European Food Safety Authority

ZOONOSES MONITORING

PORTUGAL

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

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

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

IN 2008

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: **Portugal**

Reporting Year:

Laboratory name	Description	Contribution
LNIV Laboratório Nacional de Investigação Veterinária	National Veterinary Laboratory	Data on zoonoses and zoonotic agents in food anda animals
DGV Direcção Geral de Veterinária	National Veterinary Authority	Reporting Authority Co-ordination of report production
INSA Instituto Nacional de Saude Dr. Ricardo Jorge	Reference laboratory belonging to the Ministry of Health	Data on zoonoses and zoonotic agents in humans and foodborne outbreaks
ASAE Autoridade de Segurança Alimentar e Económica	National Authority for Food Safety	Data on zoonoses and zoonotic agents in food
IBCP Instituto Bacteriológico Câmara Pestana	Scientific Institute - National Reference Laboratory for Rabies	
DGS - Direcção Geral de Saude	National Authority for Human Health	Data on zoonoses and zoonotic agents in humans and foodborne outbreaks
R.A. MADEIRA Região Autónoma da Madeira	Regional Veterinary Services Madeira	Data on zoonoses and zoonotic agents in food and animals
R.A. Açores Região Autónoma dos Açores	Regional Veterinary Services Azores	Data on zoonoses and zoonotic agents in food and animals
Laboratorio de Viseu	Regional Veterinary Laboratory	Data on zoonoses and zoonotic agents in food and animals
Laboratorio do Algarve	Regional Veterinary Laboratory	Data on zoonoses and zoonotic agents in food

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Laboratory name	Description	Contribution
FMV - Faculdade de Medicina Veterinaria	Veterinary School in Lisbon	Data on zoonoses and zoonotic agents in animals
UTAD - Universidade de Trás-os-Montes e Alto Douro	Veterinary School in Vila Real	Data on zoonoses and zoonotic agents in food
IPIMAR Instituto das Pescas da Investigação e do Mar	National Veterinary Laboratory	Data on zoonoses and zoonotic agents in food and animals

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 Portugal 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.

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

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1. ANIMAL POPULATIONS

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

A. Information on susceptible animal population

Sources of information:

DGV - DirecÃ§Ã£o Geral de VeterinÃ¡ria
DGRF - DirecÃ§Ã£o Geral dos Recursos Florestais

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**
Cattle (bovine animals)	**calves (under 1 year)**			146413	2008				
	in total	45420	2008	447621	2008	1478774	2008	66602	2007
	unspecified - at slaughterhouse [1)]			301208	2008				
Deer	**farmed - in total**							205	2007
Ducks	**in total**			3198499	2008			23	2007
Gallus gallus (fowl)	**breeding flocks for meat production line - in total**	209	2008						
	breeding flocks, unspecified - in total							115	2007
	broilers			165900172	2008			2357	2007
	in total			169970253	2008				
	laying hens	280	2008					192	2007
Goats	**in total**			143290	2008				
Ostriches	**in total**							15	2007
Pigs	**in total**			4558185	2008			7979	2007
Poultry, unspecified	**in total**			9180	2008				

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**
Quails	**in total**			6665928	2008			35	2007
Rabbits	**in total**			6209215	2008			171	2007
Sheep	**in total**			1100417	2008				
Sheep and goats	**in total**	75123	2008			2786328	2008	74834	2007
Solipeds, domestic	**horses - in total**			1248	2007				
Turkeys	**in total**			3870074	2008			268	2007
Wild boars	**farmed - in total**							30	2007

Comments:

[1)] bovine animals other than calves

2. INFORMATION ON SPECIFIC ZOONOSES AND ZOONOTIC AGENTS

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

2.1 SALMONELLOSIS

2.1.1 General evaluation of the national situation

A. General evaluation

National evaluation of the recent situation, the trends and sources of infection

Salmonellosis in animals (other than Gallus gallus):
The animals are sampled on a voluntary basis. The data come from sick animals sent to laboratory for bacteriological analysis or to control herds.
There is a Control Programme for Gallus gallus (breeding flocks). There is also going a baseline study on the prevalence of salmonella in broilers (finished).
Control measures are been taken in positive flocks of laying hens.
There is also going on a baseline study (started on 2007), on the prevalence of salmonella in slaugherpigs and turkeys.

Additional information

Diagnostic techniques:
Foodstuffs/Feedingstuffs - Screening: VIDAS SLM (AFNOR validation). Confirmation: ISO 6579 (2002).

Serology: Rapid Plate Agglutination for S.pullorum/gallinarum.

Bacteriology: ISO 6579 (2002) and D Annex.
- Pre-enrichment in Buffered Peptone Water (for faeces, bedding, nests samples and fluffy)
- Selective enrichment in MSRV (modified semisolid Rappaport Vassiliadis) and Rappaport Vassiliadis with Soja broth.
- Plating on solid media XLD and SM2 Agar.
- Biochemical reactions by 32E or API 20E strips.

Typing of Salmonella: Serotyping by Kauffman/White technique (searching of O antigens by plate agglutination and H antigens by tube agglutination).
Serotyping of isolates is performed at LaboratÃ³rio Nacional de InvestigaÃ§Ã£o VeterinÃ¡ria (NRL).

Phagetyping for Salmonella Enteritidis and Salmonella Typhimurium has started on January 1999, see data on the tables (not in routine analyses).

Antimicrobial Susceptability testing of Salmonella: Resistance to antimicrobials is performed at LaboratÃ³rio Nacional de InvestigaÃ§Ã£o VeterinÃ¡ria (NRL for Salmonella)

Â· The resistance to antimicrobials is performed by disk diffusion Method in Mueller Hinton Plates.

Â· The antimicrobials tested are: AMP10, AMC30, CF30, CMX30, CTX30, SxT25, G10, K30, TE30, C30, S10, NA30, UB30, N30, D30, ENR5 .

Â· The zone diameters are evaluated, following NCCLS Vol.19 nÂº1, January 99.

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. Hadar	S. Heidelberg	S. Mbandaka	S. Senftenberg	S. Typhimurium
Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - Surveillance - HACCP and own checks	Lab Viseu	single	25g	5	0						
Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - Survey - EU baseline survey	DGV	single	25g	420	47	38		1	6	1	
Meat from broilers (Gallus gallus) - fresh - Surveillance (PIF)	LNIV	batch	25g	1	0						
Meat from broilers (Gallus gallus) - fresh - at retail - Surveillance - HACCP and own checks	RA Açores	batch	25g	3	1						
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at processing plant - Surveillance - official controls	DGV	single	25g	6	1		1				
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at processing plant - Surveillance - official controls	DGV	single	25g	3	0						
Meat from duck - at slaughterhouse - Monitoring - official sampling (Fresh meat)	DGV	single	25g	1	1						1
Meat from other poultry species - carcass - at processing plant	RA Madeira	batch	25g	1	0						
Meat from turkey - fresh - at slaughterhouse - Monitoring - official sampling	DGV	single	25g	11	0						
Meat from turkey - meat preparation - intended to be eaten cooked - at processing plant - Surveillance - official controls	DGV	single	25g	10	0						

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. Hadar	S. Heidelberg	S. Mbandaka	S. Senftenberg	S. Typhimurium
Meat from turkey - meat products - cooked, ready-to-eat - at processing plant - Surveillance - official controls	DGV	single	25g	4	0						
Meat from turkey - meat products - cooked, ready-to-eat - at retail	RA Madeira	batch	25g	2	0						
Meat from turkey - meat products - cooked, ready-to-eat - at retail - Surveillance - official controls - objective sampling	ASAE	batch	25g	60	1						
Meat from turkey - minced meat - intended to be eaten cooked - at retail - Surveillance - official controls - objective sampling	ASAE	batch	10g	20	1						

	Salmonella spp., unspecified
Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - Surveillance - HACCP and own checks	
Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - Survey - EU baseline survey	1
Meat from broilers (Gallus gallus) - fresh - Surveillance (PIF)	
Meat from broilers (Gallus gallus) - fresh - at retail - Surveillance - HACCP and own checks	1
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at processing plant - Surveillance - official controls	
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at processing plant - Surveillance - official controls	

Table Salmonella in poultry meat and products thereof

	Salmonella spp., unspecified
Meat from duck - at slaughterhouse - Monitoring - official sampling (Fresh meat)	
Meat from other poultry species - carcass - at processing plant	
Meat from turkey - fresh - at slaughterhouse - Monitoring - official sampling	
Meat from turkey - meat preparation - intended to be eaten cooked - at processing plant - Surveillance - official controls	
Meat from turkey - meat products - cooked, ready-to-eat - at processing plant - Surveillance - official controls	
Meat from turkey - meat products - cooked, ready-to-eat - at retail	
Meat from turkey - meat products - cooked, ready-to-eat - at retail - Surveillance - official controls - objective sampling	1
Meat from turkey - minced meat - intended to be eaten cooked - at retail - Surveillance - official controls - objective sampling	1

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 - at retail - Surveillance - official controls - objective sampling	ASAE	batch	25g	35	0			
Cheeses made from cows' milk - soft and semi-soft - made from raw or low heat-treated milk - at retail - Surveillance - official controls - objective sampling	ASAE	batch	25g	35	0			
Cheeses made from goats' milk - at retail - Surveillance - official controls - objective sampling	ASAE	batch	25g	20	0			
Cheeses made from goats' milk - soft and semi-soft - at processing plant - Surveillance - HACCP and own checks	Lab Algarve	batch	25g	7	0			
Cheeses made from goats' milk - soft and semi-soft - made from raw or low heat-treated milk - at retail - Surveillance - official controls	ASAE	batch	25g	20	0			
Cheeses made from sheep's milk - at retail - Surveillance - official controls	ASAE	batch	25g	265	2			2
Cheeses made from sheep's milk - soft and semi -soft - at processing plant - Surveillance - HACCP and own checks	Lab Viseu	batch	25g	2	0			
Dairy products (excluding cheeses) - ice-cream - at processing plant	Lab Algarve	batch	25g	4	0			
Dairy products (excluding cheeses) - ice-cream - at retail - Surveillance - official controls	ASAE	batch	25g	60	0			
Dairy products (excluding cheeses) - milk powder and whey powder - at processing plant - Surveillance - official controls	DGV	single	25g	2	0			
Dairy products (excluding cheeses) - milk powder and whey powder - at retail - Surveillance - official controls	ASAE	batch	25g	40	0			

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
Milk, cows' - pasteurised milk - at retail	Lab Algarve	batch	25ml	7	0			
Milk, cows' - raw milk for manufacture - intended for manufacture of raw or low heat-treated products - at processing plant	Lab Algarve	batch	25ml	7	0			
Milk, goats' - raw milk for manufacture - intended for manufacture of raw or low heat-treated products - at processing plant	Lab Algarve	batch	25ml	4	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. Agona	S. Enteritidis	S. Goldcoast	S. London	S. Rissen var. 14	S. Typhimurium
Meat from bovine animals - fresh - at processing plant - Monitoring - official sampling	DGV	single	25g	13	0						
Meat from bovine animals - meat preparation - intended to be eaten cooked - at processing plant - Surveillance - official controls	DGV	single	25g	5	1		1				
Meat from bovine animals - minced meat - intended to be eaten cooked - at processing plant - Surveillance - official controls	DGV	single	25g	9	0						
Meat from bovine animals - minced meat - intended to be eaten cooked - at retail - Surveillance - official controls	ASAE	batch	10g	95	0						
Meat from goat - fresh - at processing plant - Monitoring - official sampling	DGV	single	25g	6	0						
Meat from pig - carcass - chilled - - carcass swabs - Monitoring	UTAD	single	100cm2	105	25	3		1	6	6	9
Meat from pig - fresh - at processing plant - Monitoring - official sampling	DGV	single	25g	15	0						
Meat from pig - fresh - at retail - Surveillance - official controls	RA Açores	single	25g	1	0						
Meat from pig - meat preparation - intended to be eaten cooked - at processing plant - Surveillance - official controls	DGV	single	25g	10	0						
Meat from pig - meat products - cooked, ready-to -eat - at processing plant - Surveillance - official controls	DGV	single	25g	9	0						
Meat from pig - meat products - cooked, ready-to -eat - at retail - Surveillance - HACCP and own checks	Lab Viseu	batch	25g	3	0						
Meat from pig - meat products - cooked, ready-to -eat - at retail - Surveillance - official controls	ASAE	batch	25g	1065	12						

Table Salmonella in red meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Agona	S. Enteritidis	S. Goldcoast	S. London	S. Rissen var. 14	S. Typhimurium
Meat from pig - meat products - raw but intended to be eaten cooked - at retail - Surveillance - official controls	ASAE	batch	25g	180	5						
Meat from pig - minced meat - intended to be eaten cooked - at processing plant - Surveillance - official controls	DGV	single	25g	4	0						
Meat from pig - minced meat - intended to be eaten cooked - at retail - Surveillance - official controls	ASAE	batch	10g	130	13						
Meat from sheep - fresh - at processing plant - Monitoring - official sampling	DGV	single	25g	9	0						

	Salmonella spp., unspecified
Meat from bovine animals - fresh - at processing plant - Monitoring - official sampling	
Meat from bovine animals - meat preparation - intended to be eaten cooked - at processing plant - Surveillance - official controls	
Meat from bovine animals - minced meat - intended to be eaten cooked - at processing plant - Surveillance - official controls	
Meat from bovine animals - minced meat - intended to be eaten cooked - at retail - Surveillance - official controls	
Meat from goat - fresh - at processing plant - Monitoring - official sampling	
Meat from pig - carcass - chilled - - carcass swabs - Monitoring	

Table Salmonella in red meat and products thereof

	Salmonella spp., unspecified
Meat from pig - fresh - at processing plant - Monitoring - official sampling	
Meat from pig - fresh - at retail - Surveillance - official controls	
Meat from pig - meat preparation - intended to be eaten cooked - at processing plant - Surveillance - official controls	
Meat from pig - meat products - cooked, ready-to -eat - at processing plant - Surveillance - official controls	
Meat from pig - meat products - cooked, ready-to -eat - at retail - Surveillance - HACCP and own checks	
Meat from pig - meat products - cooked, ready-to -eat - at retail - Surveillance - official controls	12
Meat from pig - meat products - raw but intended to be eaten cooked - at retail - Surveillance - official controls	5
Meat from pig - minced meat - intended to be eaten cooked - at processing plant - Surveillance - official controls	
Meat from pig - minced meat - intended to be eaten cooked - at retail - Surveillance - official controls	13
Meat from sheep - fresh - at processing plant - Monitoring - official sampling	

Table Salmonella in other food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Brunei	S. Enteritidis	S. II 42:b:e,n,x,z15	S. Typhimurium	S. Weltevreden	Salmonella spp., unspecified
Crustaceans - at retail - Surveillance - official controls	ASAE	batch	25g	25	0						
Crustaceans - shrimps - shelled, shucked and cooked - Surveillance - official controls (PIF)	LNIV	batch	25g	1	0						
Crustaceans - unspecified - cooked - at processing plant - Surveillance - official controls	DGV	single	25g	4	0						
Crustaceans - unspecified - cooked - at retail - Surveillance - official controls	ASAE	batch	25g	25	0						
Egg products - at processing plant - Surveillance - official controls	DGV	single	25g	3	0						
Egg products - at retail	RA Madeira	batch	25g	1	0						
Eggs - at catering - Surveillance - HACCP and own checks (Egg cooked)	Lab Viseu	batch	25g	1	0						
Eggs - table eggs - at packing centre - Monitoring - official sampling	DGV	single	25g	18	0						
Eggs - table eggs - at packing centre - Surveillance - HACCP and own checks	Lab Viseu	single	25g	7	0						
Fish - raw	RA Madeira	batch	25g	5	0						
Fish - unspecified - frozen - Surveillance - official controls (PIF)	LNIV	batch	25g	3	0						
Fishery products, unspecified - at retail - Surveillance - official controls	ASAE	batch	25g	115	0						
Fruits and vegetables - precut - at catering - Surveillance	INSA	single	25g	346	0						
Fruits and vegetables - precut - ready-to-eat	RA Madeira	batch	25g	3	0						
Fruits and vegetables - precut - ready-to-eat - at retail	ASAE	batch	25g	205	0						

Table Salmonella in other food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Brunei	S. Enteritidis	S. II 42:b:e,n,x,z15	S. Typhimurium	S. Weltevreden	Salmonella spp., unspecified
Infant formula - dried - intended for infants below 6 months - at retail - Monitoring	INSA	single	25g	11	0						
Juice - fruit juice - unpasteurised - at retail	ASAE	batch	25g	100	0						
Live bivalve molluscs - at processing plant - Surveillance - official controls	DGV	single	25g	27	0						
Molluscan shellfish - shelled, shucked and cooked - frozen - Surveillance (PIF)	LNIV	batch	25g	23	2	1				1	
Other food - at catering (Cooked food)	RA Madeira	single	25g	105	1			1			
Other food - at catering (Desserts)	RA Madeira	single	25g	19	0						
Other food - at catering - Clinical investigations (Processed foodstuffs containing raw egg)	INSA	single	25g	1	1		1				
Other food - at catering - Clinical investigations (Ready to eat mixed meal)	INSA	single	25g	2	2		2				
Other food - at catering - Surveillance (Ready to eat mixed meal)	INSA	single	25g	1185	0						
Other food - at catering - Surveillance (Sandwish)	INSA	single	25g	54	0						
Other food - at retail - Monitoring (Dried follow-one formulae)	INSA	single	25g	5	0						
Seeds, sprouted - ready-to-eat - at retail	ASAE	batch	25g	25	0						
Spices and herbs	RA Madeira	single	25g	1	0						
Vegetables - Surveillance - official controls (Soybean - PIF)	LNIV	batch	25g	1	0						

2.1.4 Salmonella in animals

A. Salmonella spp. in Gallus Gallus - breeding flocks

Monitoring system

Sampling strategy

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

The sampling frame shall cover all adult breeding flocks of Gallus gallus comprising at least 250 birds.
Sampling is accomplished by the operator and by the official authority.

