbreaks are incidences of two or more human cases of the same disease or infection where the cases are linked or are probably linked to the same food source. Situation, in which the observed human cases exceed the expected number of cases and where a same food source is suspected, is also indicative of a foodborne outbreak.

Foodborne Outbreaks: summarized data

	Total number of outbreaks	Outbreaks	Human cases	Hospitalized	Deaths	Number of verified outbreaks
Bacillus	15	0	unknown	unknown	unknown	15
Campylobacter	8	5	14	1	0	3
Clostridium	2	0	unknown	unknown	unknown	2
Escherichia coli, pathogenic	0	0	unknown	unknown	unknown	0
Foodborne viruses	11	11	197	unknown	unknown	0
Listeria	0	0	unknown	unknown	unknown	0
Other agents	1	1	2	2	0	0
Parasites	0	0	unknown	unknown	unknown	0
Salmonella	21	12	45	8	0	9
Staphylococcus	6	0	unknown	unknown	unknown	6
Unknown	259	259	982	unknown	0	0
Yersinia	1	1	unknown	unknown	unknown	0

Verified Foodborne Outbreaks: detailed data**S. Enteritidis**

Value

Code	635941
Subagent Choice	Salmonella; S. Enteritidis
Outbreak type	General
Human cases	21
Hospitalized	0
Deaths	0
Foodstuff implicated	Eggs and egg products
More Foodstuff	Tiramisu with raw eggs
Type of evidence	Laboratory detection in human cases, Analytical epidemiological evidence
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Unprocessed contaminated ingredient
Outbreaks	1
Comment	

S. Enteritidis

Value

Code	693281
Subagent Choice	Salmonella; S. Enteritidis
Outbreak type	General
Human cases	7
Hospitalized	3
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	fried rice, noodles, sate, egg rolls, fried vegetables
Type of evidence	Laboratory detection in human cases, Analytical epidemiological evidence
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Unknown
Outbreaks	1
Comment	

S. Enteritidis

Value

Code	764117
Subagent Choice	
Outbreak type	General
Human cases	12
Hospitalized	1
Deaths	0
Foodstuff implicated	Eggs and egg products
More Foodstuff	Home-made chocolate mousse with raw eggs
Type of evidence	Laboratory detection in human cases, Analytical epidemiological evidence
Setting	Household
Place of origin of problem	Household, domestic kitchen
Origin of foodstuff	Unknown
Contributory factors	Unprocessed contaminated ingredient
Outbreaks	1
Comment	General outbreak, because patients were friends and family from different households

S. Enteritidis

Value

Code	815227
Subagent Choice	Salmonella; S. Enteritidis; PT 8
Outbreak type	General
Human cases	195
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Eggs and egg products
More Foodstuff	
Type of evidence	Laboratory detection in human cases, Analytical epidemiological evidence
Setting	Household
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Unknown
Outbreaks	1
Comment	Nation-wide outbreak of Salmonella Enteritidis PT8, probably related to consumption of (raw?) eggs.

S. Panama

Value

Code	815225
Subagent Choice	Salmonella; S. Panama
Outbreak type	General
Human cases	33
Hospitalized	11
Deaths	unknown
Foodstuff implicated	Fruit, berries and juices and other products thereof
More Foodstuff	Fresh fruit juice
Type of evidence	Analytical epidemiological evidence, Laboratory detection in human cases
Setting	Household
Place of origin of problem	Processing plant
Origin of foodstuff	Domestic
Contributory factors	Other contributory factor
Outbreaks	1
Comment	Nation-wide outbreak of S. Panama due to consumption of fresh fruit juice, sold at a large supermarket chain in the Netherlands. Contributory factor was probably that the processing plant could not handle the large quantity of fruit juice that is produced there.

S. Typhimurium

Value

Code	703081
Subagent Choice	Salmonella; S. Typhimurium; FT 507
Outbreak type	General
Human cases	15
Hospitalized	2
Deaths	0
Foodstuff implicated	Other or mixed red meat and products thereof
More Foodstuff	Meat products, but never verified which type, of a local butcher prepared at home
Type of evidence	Laboratory detection in human cases, Analytical epidemiological evidence
Setting	Household
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Unknown
Outbreaks	1
Comment	

S. Typhimurium

Value

Code	794547
Subagent Choice	Salmonella; S. Typhimurium; DT 104
Outbreak type	General
Human cases	100
Hospitalized	41
Deaths	unknown
Foodstuff implicated	Other or mixed red meat and products thereof
More Foodstuff	Case-control study indicated minced meat (beef and pork) or roast beef as possible sources of this outbreak
Type of evidence	Laboratory detection in human cases, Analytical epidemiological evidence
Setting	Household
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Unknown
Outbreaks	1
Comment	Nation-wide outbreak of S. Typhimurium DT104 related to meat product(s) prepared in the household.