At the initiative of the operator sampling is done at the holding.
Samples will be taken at day old, 4 weeks old birds, 2 weeks before laying phase and during the laying period, every two weeks.

At 4 weeks old and at two weeks before the laying phase sampling shall consist of pooled faeces made up of separate samples of fresh faeces each weighing no less than 1 g taken at random from a number of sites in the building in which the birds are kept.

During the laying phase sampling will consist of boot swabs representative of all parts of the house all separate pens will be included.

In cage breeding flocks, sampling consists of naturally mixed faeces from dropping belts, scrapers or deep pits 2 samples of at least 150 g will be collected to be tested individually.
The operator may also sample every two weeks at the hatchery. For each breeding flock the sample consists of one composite sample of a visibly soiled hatcher basket liners taken at random from five separate hatcher baskets to reach a total of at least 1 m2.

In cases where hatchers basket liners are not used 10 g broken eggshells shall be taken from 25 separate hatcher baskets, crushed, mixed and a 25 g sub sample taken)
Meconium of 250 birds
50 dead birds in the shell

At the initiative of the official services sampling is done at
Within four weeks following moving to laying phase or laying unit (24 weeks)
during the production (44 weeks) towards the end of the laying phase
not earlier than 8 weeks before the end of the production cycle (64 weeks)

Frequency of the sampling

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

Every flock is sampled

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

At the age of 4 weeks and 2 weeks before moving to the laying phase

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Production period

Every 2 weeks

Type of specimen taken

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

Other: Internal linings of delivery boxes and dead chicks

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

Faeces

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Production period

Faeces

Methods of sampling (description of sampling techniques)

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

The sample shall consist of a minimum of one composite sample of visibly soiled hatcher basket liners
He must sample all dead birds at arrival

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

At 4 weeks old and 2 weeks before the laying phase the sampling will consist of faecal samples
Pooled faeces made up of separate samples of fresh faeces each weighing no less than 1 g taken at random from a number of sites in the building in which the birds are kept

Breeding flocks: Production period

During the laying phase 5 Pairs of boot swabs – walking around to be done in a way which will sample representatively all parts of the sector. All separate pens within a house will be included in sampling.
In cage breeding flocks, sampling consists of naturally mixed faeces from dropping belts, scrapers or deep pits 2 samples of at least 150 g will be collected to be tested individually.

Case definition

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

At least one positive sample to S. Enteritidis, S. Typhimurium, S. Hadar, S.

Virchow and / or S. Infantis

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

At least one positive sample to S. Enteritidis, S. Typhimurium, S. Hadar, S. Virchow and / or S. Infantis

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Production period

At least one positive sample to S. Enteritidis, S. Typhimurium, S. Hadar, S. Virchow and / or S. Infantis

Diagnostic/analytical methods used

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

Bacteriological method: ISO 6579:2002

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

Bacteriological method: ISO 6579:2002

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Production period

Bacteriological method: ISO 6579:2002

Vaccination policy

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

Compulsive vaccination against Salmonella Enteritidis is done in the restocking, after the destruction of a positive flock.

Control program/mechanisms

The control program/strategies in place

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

The strategy is to reinforce surveillance, reinforce biosecurity measures, slaughter the positive flocks and restocking only when environmental samples are negative for Salmonella, with birds from flocks or herds that have undergone controls according to the legislation requirements. All birds must be vaccinated against Salmonella Enteritidis. The strategy includes also a close cooperation with the associations of producers to implement different means to raise awareness of the producers.
The Official Services have developed guidelines for the producer, as a tool in order to guide the implementation of the national programme.

Measures in case of the positive findings or single cases

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

When there is a positive case in a flock = Salmonella sp detection
Notification of the operator
Keep the flock in sanitary surveillance
Forcing to keep the update records
Evaluate the production records
Forcing to incubate their eggs separately

Whenever the results from serotyping are diferent from the serotypes relevant to the national programme , than:
Additional biosecurity measures
Free practice – The official control measures are withdrawn.

When the result is serotype S. Enteritidis, S. Typhimurium, S. Hadar, S. Virchow and/ or S.Infantis than the flock will be under official restriction:
Flock surveillance (under official control)
Compulsory sanitary slaughter
Non incubated eggs must be destroyed or be treated
Compensation for owners about all destroyed eggs and animals.
After the destruction of the positive flock the holding and the environment must be cleaned and disinfected
The operator must collect environmental samples
The restocking of animals must take place from flocks or herds that have undergone controls according to the legislation requirements
All birds must be vaccinated against Salmonella enteritidis.

B. Salmonella spp. in Gallus Gallus - flocks of laying hens

Monitoring system

Sampling strategy

Laying hens flocks

The sampling frame shall cover all flocks of laying hens of Gallus gallus

Sampling is accomplished by the food business operator and by the competent authority. The sampling is done at the holding.
At the initiative of the operator samples will be taken at day old, 2 weeks before moving to laying phase and during the laying period, every fifteen weeks. The first sampling at the laying period will take place at the age of 24 ± 2 weeks.

At the initiative of the official services sampling is done:
• in one flock per year per holding comprising at least 1 000 birds;
• at the age of 24 ± 2 weeks in laying flocks housed in buildings where salmonella was detected in the preceding
• flock;
• in any case of suspicion of Salmonella Enteritidis or Salmonella Typhimurium infection, as a result of the epidemiological
• investigation of food-borne outbreaks in accordance with Article 8 of Directive 2003/99/EC of the
• European Parliament and of the Council
• in all other laying flocks on the holding in case Salmonella Enteritidis or Salmonella Typhimurium are detected in
• one laying flock on the holding;
• in cases where the competent authority considers it appropriate

Sampling protocol
• In cage flocks, 2 × 150 grams of naturally pooled faeces taken from all belts or scrapers in the house after running the manure removal system.
• In step cage houses without scrapers or belts: 2 × 150 grams of mixed fresh faeces collected from 60 different places beneath the cages in the dropping pits.
• In barn or free-range houses, two pairs of boot swabs or socks, without changing overboots between boot swabs.

In the case of sampling by the competent authority, it will be collected 250 ml containing at least 100 gram of dust from prolific sources of dust throughout the house. If there is not sufficient dust, an additional sample of 150 grams naturally pooled faeces or an additional pair of boot swabs or socks will be taken.

Frequency of the sampling

Laying hens: Day-old chicks

Other: Internal linings of delivery boxes and dead chicks

Laying hens: Rearing period

At the age of ± 18 weeks

Laying hens: Production period

Every 15 weeks

Type of specimen taken

Laying hens: Day-old chicks

Dead chicks

Laying hens: Rearing period

Faeces

Laying hens: Production period

Environmental sample: faeces and dust

Methods of sampling (description of sampling techniques)

Laying hens: Day-old chicks

The sample shall consist of a minimum of one composite sample of visibly soiled hatcher basket liners
He must sample all dead birds at arrival

Laying hens: Rearing period

* In cage flocks, 2 × 150 grams of naturally pooled faeces taken from all belts or scrapers in the house after running the manure removal system.
* In step cage houses without scrapers or belts: 2 × 150 grams of mixed fresh faeces collected from 60 different places beneath the cages in the dropping pits.
* In barn or free-range houses, two pairs of boot swabs or socks, without changing overboots between boot swabs.

Laying hens: Production period

* In cage flocks, 2 × 150 grams of naturally pooled faeces taken from all belts or scrapers in the house after running the manure removal system.
* In step cage houses without scrapers or belts: 2 × 150 grams of mixed fresh faeces collected from 60 different places beneath the cages in the dropping pits.
* In barn or free-range houses, two pairs of boot swabs or socks, without changing overboots between boot swabs.

In the case of sampling by the competent authority, it will be collected 250 ml containing at least 100 gram of dust from prolific sources of dust throughout the house. If there is not sufficient dust, an additional sample of 150 grams naturally pooled faeces or an additional pair of boot swabs or socks will be taken.

Case definition

Laying hens: Day-old chicks

At least one positive sample to S. Enteritidis and/or S. Typhimurium

Laying hens: Rearing period

At least one positive sample to S. Enteritidis and/or S. Typhimurium

Laying hens: Production period

At least one positive sample to S. Enteritidis and/or S. Typhimurium

Diagnostic/analytical methods used

Laying hens: Day-old chicks

Bacteriological method: ISO 6579:2002

Laying hens: Rearing period

Bacteriological method: ISO 6579:2002

Laying hens: Production period

Bacteriological method: ISO 6579:2002

Vaccination policy

Laying hens flocks

Vaccination programmes against Salmonella Enteritidis are applied during the rearing phase.

Control program/mechanisms

The control program/strategies in place

Laying hens flocks

The strategy is to reinforce surveillance, reinforce biosecurity measures, slaughter the positive flocks and restocking only when environmental samples are negative for Salmonella, with birds from flocks or herds that have undergone controls according to the legislation requirements.
The eggs of the positive flock will be destructed or send to heat treated egg-products

All birds must be vaccinated against Salmonella Enteritidis.
The strategy includes also a close cooperation with the associations of producers to implement different means to raise awareness of the producers.
The Official Services have developed guidelines for the producer, as a tool in order to guide the implementation of the national programme.

Measures in case of the positive findings or single cases

Laying hens flocks

When there is a positive case in a flock = Salmonella sp detection
Notification of the operator
Keep the flock in sanitary surveillance

Forcing to keep the update records
Evaluate the production records
Keep the eggs in the holding or send them to eggs products

Whenever the results from serotyping are diferent from the serotypes relevant to the national programme , than:
Additional biosecurity measures
Free practice – The official control measures are withdrawn.

When the result is serotype S. Enteritidis and/or S. Typhimurium than the flock will be under official restriction:
Flock surveillance (under official control)
Eggs must be destroyed or be treated
After the destruction of the positive flock the holding and the environment must be cleaned and disinfected
The operator must collect environmental samples
The restocking of animals must take place from flocks or herds that have undergone controls according to the legislation requirements
All birds must be vaccinated against Salmonella enteritidis.

C. Salmonella spp. in Gallus Gallus - broiler flocks

Monitoring system

Sampling strategy

Broiler flocks

The programme is implemented only in 2009

Methods of sampling (description of sampling techniques)

Broiler flocks: Day-old chicks

The programme is implemented only in 2009

Broiler flocks: Rearing period

The programme is implemented only in 2009

Broiler flocks: Before slaughter at farm

The programme is implemented only in 2009

Case definition

Broiler flocks: Before slaughter at farm

The programme is implemented only in 2009

Control program/mechanisms

The control program/strategies in place

Broiler flocks

The programme is implemented only in 2009

Recent actions taken to control the zoonoses

The programme is implemented only in 2009

Measures in case of the positive findings or single cases

Broiler flocks: Before slaughter at farm

The programme is implemented only in 2009

Notification system in place

The programme is implemented only in 2009

Results of the investigation

The programme is implemented only in 2009

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. Mbandaka	S. Tennessee	S. Typhimurium
Gallus gallus (fowl) - breeding flocks, unspecified - during production period - at farm - Control and eradication programmes - official and industry sampling [1)]	209	DGV	flock	209	14	11	0	0	1	1	0

	S. Virchow	Salmonella spp., unspecified
Gallus gallus (fowl) - breeding flocks, unspecified - during production period - at farm - Control and eradication programmes - official and industry sampling [1)]	1	

Comments:

[1)] It was isolated Salmonella Enteritidis- vaccine strain in 6 flocks

Table Salmonella in other poultry

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Agona	S. Braenderup	S. Brandenburg	S. Corvallis	S. Enteritidis	S. Give
Ducks		LNIV	animal	4	2						
Gallus gallus (fowl) - broilers - during rearing period		RA Madeira	animal	36	2					2	
Gallus gallus (fowl) - broilers - during rearing period - at farm - animal sample - Monitoring - industry sampling		Lab Viseu	animal	8	0						
Gallus gallus (fowl) - laying hens - during production period - at farm - environmental sample - Control and eradication programmes - official and industry sampling	280	DGV	flock	227	72	3	2	1	1	22	3
Gallus gallus (fowl) - unspecified		LNIV	animal	29	8					4	
Turkeys		LNIV	animal	13	0						

	S. Havana	S. Heidelberg	S. Infantis	S. Mbandaka	S. Mikawasima	S. Senftenberg	S. Taksony	S. Tennessee	S. Typhimurium	S. Virchow	S. Gallinarum
Ducks									1		
Gallus gallus (fowl) - broilers - during rearing period											
Gallus gallus (fowl) - broilers - during rearing period - at farm - animal sample - Monitoring - industry sampling											
Gallus gallus (fowl) - laying hens - during production period - at farm - environmental sample - Control and eradication programmes - official and industry sampling	7	2	1	17	2	1	2	4	2	2	
Gallus gallus (fowl) - unspecified				1					1		2
Turkeys											

Table Salmonella in other poultry

	S. 4,5:i:-	Other serotypes	Salmonella spp., unspecified
Ducks			1
Gallus gallus (fowl) - broilers - during rearing period			
Gallus gallus (fowl) - broilers - during rearing period - at farm - animal sample - Monitoring - industry sampling			
Gallus gallus (fowl) - laying hens - during production period - at farm - environmental sample - Control and eradication programmes - official and industry sampling	2	9	
Gallus gallus (fowl) - unspecified			
Turkeys			

Table Salmonella in other birds

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	S. 4,5:i:-	Salmonella spp., unspecified
Birds	LNIV	animal	14	0				
Birds - zoo animal	LNIV	animal	4	0				
Canary	LNIV	animal	2	1		1		
Parrots	RA Madeira	animal	3	0				
Parrots - zoo animals	LNIV	animal	2	0				
Partridges	LNIV	animal	2	0				
Partridges - at farm - animal sample - Monitoring - industry sampling	Lab Viseu	animal	1	0				
Pigeons	LNIV	animal	46	16		15	1	
Pigeons (RA Madeira)	RA Madeira	animal	3	0				
Psittacidae	RA Madeira	animal	9	0				
Quails	LNIV	animal	2	0				
Turkeys	RA Madeira	animal	1	0				

Table Salmonella in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Agona	S. Anatum	S. Bovismorbificans	S. Brandenburg	S. Bredeney	S. Derby	S. Enteritidis
Cats (RA Madeira)	RA Madeira	animal	16	0							
Cats - pet animals	LNIV	animal	10	0							
Cattle (bovine animals)	LNIV	animal	35	0							
Cattle (bovine animals) - calves (under 1 year)	RA Açores	animal	4	4							
Cattle (bovine animals) - calves (under 1 year) (Post mortem)	FMV	animal	1	1							
Dogs (RA Madeira)	RA Madeira	animal	14	1							
Dogs - pet animals	LNIV	animal	23	0							
Goats	LNIV	animal	9	0							
Goats - at farm - animal sample - Clinical investigations	Lab Viseu	animal	3	1							
Kangaroos - zoo animal	LNIV	animal	3	0							
Pigs	LNIV	animal	36	1							
Pigs - breeding animals - - faeces - Survey - EU baseline survey [1)]	DGV	holding	170	77		2	2	2	1	10	0
Pigs - fattening pigs - - lymph nodes (Study (10g))	UTAD	single	105	7							
Rabbits	LNIV	animal	7	0							
Rabbits - at farm - animal sample - Clinical investigations	Lab Viseu	animal	6	0							
Sheep	LNIV	animal	36	1							
Sheep (RA Madeira)	RA Madeira	animal	2	0							
Sheep - at farm - animal sample - Clinical investigations	Lab Viseu	animal	4	0							

Table Salmonella in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Agona	S. Anatum	S. Bovismorbificans	S. Brandenburg	S. Bredeney	S. Derby	S. Enteritidis
Snakes - zoo animal	LNIV	animal	3	3							
Solipeds, domestic	LNIV	animal	9	0							
Turtles - zoo animals	LNIV	animal	8	6	1						
Wild boars	LNIV	animal	2	0							
Zoo animals, all	LNIV	animal	100	4							

	S. Give	S. Gloucester	S. Goldcoast	S. Livingstone	S. London	S. Mbandaka	S. Muenchen	S. Rissen	S. Sandiego	S. Schleissheim	S. Senftenberg
Cats (RA Madeira)											
Cats - pet animals											
Cattle (bovine animals)											
Cattle (bovine animals) - calves (under 1 year)											
Cattle (bovine animals) - calves (under 1 year) (Post mortem)											
Dogs (RA Madeira)											
Dogs - pet animals											
Goats											
Goats - at farm - animal sample - Clinical investigations											
Kangaroos - zoo animal											
Pigs											
Pigs - breeding animals - - faeces - Survey - EU baseline survey [1)]	6	2	1	1	11	2	4	19			1

Table Salmonella in other animals

	S. Give	S. Gloucester	S. Goldcoast	S. Livingstone	S. London	S. Mbandaka	S. Muenchen	S. Rissen	S. Sandiego	S. Schleissheim	S. Senftenberg
Pigs - fattening pigs - - lymph nodes (Study (10g))			1		2						
Rabbits											
Rabbits - at farm - animal sample - Clinical investigations											
Sheep										1	
Sheep (RA Madeira)											
Sheep - at farm - animal sample - Clinical investigations											
Snakes - zoo animal									1		
Solipeds, domestic											
Turtles - zoo animals											
Wild boars											
Zoo animals, all						3					

	S. Typhimurium	S. 1,3,19:-:-	S. 4,12:i:-	Salmonella spp., unspecified	S. IIIb 60:-:-	S. 38:z4,z23:-	S. IIIb 53:z10:z	S.IIIb 48:k:1,5	S. IIIb 47:k	S. IIIa 6,7:z4,z23:-
Cats (RA Madeira)										
Cats - pet animals										
Cattle (bovine animals)										
Cattle (bovine animals) - calves (under 1 year)				4						
Cattle (bovine animals) - calves (under 1 year) (Post mortem)				1						

Table Salmonella in other animals

	S. Typhimurium	S. 1,3,19:-:-	S. 4,12:i:-	Salmonella spp., unspecified	S. IIIb 60:-:-	S. 38:z4,z23:-	S. IIIb 53:z10:z	S.IIIb 48:k:1,5	S. IIIb 47:k	S. IIIa 6,7:z4,z23:-
Dogs (RA Madeira)				1						
Dogs - pet animals										
Goats										
Goats - at farm - animal sample - Clinical investigations				1						
Kangaroos - zoo animal										
Pigs	1									
Pigs - breeding animals - - faeces - Survey - EU baseline survey [1)]	23	6	5							
Pigs - fattening pigs - - lymph nodes (Study (10g))	4									
Rabbits										
Rabbits - at farm - animal sample - Clinical investigations										
Sheep										
Sheep (RA Madeira)										
Sheep - at farm - animal sample - Clinical investigations										
Snakes - zoo animal						1				1
Solipeds, domestic										
Turtles - zoo animals					1		1	2	1	
Wild boars										
Zoo animals, all	1									

Comments:

Table Salmonella in other animals

[1)] There is a diference between the total number of units positive for Salmonella spp and the sum of the reported numbers of serotypes/subspecies because more than one species / serotypes was isolated from a same holding

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. Anatum	S. Enteritidis	S. Menston	S. Montevideo	S. Senftenberg	S. Typhimurium
Feed material of land animal origin - meat meal - - meat - Surveillance - official controls (Sanitary Inspection)	LNIV	batch	25g	10	0						
Feed material of marine animal origin - fish meal - Surveillance - official controls (Border Inspection) [1)]	LNIV	batch	25g	6	2	1			1	1	
Feed material of marine animal origin - fish meal - at processing plant - Monitoring - industry sampling	LNIV	batch	25g	14	2			1		1	

	Salmonella spp., unspecified
Feed material of land animal origin - meat meal - - meat - Surveillance - official controls (Sanitary Inspection)	
Feed material of marine animal origin - fish meal - Surveillance - official controls (Border Inspection) [1)]	
Feed material of marine animal origin - fish meal - at processing plant - Monitoring - industry sampling	

Comments:

[1)] There is a diference between the total units positive for Salmonella spp. and the total of the serotypes reported because in one unit there were 2 serotypes isolated

Table Salmonella in other feed matter

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Feed material of cereal grain origin - maize - Surveillance (PIF)	RA Açores	batch	25g	3	0			
Feed material of oil seed or fruit origin - soya (bean) derived - Surveillance (PIF)	RA Açores	batch	25g	2	0			

Table Salmonella in compound feedingstuffs

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Livingstone	S. Typhimurium	Salmonella spp., unspecified	S. enterica subsp. enterica
Compound feedingstuffs for cattle - final product (Private Control)	LNIV	batch	25g	1	0					
Compound feedingstuffs for cattle - final product - Surveillance - official controls (Official Control CAA)	LNIV	batch	25g	46	0					
Compound feedingstuffs for cattle - final product - at processing plant (RA Açores)	RA Açores	batch	25g	7	0					
Compound feedingstuffs for fish - final product - Surveillance - official controls (Official Control CAA)	LNIV	batch	25g	2	0					
Compound feedingstuffs for horses - final product - Surveillance - official controls (Official Control CAA)	LNIV	batch	25g	8	0					
Compound feedingstuffs for pigs - final product - Surveillance - official controls (Official Control CAA)	LNIV	batch	25g	78	2		1			1
Compound feedingstuffs for poultry - laying hens - final product - Surveillance - official controls (Official Control CAA)	LNIV	batch	25g	9	0					
Compound feedingstuffs for rabbits - final product - Surveillance - official controls (Official Control CAA)	LNIV	batch	25g	9	0					
Compound feedingstuffs for sheep - final product - Surveillance - official controls (Official Control CAA)	LNIV	batch	25g	7	0					
Compound feedingstuffs for turkeys - Surveillance - official controls (Official Control CAA)	LNIV	batch	25g	3	0					
Compund feedingstuffs for poultry - broilers - final product - Surveillance - official controls (Official Control CAA)	LNIV	batch	25g	36	0					

Table Salmonella in compound feedingstuffs

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Livingstone	S. Typhimurium	Salmonella spp., unspecified	S. enterica subsp. enterica
Compund feedingstuffs for poultry - broilers - final product - at processing plant - Monitoring - industry sampling (Private Control)	LNIV	batch	25g	2	0					
Pet food - dog snacks (pig ears, chewing bones) (Private Control)	LNIV	batch	25g	1	0					

2.1.6 Salmonella serovars and phagetype distribution

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

Table Salmonella serovars in animals

Table Salmonella serovars in animals

Serovars	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry		Pigs - breeding animals - - faeces - Survey - EU baseline survey		Gallus gallus (fowl) - laying hens - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling		Gallus gallus (fowl) - breeding flocks, unspecified - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling (DGV)
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**
Number of isolates in the laboratory									**172**		**142**		**47**
Number of isolates serotyped	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**172**	**0**	**142**	**0**	**47**
Number of isolates per serovar													
S. Agona											4		
S. Anatum									2				
S. Bovismorbificans									4				
S. Braenderup											4		
S. Brandenburg									8		1		

Table Salmonella serovars in animals

Serovars	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry		Pigs - breeding animals - - faeces - Survey - EU baseline survey		Gallus gallus (fowl) - laying hens - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling		Gallus gallus (fowl) - breeding flocks, unspecified - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling (DGV)
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**
Number of isolates in the laboratory									**172**		**142**		**47**
Number of isolates serotyped	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**172**	**0**	**142**	**0**	**47**
Number of isolates per serovar													
S. Bredeney									1				
S. Corvallis											1		
S. Derby									18				
S. Enteritidis											58		35
S. Give									12		4		

Table Salmonella serovars in animals

Serovars	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry		Pigs - breeding animals - - faeces - Survey - EU baseline survey		Gallus gallus (fowl) - laying hens - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling		Gallus gallus (fowl) - breeding flocks, unspecified - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling (DGV)
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**
Number of isolates in the laboratory									**172**		**142**		**47**
Number of isolates serotyped	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**172**	**0**	**142**	**0**	**47**
Number of isolates per serovar													
S. Gloucester									3				
S. Goldcoast									2				
S. Havana											10		
S. Heidelberg											6		
S. Infantis											1		

Table Salmonella serovars in animals

Serovars	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry		Pigs - breeding animals - - faeces - Survey - EU baseline survey		Gallus gallus (fowl) - laying hens - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling		Gallus gallus (fowl) - breeding flocks, unspecified - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling (DGV)
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**
Number of isolates in the laboratory									**172**		**142**		**47**
Number of isolates serotyped	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**172**	**0**	**142**	**0**	**47**
Number of isolates per serovar													
S. Livingstone									1				
S. London									26				
S. Mbandaka									2		19		1
S. Mikawasima											3		
S. Muenchen									4				

Table Salmonella serovars in animals

Serovars	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry		Pigs - breeding animals - - faeces - Survey - EU baseline survey		Gallus gallus (fowl) - laying hens - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling		Gallus gallus (fowl) - breeding flocks, unspecified - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling (DGV)
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**
Number of isolates in the laboratory									**172**		**142**		**47**
Number of isolates serotyped	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**172**	**0**	**142**	**0**	**47**
Number of isolates per serovar													
S. Rissen									35				
S. Senftenberg									1		1		
S. Taksony											2		
S. Tennessee											4		1
S. Typhimurium									39		2		

Table Salmonella serovars in animals

Serovars	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry		Pigs - breeding animals - - faeces - Survey - EU baseline survey		Gallus gallus (fowl) - laying hens - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling		Gallus gallus (fowl) - breeding flocks, unspecified - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling (DGV)
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**
Number of isolates in the laboratory									**172**		**142**		**47**
Number of isolates serotyped	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**172**	**0**	**142**	**0**	**47**
Number of isolates per serovar													
S. Virchow											3		1
S. 1,3,19:-:-									7				
S. 4,5,12:i:-									7				
S. 4,5:i:-											3		
Other serotypes											16		9

Table Salmonella serovars in animals

Serovars	Gallus gallus (fowl) - breeding flocks, unspecified - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling (DGV)
Sources of isolates	**Clinical**
Number of isolates in the laboratory	
Number of isolates serotyped	**0**
Number of isolates per serovar	
S. Agona	
S. Anatum	
S. Bovismorbificans	
S. Braenderup	
S. Brandenburg	

Table Salmonella serovars in animals

Serovars	Gallus gallus (fowl) - breeding flocks, unspecified - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling (DGV)
Sources of isolates	**Clinical**
Number of isolates in the laboratory	
Number of isolates serotyped	**0**
Number of isolates per serovar	
S. Bredeney	
S. Corvallis	
S. Derby	
S. Enteritidis	
S. Give	

Table Salmonella serovars in animals

Serovars	Gallus gallus (fowl) - breeding flocks, unspecified - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling (DGV)
Sources of isolates	**Clinical**
Number of isolates in the laboratory	
Number of isolates serotyped	**0**
Number of isolates per serovar	
S. Gloucester	
S. Goldcoast	
S. Havana	
S. Heidelberg	
S. Infantis	

Table Salmonella serovars in animals

Serovars	Gallus gallus (fowl) - breeding flocks, unspecified - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling (DGV)
Sources of isolates	**Clinical**
Number of isolates in the laboratory	
Number of isolates serotyped	**0**
Number of isolates per serovar	
S. Livingstone	
S. London	
S. Mbandaka	
S. Mikawasima	
S. Muenchen	

Table Salmonella serovars in animals

Serovars	Gallus gallus (fowl) - breeding flocks, unspecified - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling (DGV)
Sources of isolates	**Clinical**
Number of isolates in the laboratory	
Number of isolates serotyped	**0**
Number of isolates per serovar	
S. Rissen	
S. Senftenberg	
S. Taksony	
S. Tennessee	
S. Typhimurium	

Table Salmonella serovars in animals

Serovars	Gallus gallus (fowl) - breeding flocks, unspecified - at farm - environmental sample - boot swabs - Control and eradication programmes - official and industry sampling (DGV)
Sources of isolates	**Clinical**
Number of isolates in the laboratory	
Number of isolates serotyped	**0**
Number of isolates per serovar	
S. Virchow	
S. 1,3,19:-:-	
S. 4,5,12:i:-	
S. 4,5:i:-	
Other serotypes	

Table Salmonella serovars in food

Serovars	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Other poultry		Other products of animal origin		Other food - at catering (Ready-to-eat mixed meal)		Other food - at catering (Processed foodstuffs containing raw egg)
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**
Number of isolates in the laboratory												**2**	
Number of isolates serotyped	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**
Number of isolates per serovar													
S. Enteritidis												2	

Serovars	Other food - at catering (Processed foodstuffs containing raw egg)
Sources of isolates	**Clinical**
Number of isolates in the laboratory	**1**
Number of isolates serotyped	**1**
Number of isolates per serovar	
S. Enteritidis	1

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		Other food - at catering (Ready-to-eat mixed meal)		Other food - at catering (Processed foodstuffs containing raw egg)
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**
Number of isolates in the laboratory												**2**	
Number of isolates phagetyped	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**
Number of isolates per type													
PT 1b												2	
PT 4b													

Phagetype	Other food - at catering (Processed foodstuffs containing raw egg)
Sources of isolates	**Clinical**
Number of isolates in the laboratory	**1**
Number of isolates phagetyped	**1**
Number of isolates per type	
PT 1b	

Table Salmonella Enteritidis phagetypes in food

Phagetype	Other food - at catering (Processed foodstuffs containing raw egg)
Sources of isolates	**Clinical**
Number of isolates in the laboratory	**1**
Number of isolates phagetyped	**1**
Number of isolates per type	
PT 4b	1

2.1.7 Antimicrobial resistance in Salmonella isolates

Table Antimicrobial susceptibility testing of S. Agona in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

S. Agona		Gallus gallus (fowl) - laying hens - during production period																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		4																								
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	2	0							2														0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	4	0										1	3										2	256
Amphenicols	Chloramphenicol	16	0	0																						
	Florfenicol	16	4	0											4										1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	3	0				1	2																0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	4	1		1	2			1															0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	2	0								2													0.5	64
	Ampicillin	4	0	0																						
Quinolones	Nalidixic acid	16	4	0										3		1									2	256
Sulfonamides	Sulfamethoxazol	*256*	4	0															4						8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	4	0									4												0.5	64
Trimethoprim	Trimethoprim	2	1	0							1														0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Agona in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

Footnote:

Amoxicillin - MIC<=0.5 microg/ml (N=2);
Cefotaxim - MIC<=0.06 microg/ml (N=1);
Trimethoprim - MIC<=0.25 microg/ml (N=3);
Gentamicin - MIC<=0.25 microg/ml (N=2)

Table Antimicrobial susceptibility testing of S. Braenderup in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

S. Braenderup		Gallus gallus (fowl) - laying hens - during production period																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		3																								
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	3	0						1	1	1													0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	3	0											3										2	256
Amphenicols	Chloramphenicol	16	0	0																						
	Florfenicol	16	3	0										1	2										1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	0	0																					0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	3	0		3																			0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	0	0																					0.5	64
	Ampicillin	4	0	0																						
Quinolones	Nalidixic acid	16	3	0										3											2	256
Sulfonamides	Sulfamethoxazol	*256*	3	0														1	2						8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	3	0									3												0.5	64
Trimethoprim	Trimethoprim	2	1	0							1														0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Braenderup in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

Footnote:

Amoxicillin - MIC<=0.5 microg/ml (N=3);
Cefotaxim - MIC<=0.06 microg/ml (N=3);
Trimethoprim - MIC<=0.25 microg/ml (N=2);

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

S. Brandenburg		Pigs - breeding animals - unspecified																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		2																								
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	2	0							2														0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	2	0											1		1								2	256
Amphenicols	Chloramphenicol	16	2	0											2										2	256
	Florfenicol	16	2	0											2										1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	2	0					2																0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	2	0		2																			0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	0	0																						
	Ampicillin	4	2	0								2													0.5	64
Quinolones	Nalidixic acid	16	0	0																					2	256
Sulfonamides	Sulfamethoxazol	256	2	0														2							8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	2	0										2											0.5	64
Trimethoprim	Trimethoprim	2	1	0									1												0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

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

Footnote:

Nalidixic acid - MIC<=2 microg/ml (N=1); MIC>=512 (N=1);
Trimethoprim - MIC<=0.25 (N=1)

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

S. Enteritidis		Gallus gallus (fowl) - laying hens - during production period																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		68																								
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	17	0							14	3													0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	28	3										18	6	1				3					2	256
Amphenicols	Chloramphenicol	16	0	0																						
	Florfenicol	16	68	0										32	36										1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	42	0					38	4															0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	64	31		11	20	2	9	20	2														0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	62	0								38	17	7											0.5	64
	Ampicillin	4	0	0																						
Quinolones	Nalidixic acid	16	44	4										36	4				1	3					2	256
Sulfonamides	Sulfamethoxazol	*256*	68	0													2	6	53	7					8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	66	0								17	34	15											0.5	64
Trimethoprim	Trimethoprim	2	27	0							25	2													0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

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

Footnote:

Tetracycline - MIC>=128 microg/ml (N=2);
Amoxicillin - MIC<=0.5 microg/ml (N=3);
Cefotaxim - MIC<=0.06 microg/ml (N=26);
Ciprofloxacin - MIC<=0.008 microg/ml (N=4);
Nalidixic acid - MIC>=512 microg/ml (N=24);
Trimethoprim - MIC<=0.25 microg/ml (N=41);
Streptomycin - MIC<=2 microg/ml (N=40);
Gentamicin - MIC<=0.25 microg/ml (N=51)

Table Antimicrobial susceptibility testing of S. Enteritidis in breeding flocks for meat production line - Gallus gallus (fowl) - during production period - at farm - animal sample - faeces - quantitative data [Dilution method]

S. Enteritidis		Gallus gallus (fowl) - breeding flocks for meat production line - during production period - - faeces																							
Isolates out of a monitoring program (yes/no)		no																							
Number of isolates available in the laboratory		30																							
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*	19	0					1	7	9	2													0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	*32*	19	0									9	6	3	1									2	256
Amphenicols	Chloramphenicol	16	0	0																						
	Florfenicol	*16*	30	0										11	17	2									1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	*0.5*	26	0				2	20	4															0.06	8
Fluoroquinolones	Ciprofloxacin	*0.06*	30	26		1	3		7	17	1	1													0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	*4*	27	1							3	16	3	4	1										0.5	64
	Ampicillin	4	0	0																						
Quinolones	Nalidixic acid	*16*	6	1										5						1					2	256
Sulfonamides	Sulfamethoxazol	*256*	28	0														6	21	1					8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	*8*	28	0							2	11	11	4											0.5	64
Trimethoprim	Trimethoprim	*2*	17	0						1	15	1													0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Enteritidis in Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - official sampling - quantitative data [Dilution method]

S. Enteritidis		Meat from broilers (Gallus gallus) - carcass - - carcass swabs - Monitoring - official sampling																							
Isolates out of a monitoring program (yes/no)		no																							
Number of isolates available in the laboratory		35																							
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	12	0							12														0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	14	0										11	3										2	256
Amphenicols	Chloramphenicol	16	28	0										24	4										2	256
	Florfenicol	16	0	0																						
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	28	0				21	6	1															0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	35	28		4	3		13	14	1														0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin		0	0																						
	Ampicillin	4	6	0								3	3												0.5	64
Quinolones	Nalidixic acid	16	12	3										8	1			1	1	1					2	256
Sulfonamides	Sulfonamide		35	35													4	8	23						8	1024
Tetracyclines	Tetracyclin	*8*	34	0								1	28	5											0.25	64
Trimethoprim	Trimethoprim	2	18	0							17	1													0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Footnote:

Tetracycline - MIC>=128 microg/ml (N=1);
Chloranphenicol - MIC<=2 microg/ml (N=1);
Cefotaxin - MIC<=0.06 (N=1);
Nalidixic acid - MIC>=512 microg/ml (N=23);
Trimethoprin - MIC<=0.25 (N=17);
Streptomycin - MIC<=2 microg/ml (N=21);
Gentamicin - MIC<=0.25 microg/ml (N=23)

Table Antimicrobial susceptibility testing of S. Give in breeding animals - Pigs - unspecified - quantitative data [Dilution method]

S. Give		Pigs - breeding animals - unspecified																								
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		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																						
Fluoroquinolones	Ciprofloxacin	0.06	0	0																						
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	0	0																						
	Ampicillin	4	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 S. Havana in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

S. Havana		Gallus gallus (fowl) - laying hens - during production period																							
Isolates out of a monitoring program (yes/no)		no																							
Number of isolates available in the laboratory		10																							
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	10	0							7	2	1												0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	10	1										1	7	1				1					2	256
Amphenicols	Chloramphenicol	16	0	0																						
	Florfenicol	16	10	0										2	8										1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	7	0					4	2	1														0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	10	1		5	4			1															0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	10	0							1	8	1												0.5	64
	Ampicillin	4	0	0																						
Quinolones	Nalidixic acid	16	10	0										7	3										2	256
Sulfonamides	Sulfamethoxazol	*256*	10	0													1	2	7						8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	10	0								1	9												0.5	64
Trimethoprim	Trimethoprim	2	4	0							4														0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Havana in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

Footnote:

Cefotaxim - MIC<=0.06 microg/ml (N=3);
Trimethoprim - MIC<=0.25 microg/ml (N=6)

Table Antimicrobial susceptibility testing of S. Heidelberg in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

S. Heidelberg		Gallus gallus (fowl) - laying hens - during production period																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		6																								
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	5	0							3	2													0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	6	0											3	2	1								2	256
Amphenicols	Chloramphenicol	16	0	0																						
	Florfenicol	16	6	0										1	5										1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	2	0						1	1														0.006	8
Fluoroquinolones	Ciprofloxacin	0.06	5	0		3	2																		0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	6	0								5	1												0.5	64
	Ampicillin	4	0	0																						
Quinolones	Nalidixic acid	16	6	1										5				1							2	256
Sulfonamides	Sulfamethoxazol	*256*	6	0													1		5						8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	6	0								2	3	1											0.5	64
Trimethoprim	Trimethoprim	2	0	0																						
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Heidelberg in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

Footnote:

Cefotaxim - MIC<=0.06 microg/ml (N=4);
Ciprofloxacin - MIC<=0.008 microg/ml (N=1);
Trimethoprim - MIC<=0.25 microg/ml (N=6);
Gentamicin - MIC<=0.25 microg/ml (N=1)

Table Antimicrobial susceptibility testing of S. Heidelberg in Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - animal sample - carcass swabs - quantitative data [Dilution method]

S. Heidelberg		Meat from broilers (Gallus gallus) - carcass - - carcass swabs																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		1																								
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	1	0							1														0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	1	0												1									2	256
Amphenicols	Chloramphenicol	16	1	0										1											2	256
	Florfenicol	16	0	0																						
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	0	0																					0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	1	0		1																			0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin		0	0																						
	Ampicillin	4	0	0																					0.5	64
Quinolones	Nalidixic acid	16	1	0											1										2	256
Sulfonamides	Sulfonamide		0	0																					8	1024
Tetracyclines	Tetracyclin	*8*	1	0									1												0.5	64
Trimethoprim	Trimethoprim	2	0	0																					0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Footnote:

Ampicillin - MIC >=128 microg/ml (N=1);
Cefotaxim - MIC<=0.06 microg/ml (N=1);
Sulfonamide - MIC>=2048 microg/ml (N=1);
Trimethoprin - MIC<=0.25 microg/ml (N=1);

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

S. London		Pigs - breeding animals - unspecified																							
Isolates out of a monitoring program (yes/no)		no																							
Number of isolates available in the laboratory		8																							
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	6	0							3	3													0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	8	0										3	4	1									2	256
Amphenicols	Chloramphenicol	16	7	0										2	5										2	256
	Florfenicol	16	8	0										6	2										1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	2	0					2																0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	8	0		5	3																		0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	0	0																						
	Ampicillin	4	6	0								6													0.5	64
Quinolones	Nalidixic acid	16	7	0										7											2	256
Sulfonamides	Sulfamethoxazol	256	8	0														4	2	2					8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	8	0									6	2											0.5	64
Trimethoprim	Trimethoprim	2	8	0							7	1													0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Footnote:

Chloramphenicol - MIC<=2 microg/ml (N=1);
Ampicilin - MIC<=0.5 microg/ml (N=1); MIC>=128 microg/ml (N=1);
Cefotaxim - MIC<=0.06 microg/ml (N=6);
Nalidixic acid - MIC<=2 microg/ml (N=1);
Gentamicin - MIC<=0.25 microg/ml (N=2)

Table Antimicrobial susceptibility testing of S. Mbandaka in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

S. Mbandaka		Gallus gallus (fowl) - laying hens - during production period																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		19																								
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	17	0							16	1													0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	15	0										3	12										2	256
Amphenicols	Chloramphenicol	16	0	0																						
	Florfenicol	16	19	0										6	13										1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	13	0					12	1															0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	13	0		4	9																		0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	12	0								12													0.5	64
	Ampicillin	4	0	0																						
Quinolones	Nalidixic acid	16	18	1										16	1				1						2	256
Sulfonamides	Sulfamethoxazol	*256*	19	0													1		15	3					8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	18	0								3	15												0.5	64
Trimethoprim	Trimethoprim	2	2	0							2														0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Mbandaka in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

Footnote:

Tetracycline - MIC>=128 microg/ml (N=1);
Amoxicillin - MIC<=0.5 microg/ml (N=6); MIC>=128 microg/ml (N=1);
Cefotaxim - MIC<=0.06 microg/ml (N=6);
Ciprofloxacin - MIC<=0.008 microg/ml (N=6);
Nalidixic acid - MIC<=2 microg/ml (N=1);
Trimethoprim - MIC<=0.25 microg/ml (N=17);
Streptomycin - MIC<=2 microg/ml (N=4);
Gentamicin - MIC<=0.25 microg/ml (N=2)

Table Antimicrobial susceptibility testing of S. Mbandaka in parent breeding flocks for meat production line - Gallus gallus (fowl) - during production period - at farm - animal sample - faeces - quantitative data [Dilution method]

S. Mbandaka		Gallus gallus (fowl) - parent breeding flocks for meat production line - during production period - - faeces																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		1																								
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	1	0							1														0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	1	0												1									2	256
Amphenicols	Chloramphenicol	16	0	0																						
	Florfenicol	16	1	0											1										1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	1	0					1																0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	1	0		1																			0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	1	0								1													0.5	64
	Ampicillin	4	0	0																						
Quinolones	Nalidixic acid	16	1	0										1											2	256
Sulfonamides	Sulfamethoxazol	*256*	1	0																1					8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	1	0									1												0.5	64
Trimethoprim	Trimethoprim	2	1	0							1														0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Mbandaka in Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - official sampling - quantitative data [Dilution method]

S. Mbandaka		Meat from broilers (Gallus gallus) - carcass - - carcass swabs - Monitoring - official sampling																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		6																								
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	6	0							6														0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	6	0											5	1									2	256
Amphenicols	Chloramphenicol	16	6	0										4	2										2	256
	Florfenicol	16	0	0																						
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	4	0		4																			0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	6	0		6																			0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin		0	0																						
	Ampicillin	4	2	0								2													0.5	64
Quinolones	Nalidixic acid	16	1	0										1											2	256
Sulfonamides	Sulfonamide		6	6														6							8	1024
Tetracyclines	Tetracyclin	*8*	6	0									5	1											0.5	64
Trimethoprim	Trimethoprim	2	0	0																					0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Footnote:

Ampicillin - MIC <=0.5 microg/ml (N=2);
Cefotaxim - MIC<=0.06 microg/ml (N=2);
Nalidixic acid - MIC<=2 microg/ml (N=5);
Trimethoprin - MIC<=0.25 microg/ml (N=6);

Table Antimicrobial susceptibility testing of S. Rissen in breeding animals - Pigs - unspecified - quantitative data [Dilution method]

S. Rissen		Pigs - breeding animals - unspecified																							
Isolates out of a monitoring program (yes/no)		no																							
Number of isolates available in the laboratory		12																							
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	11	0							9	2													0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	11	6										1		2	2	5		1					2	256
Amphenicols	Chloramphenicol	16	11	0										1	9	1									2	256
	Florfenicol	16	11	0											10	1									1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	11	0					7	4															0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	12	0		8	4																		0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	0	0																						
	Ampicillin	4	3	0								3													0.5	64
Quinolones	Nalidixic acid	16	11	1										10				1							2	256
Sulfonamides	Sulfamethoxazol	256	2	0															1	1					8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	4	1									3					1							0.5	64
Trimethoprim	Trimethoprim	2	4	1							2		1		1										0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Footnote:

Tetracycline - MIC>=128 microg/ml (N=8);
Chloramphenicol - MIC>=512 microg/ml (N=1);
Florfenicol - MIC>=256 (N=1);
Ampicilin - MIC>=128 microg/ml (N=9);
Cefotaxim - MIC<=0.06 microg/ml (N=1);
Nalidixic acid - MIC<=2 microg/ml (N=1);
Sulfamethoxazole - MIC>=2048 (N=10);
Trimethoprim - MIC<=0.25 (N=1); MIC>=64 (N=7);
Streptomicin - MIC>=512 (N=1);
Gentamicin - MIC<=0.25 microg/ml (N=1)

Table Antimicrobial susceptibility testing of S. Senftenberg in Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - animal sample - carcass swabs - Monitoring - official sampling - quantitative data [Dilution method]

S. Senftenberg		Meat from broilers (Gallus gallus) - carcass - - carcass swabs - Monitoring - official sampling																							
Isolates out of a monitoring program (yes/no)		no																							
Number of isolates available in the laboratory		1																							
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	1	0							1														0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	1	0												1									2	256
Amphenicols	Chloramphenicol	16	1	0											1										2	256
	Florfenicol	16	0	0																						
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	1	0					1																0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	1	0		1																			0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin		0	0																						
	Ampicillin	4	1	0								1													0.5	64
Quinolones	Nalidixic acid	16	1	0										1											2	256
Sulfonamides	Sulfonamide		1	1														1							8	1024
Tetracyclines	Tetracyclin	*8*	1	0									1												0.5	64
Trimethoprim	Trimethoprim	2	1	0							1														0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Tennessee in breeding flocks for meat production line - Gallus gallus (fowl) - during production period - at farm - animal sample - faeces - quantitative data [Dilution method]

S. Tennessee		Gallus gallus (fowl) - breeding flocks for meat production line - during production period - - faeces																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		1																								
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	1	0							1														0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	1	0												1									2	256
Amphenicols	Chloramphenicol	16	0	0																						
	Florfenicol	16	1	0											1										1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	1	0					1																0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	1	0		1																			0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	1	0								1													0.5	64
	Ampicillin	4	0	0																						
Quinolones	Nalidixic acid	16	1	0										1											2	256
Sulfonamides	Sulfamethoxazol	*256*	1	0																1					8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	0	0																						
Trimethoprim	Trimethoprim	2	1	0							1														0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Tennessee in breeding flocks for meat production line - Gallus gallus (fowl) - during production period - at farm - animal sample - faeces - quantitative data [Dilution method]

Footnote:

Tetracycline - MIC>=128 microg/ml (N=1)

Table Antimicrobial susceptibility testing of S. Tennessee in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

S. Tennessee		Gallus gallus (fowl) - laying hens - during production period																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		4																								
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	4	0							4														0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	4	0											1	3									2	256
Amphenicols	Chloramphenicol	16	0	0																						
	Florfenicol	16	4	0											4										1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	4	0					4																0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	4	0		2	2																		0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	3	0								3													0.5	64
	Ampicillin	4	0	0																						
Quinolones	Nalidixic acid	16	4	0										4											2	256
Sulfonamides	Sulfamethoxazol	*256*	4	0															2	2					8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	4	0									4												0.5	64
Trimethoprim	Trimethoprim	2	3	0							3														0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Tennessee in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

Footnote:

Amoxicillin - MIC<=0.5 microg/ml (N=1);
Trimethoprim - MIC<=0.25 microg/ml (N=1)

Table Antimicrobial susceptibility testing of S. Typhimurium in breeding animals - Pigs - unspecified - quantitative data [Dilution method]

S. Typhimurium		Pigs - breeding animals - unspecified																							
Isolates out of a monitoring program (yes/no)		no																							
Number of isolates available in the laboratory		14																							
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	11	0							9	2													0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	10	8													2	3	5						2	256
Amphenicols	Chloramphenicol	16	8	3										1	4				1	2					2	256
	Florfenicol	16	12	5										3	4		2	2	1						1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	12	1					9	2			1												0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	14	0		9	5																		0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	0	0																						
	Ampicillin	4	0	0																					0.5	64
Quinolones	Nalidixic acid	16	13	1										11	1					1					2	256
Sulfonamides	Sulfamethoxazol	256	2	2																		2			8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	4	4													1	3							0.5	64
Trimethoprim	Trimethoprim	2	6	0							6														0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Typhimurium in breeding animals - Pigs - unspecified - quantitative data [Dilution method]

Footnote:

Tetracycline - MIC>=128 microg/ml (N=10);
Chloramphenicol - MIC>=512 microg/ml (N=6);
Florfenicol - MIC>=256 (N=2);
Ampicilin - MIC>=128 microg/ml (N=14);
Cefotaxim - MIC<=0.06 microg/ml (N=2);
Nalidixic acid - MIC<=2 microg/ml (N=1);
Sulfamethoxazole - MIC>=2048 (N=12);
Trimethoprim - MIC<=0.25 (N=7); MIC>=64 (N=1);
Streptomicin - MIC>=512 (N=4);
Gentamicin - MIC<=0.25 microg/ml (N=3)

Table Antimicrobial susceptibility testing of S. Virchow in breeding flocks for meat production line - Gallus gallus (fowl) - during production period - at farm - animal sample - faeces - quantitative data [Dilution method]