S. Typhimurium

Value

Code	815219
Subagent Choice	Salmonella; S. Typhimurium; DT 15
Outbreak type	General
Human cases	27
Hospitalized	3
Deaths	unknown
Foodstuff implicated	Dairy products (other than cheeses)
More Foodstuff	yoghurt of a brand that is very popular among children
Type of evidence	Analytical epidemiological evidence, Laboratory detection in human cases
Setting	Household
Place of origin of problem	Unknown
Origin of foodstuff	Domestic
Contributory factors	Unknown
Outbreaks	1
Comment	Nation-wide outbreak of S. Typhimurium DT15A, especially among young children; case-control study indicated yoghurt of a brand that is very popular among children as the source of the outbreak

Salmonella spp., unspecified

Value

Code	766995
Subagent Choice	Salmonella; Salmonella spp., unspecified
Outbreak type	Household
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Cereal products including rice and seeds/pulses (nuts, almonds)
More Foodstuff	Chinese tomato soup; noodles, chicken, fried banana; pathogen detected in noodles
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Unknown
Outbreaks	1
Comment	

Verified Foodborne Outbreaks: detailed data**C. jejuni**

Value

Code	710383
Subagent Choice	Campylobacter; C. jejuni
Outbreak type	General
Human cases	8
Hospitalized	0
Deaths	0
Foodstuff implicated	Milk
More Foodstuff	Raw milk at a local farm
Type of evidence	Analytical epidemiological evidence, Laboratory detection in human cases
Setting	Other setting
Place of origin of problem	Farm (primary production)
Origin of foodstuff	Domestic
Contributory factors	Unprocessed contaminated ingredient
Outbreaks	1
Comment	Outbreak among school kids having a day-trip to a local farm where they consumed raw milk

Campylobacter spp., unspecified

Value

Code	715933
Subagent Choice	Campylobacter; Campylobacter spp., unspecified
Outbreak type	General
Human cases	14
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	Different meals consumed a.o.: salad, fish, meat, fruit, fried rice, chicken, minced meat, greek salad; pathogen detected in raw chicken meat
Type of evidence	Laboratory detection in implicated food
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Unknown
Outbreaks	1
Comment	

Campylobacter spp., unspecified

Value

Code	823157
Subagent Choice	Campylobacter; Campylobacter spp., unspecified
Outbreak type	Household
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Broiler meat (Gallus gallus) and products thereof
More Foodstuff	Chicken wings and chicken legs; pathogen detected in raw chicken
Type of evidence	Laboratory detection in implicated food
Setting	Household
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Inadequate heat treatment, Cross-contamination
Outbreaks	1
Comment	

Verified Foodborne Outbreaks: detailed data**B. cereus**

Value

Code	749409
Subagent Choice	Bacillus; B. cereus
Outbreak type	Unknown
Human cases	5
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Bakery products
More Foodstuff	Club sandwich with chicken breast, egg, tomato, dressing and lettuce
Type of evidence	Laboratory detection in implicated food
Setting	Canteen or workplace catering
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Unknown
Outbreaks	1
Comment	

B. cereus

Value

Code	825043
Subagent Choice	Bacillus; B. cereus
Outbreak type	Unknown
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	Pizza shoarma
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Inadequate chilling
Outbreaks	1
Comment	

B. cereus

Value

Code	823593
Subagent Choice	Bacillus; B. cereus
Outbreak type	Household
Human cases	4
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	wok buffet; pathogen detected in fried rice and Chinese noodles
Type of evidence	Laboratory detection in implicated food
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Storage time/temperature abuse, Inadequate chilling
Outbreaks	1
Comment	

B. cereus

Value

Code	824951
Subagent Choice	Bacillus; B. cereus
Outbreak type	General
Human cases	4
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	Pathogen detected in cooked rice; cases consumed different meals a.o. vegetarian menu, tenderloin, sweet pepper filled with rice and icecream
Type of evidence	Laboratory detection in implicated food
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Other contributory factor, Inadequate chilling
Outbreaks	1
Comment	Other contributory factor: preparation of (too) large amounts of food

B. cereus

Value

Code	823055
Subagent Choice	Bacillus; B. cereus
Outbreak type	General
Human cases	11
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	Wok meals; pathogen detected in fried rice and beef products
Type of evidence	Laboratory detection in implicated food
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Other contributory factor, Inadequate chilling
Outbreaks	1
Comment	Other contributory factor: preparation of large quantities of food

B. cereus

Value

Code	824251
Subagent Choice	Bacillus; B. cereus
Outbreak type	Household
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	Foe yong hai with chicken breast; pathogen detected in fried rice
Type of evidence	Laboratory detection in implicated food
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Other contributory factor, Inadequate chilling
Outbreaks	1
Comment	Other contributory factor: insufficient hygiene of the food handler

B. cereus

Value

Code	821809
Subagent Choice	Bacillus; B. cereus
Outbreak type	Household
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Unknown
More Foodstuff	vegetarian eggplant oven dish, soup; pathogen detected in the soup
Type of evidence	Laboratory detection in implicated food
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Other contributory factor
Outbreaks	1
Comment	Other contributory factor: insufficient hygiene by the food handler

B. cereus

Value

Code	715523
Subagent Choice	Bacillus; B. cereus
Outbreak type	Household
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Vegetables and juices and other products thereof
More Foodstuff	Cesar salad
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Other contributory factor
Outbreaks	1
Comment	Other contributory factor: insufficient hygiene by food handler