S. Virchow		Gallus gallus (fowl) - breeding flocks for meat production line - during production period - - faeces																							
Isolates out of a monitoring program (yes/no)		no																							
Number of isolates available in the laboratory		1																							
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	1	0							1														0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	0	0																						
Amphenicols	Chloramphenicol	16	0	0																						
	Florfenicol	16	1	0											1										1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	*0.5*	1	0					1																0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	1	0			1																		0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	1	0								1													0.5	64
	Ampicillin	4	0	0																						
Quinolones	Nalidixic acid	16	1	0										1											2	256
Sulfonamides	Sulfamethoxazol	*256*	1	0															1						8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	1	0								1													0.5	64
Trimethoprim	Trimethoprim	2	0	0																						
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. Virchow in breeding flocks for meat production line - Gallus gallus (fowl) - during production period - at farm - animal sample - faeces - quantitative data [Dilution method]

Footnote:

Trimethoprim - MIC<=0.25 microg/ml (N=1)

Table Antimicrobial susceptibility testing of S. 1,3,19:-:- in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

S. 1,3,19:-:-		Gallus gallus (fowl) - laying hens - during production period																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		4																								
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	3	0							3														0.25	32
	Kanamycin		0	0																						
	Neomycin		0	0																						
	Streptomycin	32	4	0											2	2									2	256
Amphenicols	Chloramphenicol	16	0	0																						
	Florfenicol	16	4	0											4										1	128
Cephalosporins	3rd generation cephalosporins		0	0																						
	Cefotaxim	0.5	4	0					2	2															0.06	8
Fluoroquinolones	Ciprofloxacin	0.06	4	0		4																			0.008	8
	Enrofloxacin		0	0																						
Penicillins	Amoxicillin	4	2	1								1			1										0.5	64
	Ampicillin	4	0	0																						
Quinolones	Nalidixic acid	16	4	0										4											2	256
Sulfonamides	Sulfamethoxazol	*256*	4	0													1	1	2						8	1024
	Sulfonamide		0	0																						
Tetracyclines	Tetracyclin	8	4	0									3	1											0.5	64
Trimethoprim	Trimethoprim	2	2	0							2														0.25	32
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		0	0																						

Table Antimicrobial susceptibility testing of S. 1,3,19:-:- in laying hens - Gallus gallus (fowl) - during production period - quantitative data [Dilution method]

Footnote:

Amoxicillin - MIC<=0.5 microg/ml (N=2);
Trimethoprim - MIC<=0.25 microg/ml (N=2);
Gentamicin - MIC<=0.25 microg/ml (N=1)

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**		2		2	0.25	32				
	Streptomycin		32		32	2	256				
Amphenicols	**Chloramphenicol**		16		16	2	256				
	Florfenicol		16		16	2	256				
Cephalosporins	**Cefotaxim**		0.5		0.5	0.06	8				
Fluoroquinolones	**Ciprofloxacin**		0.06		0.06	0.008	8				
Penicillins	**Amoxicillin**		4		4	0.5	64				
	Ampicillin		4		4	0.5	64				
Quinolones	**Nalidixic acid**		16		16	2	256				
Sulfonamides	**Sulfamethoxazol**		256		256	8	1024				
Tetracyclines	**Tetracyclin**		8		8	0.5	64				
Trimethoprim	**Trimethoprim**		2		2	0.25	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**		2		2	0.25	32				
	Streptomycin		32		32	2	256				
Amphenicols	**Chloramphenicol**		16		16	2	256				
	Florfenicol		16		16	1	128				
Cephalosporins	**Cefotaxim**		0.5		0.5	0.06	8				
Fluoroquinolones	**Ciprofloxacin**		0.06		0.06	0.008	8				
Penicillins	**Ampicillin**		4		4	0.5	64				
Quinolones	**Nalidixic acid**		16		16	2	256				
Trimethoprim	**Trimethoprim**		2		2	0.25	32				

2.2 CAMPYLOBACTERIOSIS

2.2.1 General evaluation of the national situation

A. Thermophilic Campylobacter general evaluation

National evaluation of the recent situation, the trends and sources of infection

There is no official program for this zoonosis.

Additional information

There is no official program for this zoonosis.

Diagnostic techniques:

Foodstuffs - Screening: VIDAS CAM. Confirmation: Internal method based on ISO 10272.
- Typing of isolates by Lior method.

Other than foodstuffs:
- Samples from sheathwashings, semen, intestinal scrapings and feces are plated in Campylobacter agar or Brucella agar supplemented with: SR 69, SR84, SR 85 (C. foetus), SR 117 (all from Oxoid) and selective media Campylosel (BiomÃ©rieux)and skirrow Campylobacter selective Agar (Merck).
- Biochemical identification by API system.

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	C. jejuni-C. jejuni subsp. jejuni
Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - Survey - EU baseline survey (Detection)	DGV	single	25g	420	261	136	171		8		1
Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - Survey - EU baseline survey (Quantification)	DGV	single	25g	420	287	211	147	1	6	3	1

Footnote:

Some of the positive samples had more than one campylobacter specie, for this reason the total positive units are diferent from the total campylobacter species identified.

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	C. jejuni-C. jejuni subsp. doylei	C. jejuni-C. jejuni subsp. jejuni
Gallus gallus (fowl) - broilers - at slaughterhouse - animal sample - caecum - Survey - EU baseline survey	DGV	single	420	349	215	94				8	33

Footnote:

In one sample were isolated two diferente species (349 positive samples; 350 species).

2.2.5 Antimicrobial resistance in Campylobacter isolates

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

C. coli		Gallus gallus (fowl) - broilers																							
Isolates out of a monitoring program (yes/no)		no																							
Number of isolates available in the laboratory		215																							
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*	212	0					1	39	159	13													0.125	16
	Streptomycin		129	129						8	3	52	46	4		2	14								0.5	32
Fluoroquinolones	Ciprofloxacin	*1*	33	32					1				1	1	30										0.06	8
Macrolides	Erythromycin	*16*	52	6							8	19	11	4	4		2	4							0.5	64
Penicillins	Ampicillin		0	0																						
Quinolones	Nalidixic acid	*32*	214	206													8	87	106	13					2	256
Tetracyclines	Tetracyclin	*2*	14	8					1	4		1			1	7									0.125	16

Footnote:

Tetracycline - MIC>=32 microg/ml (N=201);
Ciprofloxacin - MIC>=16 microg/ml (N=182);
Streptomycin - MIC>=64 microg/ml (N=25);
Gentamicin - MIC>=32 microg/ml (N=3);
Erythromicin - MIC>=128 microg/ml (N=163)

Table Antimicrobial susceptibility testing of C. coli in Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - animal sample - carcass swabs - quantitative data [Dilution method]

C. coli		Meat from broilers (Gallus gallus) - carcass - - carcass swabs																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		25																								
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*	24	0					1	8	10	5													0.125	16
	Streptomycin	*16*	20	0								5	13	2											0.5	32
Fluoroquinolones	Ciprofloxacin	1	2	2											2										0.06	8
Macrolides	Erythromycin	*16*	6	0						2		1	3												0.5	64
Penicillins	Ampicillin		0	0																						
Quinolones	Nalidixic acid	*32*	25	25														6	16	3					2	256
Tetracyclines	Tetracyclin	2	2	2										1		1									0.125	16

Footnote:

Tetracycline - MIC>=32 microg/ml (N=23);
Ciprofloxacin - MIC>=16 microg/ml (N=23);
Streptomycin - MIC>=64 microg/ml (N=5);
Gentamicin - MIC>=32 (N=1);
Erytromycin - MIC>=128 (N=19)

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

C. jejuni		Gallus gallus (fowl) - broilers																							
Isolates out of a monitoring program (yes/no)		no																							
Number of isolates available in the laboratory		136																							
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	*1*	136	0			4	6	2	53	67	4													0.125	16
	Streptomycin		131	131						6	9	37	74	4	1										0.5	32
Fluoroquinolones	Ciprofloxacin	*1*	31	25					2	2	1	1	1	1	23										0.06	8
Macrolides	Erythromycin	*4*	89	7				1	3	12	1	45	17	3	3		3	1							0.5	64
Penicillins	Ampicillin		0	0																						
Quinolones	Nalidixic acid	*16*	134	128										4	1	1	8	20	45	55					2	256
Tetracyclines	Tetracyclin	2	0	0																						

Footnote:

Tetracycline - MIC>=32 microg/ml (N=86);
Ciprofloxacin - MIC>=16 microg/ml (N=105);
Nalidixic acid - MIC>=512 microg/ml (N=2);
Streptomycin - MIC>=64 microg/ml (N=5);
Erythromicin - MIC>=128 microg/ml (N=47)

Table Antimicrobial susceptibility testing of C. jejuni in Meat from broilers (Gallus gallus) - carcass - at slaughterhouse - animal sample - carcass swabs - quantitative data [Dilution method]

C. jejuni		Meat from broilers (Gallus gallus) - carcass - - carcass swabs																							
Isolates out of a monitoring program (yes/no)		no																							
Number of isolates available in the laboratory		37																							
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	*1*	37	0			1	1	1	14	16	4													0.125	16
	Streptomycin	*2*	35	0							2	10	23												0.5	32
Fluoroquinolones	Ciprofloxacin	1	7	7										1	6										0.06	8
Macrolides	Erythromycin	*4*	15	1					1	2		5	6				1								0.5	64
Penicillins	Ampicillin		0	0																						
Quinolones	Nalidixic acid	*16*	37	37													1	5	9	22					2	256
Tetracyclines	Tetracyclin	2	11	8				2				1		3	2	3									0.125	16

Footnote:

Tetracycline - MIC>=32 microg/ml (N=26);
Ciprofloxacin - MIC>=16 microg/ml (N=30);
Streptomycin - MIC>=64 microg/ml (N=2);
Erythromicin - MIC>=128 microg/ml (N=22)

Table Breakpoints used for antimicrobial susceptibility 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**					0.125	16				
	Streptomycin					0.5	32				
Fluoroquinolones	**Ciprofloxacin**		1		1	0.06	8				
Macrolides	**Erythromycin**					0.5	64				
Quinolones	**Nalidixic acid**					2	256				
Tetracyclines	**Tetracyclin**		2		2	0.125	16				

Footnote:

C.Jejuni - Breakpoint conc(microg/ml): Nalidixic acid=16 (susceptible and resistant);Streptomicin=2 (susceptible and resistant); Gentamicin =1(susceptible and resistant); Erythromycin=4(susceptible and resistant).
C.Coli - Breakpoint conc(microg/ml): Nalidixic acid=32 (susceptible and resistant);Streptomicin=4 (susceptible and resistant); Gentamicin =2(susceptible and resistant); Erythromycin=16(susceptible and resistant)

Table Breakpoints used for antimicrobial susceptibility 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					0.125	16				
	Streptomycin					0.5	32				
Fluoroquinolones	Ciprofloxacin		1		1	0.06	8				
Macrolides	Erythromycin					0.5	64				
Quinolones	Nalidixic acid					2	256				
Tetracyclines	Tetracyclin		2		2	0.125	16				

Footnote:

C.Jejuni - Breakpoint conc(microg/ml): Nalidixic acid=16 (susceptible and resistant);Streptomicin=2 (susceptible and resistant); Gentamicin =1(susceptible and resistant); Erythromycin=4(susceptible and resistant).
C.Coli - Breakpoint conc(microg/ml): Nalidixic acid=32 (susceptible and resistant);Streptomicin=4 (susceptible and resistant); Gentamicin =2(susceptible and resistant); Erythromycin=16(susceptible and resistant)

2.3 LISTERIOSIS

2.3.1 General evaluation of the national situation

A. Listeriosis general evaluation

Additional information

* The searching of Listeria started on 1996 for raw milk and milk cheese (Portaria nÂº 533/93 from 21st of May has been updated by Portaria 56/96).

Diagnostic tecnhiques:

Foodstuffs/Feedingstuffs -Screening: VIDAS LMO2 (AFNOR validation). Detection:ISO 11290-1 (1996) and Amendment 1 (2004). Enumeration: ISO 11290-2 (1998) and Amendment 1 (2004).

Other than foodstuffs - Internal method - culture on:
- Palcam agar, Oxford agar and Blood agar.
- Biochemical reactions by API Coryne or API Listeria strips.

2.3.2 Listeriosis in humans

Table Listeria in humans - Age distribution

Age Distribution	Listeria spp.		
	All	M	F
25 to 44 years	3	2	1
65 years and older	2	2	0
Total:	5	4	1

2.3.3 Listeria in foodstuffs

Table Listeria monocytogenes in milk and dairy products

	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
Cheeses made from cows' milk - hard - made from raw or low heat-treated milk - at processing plant - Surveillance - official controls	RA Açores	batch	25g	5	1	5	1	0		
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk - at processing plant - Surveillance - official controls	DGV	single	25g	8	0	8	0	0		
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk - at retail - Surveillance - official controls	ASAE	batch	25g	125	0	0		125	0	0
Cheeses made from cows' milk - unspecified - made from pasteurised milk - at processing plant - Surveillance - official controls (Fresh ch.)	RA Açores	single	25g	3	2	3	2	0		
Cheeses made from cows' milk - unspecified - made from pasteurised milk - at processing plant - Surveillance - official controls (Fresh cheese)	DGV	single	25g	7	0	7	0	0		
Cheeses made from goats' milk - soft and semi-soft - made from pasteurised milk - at retail - Surveillance - official controls	ASAE	batch	25g	30	0	0		30	0	0
Cheeses made from goats' milk - soft and semi-soft - made from raw or low heat-treated milk - at processing plant	Lab. Algarve	batch	25g	7	0	7	0	0		
Cheeses made from goats' milk - soft and semi-soft - made from raw or low heat-treated milk - at processing plant - Surveillance - official controls	DGV	single	25g	1	0	1	0	0		
Cheeses made from goats' milk - unspecified - made from pasteurised milk - at processing plant - Surveillance - official controls (Fresh cheese)	DGV	single	25g	5	1	5	1	0		

Table Listeria monocytogenes in milk and dairy products

	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
Cheeses made from sheep's milk - soft and semi -soft - made from raw or low heat-treated milk - at processing plant - Surveillance - HACCP and own checks	Lab. Viseu	single	25g	2	0	2	0	0		
Cheeses made from sheep's milk - soft and semi -soft - made from raw or low heat-treated milk - at processing plant - Surveillance - official controls	DGV	single	25g	6	2	6	2	0		
Cheeses made from sheep's milk - soft and semi -soft - made from raw or low heat-treated milk - at retail - Surveillance - official controls	ASAE	batch	25g	265	21	0		265	5	16
Cheeses made from sheep's milk - unspecified - made from pasteurised milk - at processing plant - Surveillance - official controls (Fresh cheese)	DGV	single	25g	2	0	2	0	0		
Cheeses, made from mixed milk from cows, sheep and/or goats - at processing plant - Surveillance - official controls (Semi-soft)	DGV	single	25g	1	0	1	0	0		
Dairy products (excluding cheeses) - cream - at processing plant	Lab. Algarve	batch	25g	4	0	4	0	0		
Milk, cows' - pasteurised milk - at processing plant	Lab. Algarve	batch	25ml	7	0	7	0	0		
Milk, cows' - raw milk for manufacture - intended for manufacture of raw or low heat-treated products - at processing plant	Lab. Algarve	batch	25ml	7	0	7	0	0		
Milk, goats' - raw milk for manufacture - intended for manufacture of raw or low heat-treated products - at processing plant	Lab. Algarve	batch	25ml	4	0	4	0	0		
Milk, sheep's - raw milk for manufacture - intended for manufacture of raw or low heat-treated products - at processing plant - Monitoring - official sampling	DGV	single	25ml	3	1	3	1	0		

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
Crustaceans - unspecified - cooked - at processing plant - Surveillance - official controls	DGV	single	25g	1	0	1	0	0		
Crustaceans - unspecified - cooked - at retail - Surveillance - official controls	ASAE	batch	25g	25	0	0		25	0	0
Dairy products (excluding cheeses) - dairy desserts - at retail - Surveillance	ASAE	batch	25g	105	0	0		105	0	0
Dairy products (excluding cheeses) - ice-cream - at retail - Surveillance	ASAE	batch	25g	60	0	0		60	0	0
Fish - smoked - at retail - Surveillance - official controls	ASAE	batch	25g	110	0	0		110	0	0
Fishery products, unspecified - ready-to-eat - at processing plant - Surveillance - official controls	DGV	single	25g	9	0	9	0	0		
Fruits - at retail - Survey	ASAE	batch	25g	40	0	0		40	0	0
Fruits and vegetables - precut - ready-to-eat - at catering - Surveillance - HACCP and own checks	INSA	single	25g	345	5	345	5	345	4	1
Infant formula - at catering - Surveillance - HACCP and own checks	INSA	single	25g	20	0	20	0	20	0	0
Juice - at retail - Surveillance	ASAE	batch	25g	100	0	0		100	0	0
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at processing plant - Surveillance - official controls	DGV	single	25g	1	0	1	0	0		
Meat from pig - meat products - cooked ham - at processing plant - Surveillance - HACCP and own checks	UTAD	single	25g	3	0	3	0	0		
Meat from pig - meat products - cooked, ready-to -eat - at catering - Surveillance - HACCP and own checks (Pig sausage)	INSA	single	25g	2	1	2	1	2	1	0

Table Listeria monocytogenes in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for L.monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Meat from pig - meat products - cooked, ready-to-eat - at processing plant - Surveillance - HACCP and own checks	UTAD	single	25g	26	0	26	0	0		
Meat from pig - meat products - cooked, ready-to-eat - at processing plant - Surveillance - official controls	DGV	single	25g	9	0	9	0	0		
Meat from pig - meat products - cooked, ready-to-eat - at retail - Surveillance - official controls	ASAE	batch	25g	1065	20	0		1065	9	11
Meat from pig - meat products - cooked, ready-to-eat - chilled - at retail - Surveillance - HACCP and own checks (Lab. Viseu)	Lab. Viseu	batch	25g	5	1	5	1	0		
Meat from pig - meat products - raw ham - at processing plant - Surveillance - HACCP and own checks	UTAD	single	25g	1	0	1	0	0		
Meat from pig - meat products - unspecified, ready-to-eat - at processing plant - Surveillance - HACCP and own checks (Bacon)	UTAD	single	25g	6	0	6	0	0		
Meat from pig - meat products - unspecified, ready-to-eat - at processing plant - Surveillance - HACCP and own checks (Smoked Canoco)	UTAD	single	25g	4	0	4	0	0		
Meat from pig - meat products - unspecified, ready-to-eat - at processing plant - Surveillance - HACCP and own checks (Smoked pig ear)	UTAD	single	25g	3	0	3	0	0		
Meat from turkey - at retail - Surveillance (no sampling details)	ASAE	batch	25g	60	4	0		60	3	1
Meat from turkey - meat products - cooked, ready-to-eat - at processing plant - Surveillance	RA Madeira	single	25g	2	0	2	0	0		
Meat from turkey - meat products - cooked, ready-to-eat - at processing plant - Surveillance - official controls	DGV	single	25g	4	0	4	0	0		

Table Listeria monocytogenes in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for L.monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Meat, mixed meat - meat products - cooked, ready-to-eat - at processing plant (Study - traditional sausage - alheira)	UTAD	single	25g	24	7	24	7	0		
Meat, mixed meat - meat products - cooked, ready-to-eat - at processing plant - Surveillance - HACCP and own checks (Traditional Sausage - Alheira)	UTAD	single	25g	4	0	4	0	0		
Molluscan shellfish - Surveillance (PIF)	DGV	batch	25g	1	0	1	0	0		
Other food - at catering - Surveillance - HACCP and own checks (RTE mixed meal)	INSA	single	25g	1158	17	1158	17	1158	14	3
Other food - at catering - Surveillance - HACCP and own checks (Sandwich)	INSA	single	25g	53	2	53	2	53	2	0
Other food - at retail - Surveillance - HACCP and own checks (Frozen seafood)	IPIMAR	batch	25g	48	1	48	1	0		
Other processed food products and prepared dishes - at retail - Surveillance	ASAE	batch	25g	45	0	0		45	0	0
Ready-to-eat salads - at retail - Surveillance	ASAE	batch	25g	165	0	0		165	0	0
Seeds, sprouted - at retail - Surveillance	ASAE	batch	25g	25	0	0		25	0	0

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	L. innocua	L. ivanovii	Listeria spp., unspecified
Cattle (bovine animals)	LNIV	animal	4	1		1		
Sheep	LNIV	animal	7	1			1	
Zoo animals, all	LNIV	animal	2	2	2			
Zoo animals, all - Clinical investigations (Laque (ruminant) - Post mortem) [1)]	FMV	animal	3	0				

Comments:

[1)] Liver, Spleen and intestine

2.4 E. COLI INFECTIONS

2.4.1 General evaluation of the national situation

A. Verotoxigenic Escherichia coli infections general evaluation

Additional information

At LNIV the following procedures are performed in E. coli isolates of cattle, swine, sheep and goats (strains that are serotyped).
At poultry isolates, serotyping is not being done.

Diagnostic Techniques:
Internal method.
1 - Culture:

Platting in: Tryptose Blood Agar
MacConkey Agar
Minca Agar

To different E. coli colonies, the following biochemical reactions are done:
Simmons Citrate
MR-VP
Adonitol
Dulcitol
Inositol
Mannitol
Sorbitol
Glucose
Sucrose
Raffinose
Malonate
Urease

2 - Serology:
Serotyping by searching somatic (O) and capsular (K) antigens.

3 - Searching of enterotoxins:
- ST (by PCR)
- LT (by Biken test, CHO cells and PCR)

4 - Searching of citotoxins:
- in Vero and HeLa cells.

5 - Adesin detection:
- F5, F6, F41

6 - Antibiotic susceptibility testing

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
Fruits and vegetables - precut - ready-to-eat - at catering - Surveillance [1)]	INSA	single	0.1g		1		1	
Other food - at catering - Clinical investigations (Tuna fish paté) [2)]	INSA	single	0.1g		1		1	
Other food - at catering - Surveillance (Ready-to-eat mixed meal) [3)]	INSA	single	0.1g		2		2	

Comments:

[1)] E.coli pathogenic identification method by PCR multiplex on E. coli isolates by ISO 16649-2:2001
[2)] E.coli pathogenic identification method by PCR multiplex on E. coli isolates by ISO 16649-2:2001
[3)] E.coli pathogenic identification method by PCR multiplex on E. coli isolates by ISO 16649-2:2001

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	Verotoxigenic E. coli (VTEC)-VTEC O138:K81
Cats	RA Madeira	animal		27	0				
Cattle (bovine animals)	LNIV	animal		35	1				1
Cattle (bovine animals) (RA Madeira)	Ra Madeira	animal		1	0				
Cattle (bovine animals) - dairy cows	RA Madeira	animal		12	0				
Dogs	RA Madeira	animal		25	0				
Goats	LNIV	animal		9	0				
Other animals (Dolphins)	RA Madeira	animal		1	0				
Parrots	RA Madeira	animal		1	0				
Pigeons	RA Madeira	animal		2	0				
Pigs	LNIV	animal		36	1			1	
Pigs (Ra Madeira)	RA Madeira	animal		3	0				
Poultry, unspecified	RA Madeira	animal		16	0				
Rabbits	RA Madeira	animal		1	0				
Sheep	LNIV	animal		36	0				

2.5 TUBERCULOSIS, MYCOBACTERIAL DISEASES

2.5.1 General evaluation of the national situation

2.5.2 Tuberculosis, mycobacterial diseases in humans

2.5.3 Mycobacterium in animals

A. Mycobacterium bovis in bovine animals

Monitoring system

Sampling strategy

Tuberculosis testing is performed in all bovine, older than 6 weeks of age, using the intra -dermal comparative test.

The herds are classified and sampled according to Council Directive 64/432/EEC and National Dec. Lei nº 272/2000, November 8th.

Frequency of the sampling

The herds are classified and sampled according to Council Directive 64/432/EEC and National Dec. Lei nº 272/2000, November 8th.

Type of specimen taken

Other: intra-dermal comparative test, blood (gama-IFN), organs

Diagnostic/analytical methods used

The National Reference Laboratory (NRL) is Laboratório Nacional de Investigação Veterinária (LNIV) which is also responsible for production and distribution of tuberculins.

Diagnostic techniques:
- Internal method.
- direct smear
- solid media: stonebrink and Lowenstein-Jensen.
- liquid media: bactec.

The classification of Mycobacterium is based on: BM techniques.

LNIV is responsible for the Mycobacterium isolation on the tuberculin reactors animals and others, following the procedures above mentioned.

Vaccination policy

Vaccination is forbidden.

Other preventive measures than vaccination in place

Pre-movement tests are mandatory for breeding animals.

Control program/mechanisms

The control program/strategies in place

An Eradication Plan for Bovine Tuberculosis is carried out and supervised by DGV.

Measures in case of the positive findings or single cases

- Herd under official restrictions;
- Isolation of suspected or infected animals in the herd;
- Positive animals compulsory slaughtered, under official supervision, with sample collection for laboratory diagnosis;
- Animal mouvements are forbiden from and to the herd;
- Desinfection of all premises, equipment and materials;
- Testing of all remaining animals;
- Thermic treatment of the milk.

Notification system in place

Tuberculosis is a notifiable disease.

B. Mycobacterium bovis in farmed deer

Monitoring system

Sampling strategy

There is no national surveillance plan in place, but there is target surveillance in certain areas.

Sampling collection is done during hunting and all carcasses intended to human consumption undergo a post-mortem examination.

Vaccination policy

Vaccination is forbiden

Notification system in place

Tuberculosis is a notifiable disease in all species.

Table Tuberculosis in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Mycobacterium spp.	M. bovis	M. tuberculosis	M. avium complex	M. kansasii	Mycobacterium spp., unspecified	M. caprae	M. avium complex-M. avium subsp. avium
Birds	LNIV	animal	1	1							1
Deer - wild	LNIV	animal	189	64	60			1	3		
Goats	LNIV	animal	83	39						39	
Pigs	LNIV	animal	2	0							
Sheep	LNIV	animal	4	1	1						
Wild boars	LNIV	animal	119	47	40		6				
Zoo animals, all	LNIV	animal	4	1	1						

	M. tuberculosis-complex
Birds	
Deer - wild	
Goats	
Pigs	
Sheep	
Wild boars	1
Zoo animals, all	

Table Bovine tuberculosis - data on herds - Community co-financed eradication programmes

Region	Total number of herds	Total number of herds under the programme	Number of herds checked	Number of positive herds	Number of new positive herds	Number of herds depopulated	% positive herds depopulated	Indicators		
								% herd coverage	% positive herds Period herd prevalence	% new positive herds Herd Incidence
CONTINENTE	42321	40911	38789	43	30	2	4.65	94.81	.11	.08
Região Autónoma dos AÇORES	11939	2985	1485	0	0	1	0	49.75	0	0
Total	54260	43896	40274	43	30	3	6.98	91.75	0.11	0.07
Total - 1	66602	51616	51081	71	55	5	7.04	98.96	.14	.11

Table Bovine tuberculosis - data on animals - Community co-financed eradication programmes

Region	Total number of animals	Number of animals to be tested under the programme	Number of animals tested	Number of animals tested individually	Number of positive animals	Slaughtering		Indicators	
						Number of animals with positive result slaughtered or	Total number of animals slaughtered	% coverage at animal level	% positive animals - animal prevalence
CONTINENTE	1205323	1138006	777463	777463	264	225	277	68.32	.03
Região Autónoma dos AÇORES	268096	67025	35164	35164	0	0	35	52.46	0
Total	1473419	1205031	812627	812627	264	225	312	67.44	0.03
Total - 1			1312089	1032855	435	398	735		

Table Bovine tuberculosis - data on status of herds at the end of the period - Community co-financed eradication programmes

	Status of herds and animals under the programme													
	Total number of herds and animals under the programme		Unknown		Not free or not officially free				Free or officially free suspended		Free		Officially free	
					Last check positive		Last check positive							
Region	**Herds**	**Animals**	**Herds**	**Animals**	**Herds**	**Animals**	**Herds**	**Animals**	**Herds**	**Animals**	**Herds**	**Animals**	**Herds**	**Animals**
CONTINENTE	40911	1138006	0	0	7	2157	207	11572	75	2485	0	0	42032	1189109
Região Autónoma dos AÇORES	2985	67025	0	0	0	0	0	0	0	0	0	0	11939	268096
Total	43896	1205031	0	0	7	2157	207	11572	75	2485	0	0	53971	1457205
Total - 1	51616	1032855	0	0	18	3282	207	11620	134	4242	0	0	66243	1292945

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			
Região Autónoma da MADEIRA	1524	5355	0	0	0	0	0	0	0	0	0
Total	1524	5355	0	0.0	0	0.0	0	0	0	0	0
Total - 1											

2.6 BRUCELLOSIS

2.6.1 General evaluation of the national situation

A. Brucellosis general evaluation

Additional information

Foodstuffs
Brucella isolation:
- Samples are plated in 6 petri dishes of FarrelÂ´s medium (3 incubated in CO2 atmosphere (CO2) and the others are incubated at normal atmosphere (N));
- Incubation at 37 degrees Celsius (+-1 degree celsius) for 10 days;
- 1st reading of the plates on the 4/5th day of incubation;
- 2nd reading on the 10th day of incubation;
- Suspected colonies are streaked on 2 agar slopes (one for (CO2) and the other for (N)for typing.

Brucella typing:
- Biochemical tests (urease, catalase and oxidase);
- CO2 requirement;
- H2S production;
- Dye sensitivity (Thionin, Basic Fucsin and Safrinin O);
- Agglutination with acriflavine and monospecific A and M antisera;
- Lysis by phages;
- Differentiation of vaccine and field strains.

For each set of plating and typing, reference strains are used.

2.6.2 Brucellosis in humans

Table Brucella in humans - Age distribution

Age Distribution	Brucella spp.		
	All	M	F
5 to 14 years	1	0	1
15 to 24 years	4	1	3
25 to 44 years	5	2	3
45 to 64 years	2	0	2
Total:	12	3	9

2.6.3 Brucella in foodstuffs

Table Brucella in food

	Source of information	Sampling unit	Units tested	Total units positive for Brucella spp.	B. abortus	B. melitensis	B. suis	Brucella spp., unspecified
Cheeses made from cows' milk - at processing plant - Monitoring - official sampling (Fresh cheese)	DGV	single	6	0				
Cheeses made from cows' milk - soft and semi-soft - at processing plant - Monitoring - official sampling	DGV	single	8	0				
Cheeses made from goats' milk - at processing plant - Monitoring - official sampling (Fresh cheese)	DGV	single	5	0				
Cheeses made from goats' milk - hard - made from raw or low heat-treated milk - at processing plant - Surveillance - HACCP and own checks	LNIV	single	4	0				
Cheeses made from goats' milk - soft and semi-soft - made from raw or low heat-treated milk - at processing plant - Monitoring - official sampling	DGV	single	1	0				
Cheeses made from goats' milk - unspecified - made from pasteurised milk - at processing plant - Surveillance - HACCP and own checks (Fresh cheese)	LNIV	single	4	0				
Cheeses made from sheep's milk - at processing plant - Monitoring - official sampling (Fresh cheese)	DGV	single	2	0				
Cheeses made from sheep's milk - hard - made from raw or low heat-treated milk - at processing plant - Surveillance - HACCP and own checks	LNIV	single	2	0				
Cheeses made from sheep's milk - soft and semi -soft - made from raw or low heat-treated milk - at processing plant - Monitoring - official sampling	DGV	single	6	0				

Table Brucella in food

	Source of information	Sampling unit	Units tested	Total units positive for Brucella spp.	B. abortus	B. melitensis	B. suis	Brucella spp., unspecified
Cheeses, made from mixed milk from cows, sheep and/or goats - soft and semi-soft - made from raw or low heat-treated milk - at processing plant - Monitoring	DGV	single	1	0				
Milk, goats' - raw - at processing plant - Surveillance - HACCP and own checks	LNIV	single	12	3		3		
Milk, sheep's - raw milk for manufacture - intended for manufacture of raw or low heat-treated products - at farm - Monitoring - official sampling	DGV	single	3	0				

2.6.4 Brucella in animals

A. Brucella abortus in bovine animals

Status as officially free of bovine brucellosis during the reporting year

Free regions

In the Açores, there are 4 islands (Graciosa, Pico, Flores and Corvo) that are Officially Bovine Brucellosis Free, according to Comission Decision 2002/588/CE of the 11 July 2002.

Monitoring system

Sampling strategy

Serology is performed in cattle older than 12 months of age.
The herds are classified and sampled according to Council Directive 64/432/EEC and Decreto-Lei nº244/2000 (Sep. 27th).

Frequency of the sampling

The herds are sampled according to Council Directive 64/432/EEC and Decreto-Lei nº244/2000 (Sep. 27th) for cattle, sheep and goats.

Type of specimen taken

Other: Blood, milk, organs,vaginal mucus, semen,aborted foetus, placenta.

Diagnostic/analytical methods used

Diagnostic techniques:

Serology:
- Rose Bengal Test (RBT);
- Complement Fixation Test (CFT);
If RBT is positive CFT is performed.

Bacteriology - Samples from:
- live animals (milk, vaginal mucus, semen, aborted foetus, placenta;
- dead animals (liver, spleen, lymph nodes, udder and uterus)
are plated in Farrel medium (Difco Tryptose Agar + SR209 Oxoid supplement + 5% horse serum).

- Biochemical reactions (urease, catalase and oxidase).

Typing of isolates:
- CO2 requirement;
- H2S production;
- Agglutination with monospecific antisera (anti-A, anti-M and anti-R or acriflavine test);

- Growth on dyes:
  1/50.000 and 1/100.000 of basic fucsin
  1/50.000 and 1/100.000 of thionin.
- Lysis by phages;
- Differentiation of vaccine and field strains.

Vaccination policy

Vaccination is forbidden but if an exceptional sanitary situation occurs, vaccination can be allowed with specific protocols between the National Veterinary Authority, the Regional Veterinary Authority and the owner(s) of the cattle.

Other preventive measures than vaccination in place

Pre-movement tests are mandatory for breeding animals.

Control program/mechanisms

The control program/strategies in place

An Eradication Plan for cattle is carried out and supervised by DGV.