B. cereus

Value

Code	730541
Subagent Choice	Bacillus; B. cereus
Outbreak type	Household
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	tomato soup, fried rice, chicken leg, sate; pathogen detected in fried rice with egg
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Inadequate chilling
Outbreaks	1
Comment	

B. cereus

Value

Code	818387
Subagent Choice	
Outbreak type	Household
Human cases	5
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Cereal products including rice and seeds/pulses (nuts, almonds)
More Foodstuff	Fried rice; pathogen detected in fried rice
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Other contributory factor
Outbreaks	1
Comment	Other contributory factor: preparation of large quantities of food

B. cereus

Value

Code	822719
Subagent Choice	Bacillus; B. cereus
Outbreak type	General
Human cases	8
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Cereal products including rice and seeds/pulses (nuts, almonds)
More Foodstuff	Fried rice; pathogen detected in fried rice
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Inadequate heat treatment
Outbreaks	1
Comment	

B. cereus

Value

Code	823589
Subagent Choice	Bacillus; B. cereus
Outbreak type	General
Human cases	40
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	Fried rice, egg (foe yong hai), chicken sate, spring roll; pathogen detected in fried rice
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Other contributory factor, Inadequate chilling
Outbreaks	1
Comment	Other contributory factor: preparation of large quantities of food

B. cereus

Value

Code	824737
Subagent Choice	Bacillus; B. cereus
Outbreak type	Household
Human cases	3
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	Noodles, fried rice, egg, pork ("babi pangang"), chicken sate, egg rolls; pathogen detected in fried rice and pork
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Other contributory factor, Inadequate heat treatment
Outbreaks	1
Comment	Other contributory factor: insufficient hygiene by food handler

B. cereus

Value

Code	715417
Subagent Choice	Bacillus; B. cereus
Outbreak type	Household
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Other or mixed red meat and products thereof
More Foodstuff	kebab
Type of evidence	Laboratory detection in implicated food
Setting	Household
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Unknown
Outbreaks	1
Comment	

B. cereus

Value

Code	729067
Subagent Choice	Bacillus; B. cereus
Outbreak type	General
Human cases	30
Hospitalized	0
Deaths	0
Foodstuff implicated	Cereal products including rice and seeds/pulses (nuts, almonds)
More Foodstuff	Pasta meal
Type of evidence	Laboratory detection in implicated food, Analytical epidemiological evidence
Setting	School, kindergarten
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Inadequate heat treatment
Outbreaks	1
Comment	Outbreak among first-grade students of a college for higher education; pasta was served during the introduction-week of their study

Verified Foodborne Outbreaks: detailed data**C. perfringens**

Value

Code	822783
Subagent Choice	Clostridium; C. perfringens
Outbreak type	Household
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Other or mixed red meat and products thereof
More Foodstuff	kebab of lamb and/or turkey
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Unknown
Outbreaks	1
Comment	

C. perfringens

Value

Code	824911
Subagent Choice	Clostridium; C. perfringens
Outbreak type	Household
Human cases	4
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	fried rice, noodles, chicken soup, chinese/indonesian dishes; pathogen detected in some of the ingredients
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Unknown
Outbreaks	1
Comment	

Verified Foodborne Outbreaks: detailed data**S. aureus**

Value

Code	822899
Subagent Choice	
Outbreak type	Household
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Other or mixed red meat and products thereof
More Foodstuff	kebab, bread, lettuce, fried potato, sauce; pathogen detected in kebab
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Inadequate heat treatment
Outbreaks	1
Comment	

S. aureus

Value

Code	824289
Subagent Choice	
Outbreak type	Household
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Other or mixed red meat and products thereof
More Foodstuff	A snack of beef and chicken meat
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Storage time/temperature abuse
Outbreaks	1
Comment	

S. aureus

Value

Code	749403
Subagent Choice	
Outbreak type	Household
Human cases	4
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Broiler meat (Gallus gallus) and products thereof
More Foodstuff	bread with chicken kebab; pathogen detected in kebab
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Unknown
Outbreaks	1
Comment	

S. aureus

Value

Code	824277
Subagent Choice	
Outbreak type	Household
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Pig meat and products thereof
More Foodstuff	pancake with bacon and syrup; pathogen detected in bacon
Type of evidence	Laboratory detection in implicated food
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Storage time/temperature abuse
Outbreaks	1
Comment	

S. aureus

Value

Code	827345
Subagent Choice	
Outbreak type	Household
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Cereal products including rice and seeds/pulses (nuts, almonds)
More Foodstuff	fried rice, noodles, chicken; pathogen detected in fried rice
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Other contributory factor
Outbreaks	1
Comment	Contributory factor: insufficient hygiene by food handler

S. aureus

Value

Code	822883
Subagent Choice	
Outbreak type	Household
Human cases	2
Hospitalized	unknown
Deaths	unknown
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	pizza roll with lettuce, onion and sauce
Type of evidence	Laboratory detection in implicated food
Setting	Take-away or fast-food outlet
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Unknown
Outbreaks	1
Comment	