Measures in case of the positive findings or single cases

Suspected Herd:
- Herd under oficial surveillance;
- Epidemiological questionaire;
- Animal mouvements are forbiden from and to the herd;
- Isolation of suspected animals in the herd;
- Sample collection for laboratory diagnosis.

Positive Herd:
- Herd under official restrictions;
- Compulsory slaughter of all positive animals, under official supervision with sample collection for laboratory diagnosis;
- Animal mouvements are forbiden from and to the herd;
- Serological control of all remaining animals;
- Thermic treatment of the milk.

Infected Herd:
- All mesures mencioned for positive herds;
- Desinfection of all premises, equipment and materials.

Notification system in place

Brucelosis is a notifiable disease.

B. Brucella melitensis in sheep

Status as officially free of ovine brucellosis during the reporting year

Free regions

See Brucella melitensis in goats.

Monitoring system

Sampling strategy

See Brucella melitensis in goats.

Type of specimen taken

Other: Blood, milk, organs,vaginal mucus, semen,aborted foetus, placenta.

Diagnostic/analytical methods used

See Brucella melitensis in goats.

Vaccination policy

See Brucella melitensis in goats.

Control program/mechanisms

The control program/strategies in place

See Brucella melitensis in goats.

Measures in case of the positive findings or single cases

See Brucella melitensis in goats.

C. Brucella melitensis in goats

Status as officially free of caprine brucellosis during the reporting year

Free regions

Região Autónoma dos Açores is officially free of ovine and caprine brucellosis, according to Comission Decision 2003/44/CE of the 17th January 2003.

Monitoring system

Sampling strategy

Serology is performed in sheep and goats older than 6 months of age.
The herds are classified and sampled according to Council Directive 64/432/EEC and Decreto-Lei nº244/2000 (Sep. 27th) for sheep and goats.

Frequency of the sampling

The herds are classified and sampled according to Council Directive 64/432/EEC and Decreto-Lei nº244/2000 (Sep. 27th) for sheep and goats

Type of specimen taken

Other: Blood, milk, organs,vaginal mucus, semen,aborted foetus, placenta.

Diagnostic/analytical methods used

Diagnostic techniques:

Serology:
Sheep and goats
Rose Bengal Test (RBT);
Complement Fixation Test (CFT).

Bacteriology - Samples from:
- live animals (milk, vaginal mucus, semen, aborted foetus, placenta);
- dead animals (liver, spleen and lymph nodes)
are plated in Farrel medium (Difco Tryptose Agar + SR209 Oxoid supplement + 5% horse serum)

Biochemical reactions - urease, catalase and oxidase.

Typing of isolates:
- CO2 requirement;
- H2S production;
- Agglutination with monospecific antisera (anti-A, anti-M and anti-R);
- Growth on dyes:
  1/50.000 and 1/100.000 of basic fucsin
  1/50.000 and 1/100.000 of thionin.
- Lysis by phages;

- Differentiation of vaccine and field strains.

Vaccination policy

Vaccination of goats and sheeps with ReV1 is beeing done in some regions: In Entre-Douro e Minho, Beira Litoral, Beira Interior and Algarve only in young animals and in Trás-Os-Montes in adults and youngs.

Other preventive measures than vaccination in place

Pre-movement tests are mandatory for breeding animals and for the replacement in depopulated herds.

Control program/mechanisms

The control program/strategies in place

An Eradication Plan for sheep and goats, is carried out and supervised by DGV.

Measures in case of the positive findings or single cases

Suspected Herd:
- Herd under oficial surveillance;
- Epidemiological questionaire;
- Animal mouvements are forbiden from and to the herd;
- Isolation of suspected animals in the herd;
- Sample collection for laboratory diagnosis.

Positive Herd:
- Herd under official restrictions;
- Compulsory slaughter of all positive animals, under official supervision with sample collection for laboratory diagnosis;
- Animal mouvements are forbiden from and to the herd;
- Serological control of all remaining animals;
- Thermic treatment of the milk.

Infected Herd:
- All mesures mencioned for positive herds;
- Desinfection of all premises, equipment and materials.

Notification system in place

Brucelosis is a notifiable disease.

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
Deer - wild	LNIV	animal	82	0				
Pigs	LNIV	animal	10	0				
Wild boars	LNIV	animal	85	9			9	
Zoo animals, all	LNIV	animal	2	0				

Table Bovine brucellosis - data on herds - Community co-financed eradication programmes

Region	Total number of herds	Total number of herds under the programme	Number of herds checked	Number of positive herds	Number of new positive herds	Number of herds depopulated	% positive herds depopulated	Indicators		
								% herd coverage	% positive herds Period herd prevalence	% new positive herds Herd Incidence
Região Autónoma dos AÇORES	11939	6692	9550	148	82	10	6.76	142.71	1.55	.86
CONTINENTE	42321	40298	41135	203	138	16	7.88	102.08	.49	.34
Total	54260	46990	50685	351	220	26	7.41	107.86	0.69	0.43
Total - 1	66602	55242	54437	431	198	16	3.71			

Table Bovine brucellosis - data on animals - Community co-financed eradication programmes

Region	Total number of animals	Number of animals to be tested under the programme	Number of animals tested	Number of animals tested individually	Number of positive animals	Slaughtering		Indicators	
						Number of animals with positive result slaughtered or	Total number of animals slaughtered	% coverage at animal level	% positive animals - animal prevalence
CONTINENTE	1205323	799337	818648	818648	1101	1077	1383	102.42	.13
Região Autónoma dos AÇORES	268096	153361	165309	165309	1082	1078	1782	107.79	.65
Total	1473419	952698	983957	983957	2183	2155	3165	103.28	0.22
Total - 1	1312089	943671	968243	968243	1969	1964	3166		

Table Bovine brucellosis - data on status of herds at the end of the period - Community co-financed eradication programmes

	Status of herds and animals under the programme													
	Total number of herds and animals under the programme		Unknown		Not free or not officially free				Free or officially free suspended		Free		Officially free	
					Last check positive		Last check positive							
Region	**Herds**	**Animals**	**Herds**	**Animals**	**Herds**	**Animals**	**Herds**	**Animals**	**Herds**	**Animals**	**Herds**	**Animals**	**Herds**	**Animals**
CONTINENTE	40298	799337	0	0	54	4106	1124	18922	186	8987	2628	31509	37635	1141799
Região Autónoma dos AÇORES	6692	153361	0	0	65	246	90	3009	40	1720	8085	199875	3659	63246
Total	46990	952698	0	0	119	4352	1214	21931	226	10707	10713	231384	41294	1205045
Total - 1	55242	943671	0	0	113	6879	694	17915	202	6137	9257	126429	56336	1154729

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 suspende d herds	Number of positive animals		Number of animals examined microbio logically	Number of animals positive microbio logically
																		Sero logically	BST		
Região Autónoma dos AÇORES	1536	37321	1536	100	0	0	1536	21706	0	0	0	0	0	0	0	0	0	0	0	0	0
Região Autónoma da MADEIRA	1524	5355	0	0	0	0	58	221	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3060	42676	1536	50.2	0	0.0	1594	21927	0	0	0	0	0	0	0	0	0	0	0	0	0
Total - 1																					

Footnote:

For the islands of Pico, Graciosa, Flores e Corvo

Table Ovine or Caprine brucellosis - data on herds - Community co-financed eradication programmes

Region	Total number of herds	Total number of herds under the programme	Number of herds checked	Number of positive herds	Number of new positive herds	Number of herds depopulated	% positive herds depopulated	Indicators		
								% herd coverage	% positive herds Period herd prevalence	% new positive herds Herd Incidence
CONTINENTE	69549	69549	68245	1028	330	18	1.75	98.13	1.51	.48
Total	69549	69549	68245	1028	330	18	1.75	98.13	1.51	0.48
Total - 1	71025	71025	66625	1066	386	23	2.16	93.8	1.6	.58

Table Ovine or Caprine brucellosis - data on animals - Community co-financed eradication programmes

Region	Total number of animals	Number of animals to be tested under the programme	Number of animals tested	Number of animals tested individually	Number of positive animals	Slaughtering		Indicators	
						Number of animals with positive result slaughtered or	Total number of animals slaughtered	% coverage at animal level	% positive animals - animal prevalence
CONTINENTE	2662080	2662080	2067169	2067169	8292	6837	7351	77.65	.4
Total	2662080	2662080	2067169	2067169	8292	6837	7351	77.65	0.4
Total - 1	2768810	2767392	2113075	2113075	11020	8874	11211	76.36	.52

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 microbio logically	Number of animals positive microbio logically	Number of suspended herds
Região Autónoma dos	3809	13104	3809	100	0	0	520	3096	0	0	0	0	0	0
Região Autónoma da	289	4414	0	0	0	0	85	1408	0	0	0	0	0	0
Total	4098	17518	3809	92.95	0	0.0	605	4504	0	0	0	0	0	0
Total - 1														

Table Ovine or Caprine brucellosis - data on status of herds at the end of the period - Community co-financed eradication programmes

	Status of herds and animals under the programme													
	Total number of herds and animals under the programme		Unknown		Not free or not officially free				Free or officially free suspended		Free		Officially free	
					Last check positive		Last check positive							
Region	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals
CONTINENTE	69549	2662080	0	0	483	53694	4092	153665	706	45378	5928	287278	58340	2122065
Total	69549	2662080	0	0	483	53694	4092	153665	706	45378	5928	287278	58340	2122065
Total - 1	71025	2767392	0	0	537	60839	4835	200244	1054	58396	5780	210067	58819	2239264

2.7 YERSINIOSIS

2.7.1 General evaluation of the national situation

A. Yersinia enterocolitica general evaluation

Additional information

Diagnostic techniques:

Bacteriology: Internal method.
- Samples are plated on Yersinia CIN Agar, or Yersinia Selective Agar (Oxoid) supplemented with Yersinia Selective supplement (Oxoid).
- Biochemical reactions by API 20E strips or 32E.

2.7.2 Yersiniosis in humans

Table Yersinia in humans - Age distribution

Age Distribution	Yersinia spp.		
	All	M	F
25 to 44 years	4	3	1
45 to 64 years	1	1	0
Total:	5	4	1

2.7.3 Yersinia in foodstuffs

Table Yersinia in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Yersinia spp.	Y. enterocolitica	Yersinia spp., unspecified	Y. enterocolitica-O:3	Y. enterocolitica-O:9	Y. enterocolitica-unspecified
Meat from pig - minced meat - at retail - Monitoring	INSA	single	25g	75	2				2	

2.7.4 Yersinia in animals

Table Yersinia in animals

	Source of information	Sampling unit	Units tested	Total units positive for Yersinia spp.	Y. enterocolitica	Yersinia spp., unspecified	Y. enterocolitica-O:3	Y. enterocolitica-O:9	Y. enterocolitica-unspecified
Poultry, unspecified	RA Açores	animal	1	1	1				
Zoo animals, all - Clinical investigations (Sagui (post mortem)) [1)]	FMV	animal	2	1	1				

Comments:

[1)] Lung and liver

2.8 TRICHINELLOSIS

2.8.1 General evaluation of the national situation

2.8.2 Trichinellosis in humans

2.8.3 Trichinella in animals

A. Trichinella in pigs

Monitoring system

Sampling strategy

General

Priority given to wild boars, breeding animals and animals not raised under controlled housing conditions.

Type of specimen taken

General

Pigs: diaphragm pillars, tongue, masseter
Wild boars: tongue, diaphragm pillars, masseter

Methods of sampling (description of sampling techniques)

General

As determined in Comission Regulation (EC) N.Âº 2075/2005 of 5 December.

Case definition

General

Detection of one larvae of Trichinella.

Diagnostic/analytical methods used

General

Mechanical digestion of pooled samples with magnetic stirrer (Comission Regulation (EC) N.Âº 2075/2005).

Notification system in place

Notifiable since 1953 by national law (Decreto-Lei nÂº 39209, de 14 de Maio).

Results of the investigation including description of the positive cases and the

All results negative.

Fattening pigs raised under controlled housing conditions in integrated production system

All results negative.

Fattening pigs not raised under controlled housing conditions in integrated production system

All results negative.

Breeding sows and boars

All results negative.

National evaluation of the recent situation, the trends and sources of infection

Cases of trichinelosis are not reported since < 1960.

Additional information

Special training in Trichinella detection on slaughterhouses and game activities is given to the meat inspection team.

B. Trichinella in horses

Monitoring system

Type of specimen taken

Tongue, masseter and diaphragm.

Case definition

Detection of one larvae of Trichinella.

Diagnostic/analytical methods used

Mechanical digestion of pooled samples with magnetic stirrer (Comission Regulation (EC) N.Âº 2075/2005).

Table Trichinella in animals

	Source of information	Sampling unit	Units tested	Total units positive for Trichinella spp.	T. spiralis	Trichinella spp., unspecified
Foxes - Survey - national survey	LNIV	animal	1	0		
Pigs - breeding animals - unspecified - sows and boars - - meat - Surveillance - official controls (RA Açores)	RA Açores	animal	89	0		
Pigs - breeding animals - unspecified - sows and boars - - meat - Surveillance - official controls (RA Madeira)	RA Madeira	animal	1297	0		
Pigs - fattening pigs - not raised under controlled housing conditions in integrated production system - - meat - Surveillance - official controls (DGV)	DGV	animal	10111	0		
Pigs - fattening pigs - not raised under controlled housing conditions in integrated production system - - meat - Surveillance - official controls (RA Açores)	RA Açores	animal	1599	0		
Pigs - fattening pigs - raised under controlled housing conditions in integrated production system - - meat - Surveillance - official controls (DGV)	DGV	animal	28730	0		
Pigs - fattening pigs - raised under controlled housing conditions in integrated production system - - meat - Surveillance - official controls (RA Açores)	RA Açores	animal	7435	0		
Pigs - fattening pigs - raised under controlled housing conditions in integrated production system - - meat - Surveillance - official controls (RA Madeira)	RA Madeira	animal	29108	0		
Wild boars - wild - at processing plant - Surveillance - official controls	DGV	animal	543	0		
Wild boars - wild - from hunting - Surveillance - official controls (Boars Plan)	LNIV	animal	1609	0		
Wolves - wild - Survey - national survey	LNIV	animal	2	0		

2.9 ECHINOCOCCOSIS

2.9.1 General evaluation of the national situation

A. Echinococcus spp. general evaluation

Additional information

Â§ Diagnostic techniques:
Direct examination test.

Â§ On 1996 a program supervised by DGV was implemented in Alentejo (DRAAAL) (approved by Decision 96/67/CE). On 1998, besides Alentejo the same program was extended to Beira Interior (DRA BI).
The program was extended, in 2000, to the Algarve (DRAALG).

This program consisted on:
- deworming of all dogs present at rabies vaccination , by injection, performed by Municipality Veterinarians.
- deworming tablets were given for a further deworming, in 2-3 weeks time.
- deworming of dogs not present at rabies vaccination, but belonging to farms where sheep and goats with hidatidosis lesions were observed (the information of lesions in farm animals comes through the abattoir).
- educational actions have been taken place, close to people (dog owners and farmers).

The program is still in place in the 3 referred regions.

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
Pigs	LNIV	animal	3	0			
Sheep	LNIV	animal	16	0			

2.10 TOXOPLASMOSIS

2.10.1 General evaluation of the national situation

A. Toxoplasmosis general evaluation

Additional information

Diagnostic techniques:

- Direct examination test.
- Serology - direct aglutination.
- PCR.

2.10.2 Toxoplasmosis in humans

Table Toxoplasma in humans - Species/serotype distribution

Toxoplasma	Cases	Cases Inc.
	15	0
Toxoplasma spp.	15	
Congenital cases	5	

Table Toxoplasma in humans - Age distribution

Age Distribution	Toxoplasma spp.		
	All	M	F
<1 year	5		
25 to 44 years	8	4	4
45 to 64 years	2	1	1
Total:	15	5	5

2.10.3 Toxoplasma in animals

Table Toxoplasma in animals

	Source of information	Sampling unit	Units tested	Total units positive for Toxoplasma	T. gondii
Cats	LNIV	animal	15	3	3
Cats - pet animals - Clinical investigations	RA Açores	animal	1	0	
Cattle (bovine animals)	LNIV	animal	8	3	3
Goats	LNIV	animal	41	17	17
Sheep	LNIV	animal	12	6	6

2.11 RABIES

2.11.1 General evaluation of the national situation

A. Rabies general evaluation

History of the disease and/or infection in the country

Portugal is free from Rabies since 1961.

In August 1984, the national authorities detected a case of rabies in a 2 months old puppy that came from Maputo (Mozambique) and entered illegally in Portugal the10th August 1984. The animal was isolated and euthanized. The disease was confirmed by direct immunofluorescence the 31st August of 1984. The veterinary authorities implemented sanitary and prophylactic measures and since then, no further cases were detected and Portugal could maintain its free situation.

National evaluation of the recent situation, the trends and sources of infection

Portugal is free from Rabies since 1961.
The vaccination of dogs is compulsory.
Rabies is a notifiable disease in animals and in humans.

Additional information

By national law (Decreto-Lei nÂº314/2003, December the 17th and Portaria nÂº 81/2002, January the 24th), the annual dog rabies vaccination is compulsory.
Most of this vaccination is performed by the Municipality Veterinarians and the remaining by the small animal practitioners in their private clinics.

Since 1988, the National Veterinary Authority keeps collaboration with a National Laboratory: Instituto BacteriolÃ³gico CÃ¢mara Pestana, where foxes heads collected during the hunting period are analysed for Rabies and all the results have been found negative.

2.11.2 Rabies in humans

2.11.3 Lyssavirus (rabies) in animals

A. Rabies in dogs

Monitoring system

Case definition

Laboratorial confirmation (positive result at the direct immunofluorescence test).

Vaccination policy

By national law (Decreto-Lei nÂº314/2003, December the 17th and Portaria nÂº 81/2002, January the 24th), the annual dog rabies vaccination for animals older than 3 months is compulsory.

Other preventive measures than vaccination in place

The other preventive measures are included in the National Control programme.

Control program/mechanisms

The control program/strategies in place

The control Program is defined in the national law (Decreto Lei nÂº314/2003, December the 17th) and consists in Vaccination and Surveillance Measures for epidemiological survey with definition of specific rules for owners, for commercial purposes, for exhibits and for animal entrance in the country.

Measures in case of the positive findings or single cases

The measures are defined in the national and EU legislation.

Notification system in place

Rage is a national notifiable disease since 1953.

National evaluation of the recent situation, the trends and sources of infection

Portugal is free from Rabies since 1961.

Additional information

In Portugal the annual rabies vaccination is compulsory since 1925.

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
Cats - Surveillance - official controls - suspect sampling	IBCP	animal	1	0	0	0	0
Dogs - Surveillance - official controls - suspect sampling	IBCP	animal	5	0	0	0	0
Foxes - wild - from hunting - Surveillance - official controls	IBCP	animal	12	0	0	0	0
Other carnivores - wild - from hunting - Surveillance - official controls [1)]	IBCP	animal	1	0	0	0	0

Comments:

[1)] Mongoose (Herpestes ichneumon)

2.12 LEPTOSPIROSIS

2.12.1 General evaluation of the national situation

2.12.2 Leptospira in animals

Table Leptospira in animal

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Leptospira	Leptospira spp., unspecified
Cattle (bovine animals)	RA Açores	animal		346	15	15
Dogs	RA Açores	animal		3	0	
Goats	RA Açores	animal		2	0	
Pigs	RA Açores	animal		126	0	

2.13 Q-FEVER

2.13.1 General evaluation of the national situation

A. Coxiella general evaluation

History of the disease and/or infection in the country

*

National evaluation of the recent situation, the trends and sources of infection

*

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases

*

Recent actions taken to control the zoonoses

*

Suggestions to the Community for the actions to be taken

*

Additional information

*

2.13.2 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
Goats	LNIV	animal	5	3	3
Sheep	LNIV	animal	1	0	
Sheep - Monitoring (Study/Blood sera)	FMV	animal	726	64	64

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 E. faecium - qualitative data

E. faecium		Dogs - Clinical investigations	
Isolates out of a monitoring program (yes/no)		no	
Number of isolates available in the laboratory		1	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	0	
	Streptomycin	0	
Amphenicols	Chloramphenicol	0	
Penicillins	Amoxicillin	0	
	Ampicillin	0	
Tetracyclines	Tetracyclines	0	

Table Antimicrobial susceptibility testing of E. faecalis - qualitative data

E. faecalis		Dogs - Clinical investigations	
Isolates out of a monitoring program (yes/no)		no	
Number of isolates available in the laboratory		1	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	1	1
	Streptomycin	1	1
Amphenicols	Chloramphenicol	1	0
Penicillins	Amoxicillin	1	0
	Penicillin	1	0
Tetracyclines	Tetracyclines	1	1

Footnote:

Number of multiresistant isolates: Resistente to 3 antimicrobials - 1

Table Breakpoints for antibiotic resistance of Enterococcus, non-pathogenic

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**							10	15		12
	Streptomycin							10	15		11
Cephalosporins	**Cefalexin**							30	18		14
	Cefotaxim							30	23		14
Fluoroquinolones	**Enrofloxacin**							5	23		16
Penicillins	**Ampicillin**							10	17		16
Quinolones	**Nalidixic acid**							30	19		12
Sulfonamides	**Sulfonamide**							25	16		10
Tetracyclines	**Tetracyclines**							30	19	15-18	14

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 animals

E. coli		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		All animals	
Isolates out of a monitoring program (yes/no)										no	
Number of isolates available in the laboratory										19	
Antimicrobials:		N	n	N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin									12	3
	Streptomycin									12	12
Amphenicols	Chloramphenicol									8	4
Cephalosporins	Cefalexin									11	7
	Cefazolin									1	1
	Cefoperazone									1	0
	Cefotaxim									11	0
Fluoroquinolones	Enrofloxacin									11	4
Fully sensitive	Fully sensitive									12	0
Penicillins	Ampicillin									12	11
Quinolones	Nalidixic acid									11	8
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial									12	1
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials									12	3
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials									12	2

Table Antimicrobial susceptibility testing of E. coli in animals

E. coli		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		All animals	
Isolates out of a monitoring program (yes/no)										no	
Number of isolates available in the laboratory										19	
Antimicrobials:		N	n	N	n	N	n	N	n	N	n
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials									12	2
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials									12	4
Sulfonamides	Sulfonamide									12	5
Tetracyclines	Tetracyclin									11	10
Trimethoprim	Trimethoprim									12	5

Table Antimicrobial susceptibility testing of E. coli in All animals - Clinical investigations (Horses, dogs, birds, goats and wild ruminants) - quantitative data [Diffusion method]

E. coli		All animals - Clinical investigations (Horses, dogs, birds, goats and wild ruminants)																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		19																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	10	0									1	1		1	1	1		1		3				1	
	Streptomycin	11	6	3	1				1	1		1	2														
Amphenicols	Chloramphenicol	*0*	5	0											1					2		1	1				
Cephalosporins	Cefalexin	14	8	2							1	1		1	1		1	1	1	1							
	Cefazolin	14	1	0														1									
	Cefoperazone	15	2	0														1					1				
	Cefotaxim	14	11	0																			2		1	1	2
Fluoroquinolones	Enrofloxacin	*1*	6	0																			1	1		1	
Penicillins	Ampicillin	13	4	2					1		1				1		1										
Quinolones	Nalidixic acid	12	6	1					1						1	1			1		2						
Sulfonamides	Sulfonamide	10	7	0														1		1			1	1			
Tetracyclines	Tetracyclin	14	2	0												1		1									
Trimethoprim	Trimethoprim		7	0														1		1			1	1			

E. coli		All animals - Clinical investigations (Horses, dogs, birds, goats and wild ruminants)						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		19						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							

Table Antimicrobial susceptibility testing of E. coli in All animals - Clinical investigations (Horses, dogs, birds, goats and wild ruminants) - quantitative data [Diffusion method]

E. coli		All animals - Clinical investigations (Horses, dogs, birds, goats and wild ruminants)						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		19						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Streptomycin							
Amphenicols	Chloramphenicol							
Cephalosporins	Cefalexin							
	Cefazolin							
	Cefoperazone							
	Cefotaxim	2	1	1		1		
Fluoroquinolones	Enrofloxacin	1	2					
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide	2		1				
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim	2		1				

Table Breakpoints used for antimicrobial susceptibility 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**							10	15		12
	Streptomycin							10	15		11
Amphenicols	**Chloramphenicol**							30	18		12
Cephalosporins	**Cefalexin**							30	18		14
	Cefazolin							30	18		14
	Cefoperazone							30	21		15
	Cefotaxim							30	23		14
Fluoroquinolones	**Enrofloxacin**							5	23		16
Penicillins	**Ampicillin**							10	17		13
Quinolones	**Nalidixic acid**							30	19		12
Sulfonamides	**Sulfonamide**							25	16		10
Tetracyclines	**Tetracyclin**							30	19		14

4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS

4.1 HISTAMINE

4.1.1 General evaluation of the national situation

4.1.2 Histamine in foodstuffs

Table Histamine in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units in non-conformity	<= 100 mg/kg	>100 - <= 200 mg/kg	>200 - <= 400 mg/kg	> 400 mg/kg
Fish - Fishery products from fish species associated with a high amount of histidine - not enzyme maturated	RA Madeira	single		2	0	2			
Fish - Fishery products from fish species associated with a high amount of histidine - not enzyme maturated - at processing plant - Monitoring - official sampling	DGV	single	200g	12	0	12			
Fish - Fishery products from fish species associated with a high amount of histidine - not enzyme maturated - at retail - Monitoring	IPIMAR	batch		114	10	104	3	1	6
Fish - Fishery products which have undergone enzyme maturation treatment in brine - at processing plant - Monitoring - official sampling	DGV	single	200g	6	0	6			

4.2 ENTEROBACTER SAKAZAKII

4.2.1 General evaluation of the national situation

4.2.2 Enterobacter sakazakii in foodstuffs

Table Enterobacter sakazakii in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Enterobacter sakazakii	E. sakazakii
Foodstuffs intended for special nutritional uses - dried dietary foods for special medical purposes intended for infants below 6 months - at retail - Monitoring	INSA	single	10g	11	0	
Infant formula - ready-to-eat - at catering - Surveillance - HACCP and own checks	INSA	single	25g	21	0	

4.3 STAPHYLOCOCCAL ENTEROTOXINS

4.3.1 General evaluation of the national situation

4.3.2 Staphylococcal enterotoxins in foodstuffs

A. Staphylococcal enterotoxins in foodstuffs

Additional information

Analytical method:
Milk and dairy products - VIDAS SET2 (European screening method of CRL, Milk and Milk Products, version 3, 2006 May).
Other products - VIDAS SET2 (AOAC validation).

Table Staphylococcal enterotoxins in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Staphylococcal enterotoxins
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk - Surveillance - HACCP and own checks (Private Control)	LNIV	batch	25g	25	1
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk - at game handling establishment - Surveillance - official controls	DGV	single	25g	6	0
Cheeses made from cows' milk - unspecified - made from pasteurised milk - at processing plant - Surveillance - official controls (Fresh cheese)	DGV	single	25g	6	1
Cheeses made from goats' milk - soft and semi-soft - made from pasteurised milk - Surveillance - HACCP and own checks (Private Control)	LNIV	batch	25g	16	0
Cheeses made from goats' milk - unspecified - made from pasteurised milk - at processing plant - Surveillance (Fresh cheese)	DGV	single	25g	3	0
Cheeses made from sheep's milk - soft and semi -soft - made from pasteurised milk - Surveillance - HACCP and own checks (Private Control)	LNIV	batch	25g	7	0
Cheeses made from sheep's milk - soft and semi -soft - made from raw or low heat-treated milk - at processing plant - Surveillance - official controls	DGV	single	25g	5	0
Cheeses made from sheep's milk - unspecified - made from pasteurised milk - at processing plant - Surveillance - official controls (Fresh cheese)	DGV	single	25g	2	0
Cheeses, made from mixed milk from cows, sheep and/or goats - soft and semi-soft - made from pasteurised milk (Private Control)	LNIV	batch	25g	22	0
Dairy products (excluding cheeses) - milk powder and whey powder - at processing plant - Surveillance - official controls	DGV	single	25g	2	0

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.

A. Foodborne outbreaks

System in place for identification, epidemological investigations and reporting of

*

Description of the types of outbreaks covered by the reporting:

*

National evaluation of the reported outbreaks in the country:

Trends in numbers of outbreaks and numbers of human cases involved

*

Relevance of the different causative agents, food categories and the agent/food category combinations

*

Relevance of the different type of places of food production and preparation in outbreaks

*

Evaluation of the severity and clinical picture of the human cases

*

Descriptions of single outbreaks of special interest

*

Control measures or other actions taken to improve the situation

*

Suggestions to the community for the actions to be taken

*

Additional information

*

Foodborne Outbreaks: summarized data

	Total number of outbreaks	Outbreaks	Human cases	Hospitalized	Deaths	Number of verified outbreaks
Bacillus	3	1	24	24	0	2
Campylobacter	0	0	unknown	unknown	unknown	0
Clostridium	11	6	16	16	0	5
Escherichia coli, pathogenic	2	1	5	unknown	0	1
Foodborne viruses	0	0	unknown	unknown	unknown	0
Listeria	0	0	unknown	unknown	unknown	0
Other agents	0	0	unknown	unknown	unknown	0
Parasites	0	0	unknown	unknown	unknown	0
Salmonella	4	2	45	5	0	2
Staphylococcus	8	4	49	47	0	4
Unknown	10	10	182	88	0	0
Yersinia	0	0	unknown	unknown	unknown	0

Verified Foodborne Outbreaks: detailed data

PT 1b

	Value
Code	
Subagent Choice	
Outbreak type	General
Human cases	40
Hospitalized	unknown
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	Cooked codfish with cooked onions
Type of evidence	Analytical epidemiological evidence, Laboratory detection in implicated food
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Catering services, restaurant
Origin of foodstuff	Domestic
Contributory factors	Cross-contamination
Outbreaks	1
Comment	

PT 4b

	Value
Code	
Subagent Choice	
Outbreak type	General
Human cases	5
Hospitalized	5
Deaths	0
Foodstuff implicated	Other foods
More Foodstuff	Codfish cakes
Type of evidence	Laboratory detection in implicated food, Laboratory characterization of food and human isolates, Laboratory detection in human cases
Setting	Hospital or medical care facility
Place of origin of problem	Other place of origin
Origin of foodstuff	Domestic
Contributory factors	Unprocessed contaminated ingredient, Storage time/temperature abuse
Outbreaks	1
Comment	Canteen

Verified Foodborne Outbreaks: detailed data

Verotoxigenic E. coli (VTEC)

	Value
Code	
Subagent Choice	
Outbreak type	General
Human cases	5
Hospitalized	unknown
Deaths	0
Foodstuff implicated	Fish and fish products
More Foodstuff	Tuna fish pat
Type of evidence	Laboratory detection in implicated food
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Catering services, restaurant
Origin of foodstuff	Domestic
Contributory factors	Cross-contamination
Outbreaks	1
Comment	Escherichia coli VTEC non-O157

Verified Foodborne Outbreaks: detailed data

B. cereus

	Value
Code	
Subagent Choice	
Outbreak type	General
Human cases	24
Hospitalized	24
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	Cooked meat chicken with rice, tomate pulp and onion
Type of evidence	Laboratory detection in implicated food
Setting	School, kindergarten
Place of origin of problem	Other place of origin
Origin of foodstuff	Domestic
Contributory factors	Storage time/temperature abuse
Outbreaks	1
Comment	Place : Canteen

B. cereus

	Value
Code	
Subagent Choice	Clostridium; C. perfringens
Outbreak type	General
Human cases	7
Hospitalized	7
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	Cooked bovine meat with beans
Type of evidence	Laboratory detection in implicated food, Analytical epidemiological evidence
Setting	Temporary mass catering (fairs, festivals)
Place of origin of problem	Catering services, restaurant
Origin of foodstuff	Domestic
Contributory factors	Storage time/temperature abuse
Outbreaks	1
Comment	

Verified Foodborne Outbreaks: detailed data

C. botulinum

	Value
Code	
Subagent Choice	
Outbreak type	General
Human cases	1
Hospitalized	1
Deaths	0
Foodstuff implicated	Unknown
More Foodstuff	
Type of evidence	Laboratory detection in human cases, Analytical epidemiological evidence
Setting	Unknown
Place of origin of problem	Unknown
Origin of foodstuff	Domestic
Contributory factors	Unknown
Outbreaks	1
Comment	C. botulinum Type B

C. botulinum

	Value
Code	
Subagent Choice	
Outbreak type	General
Human cases	1
Hospitalized	1
Deaths	0
Foodstuff implicated	Unknown
More Foodstuff	
Type of evidence	Laboratory detection in human cases, Analytical epidemiological evidence
Setting	Unknown
Place of origin of problem	Unknown
Origin of foodstuff	Domestic
Contributory factors	Unknown
Outbreaks	1
Comment	C. botulinum Type B

C. botulinum

	Value
Code	
Subagent Choice	
Outbreak type	General
Human cases	1
Hospitalized	1
Deaths	0
Foodstuff implicated	Unknown
More Foodstuff	
Type of evidence	Analytical epidemiological evidence
Setting	Unknown
Place of origin of problem	Unknown
Origin of foodstuff	Domestic
Contributory factors	Unknown
Outbreaks	1
Comment	

C. botulinum

	Value
Code	
Subagent Choice	
Outbreak type	General
Human cases	4
Hospitalized	4
Deaths	0
Foodstuff implicated	Pig meat and products thereof
More Foodstuff	Raw cured ham
Type of evidence	Laboratory detection in implicated food, Laboratory detection in human cases, Analytical epidemiological evidence
Setting	Household
Place of origin of problem	Household, domestic kitchen
Origin of foodstuff	Domestic
Contributory factors	Other contributory factor
Outbreaks	1
Comment	Causative Agent: C. botulinum Type B Cont. factor: inadequate prossed

C. botulinum

	Value
Code	
Subagent Choice	
Outbreak type	General
Human cases	2
Hospitalized	2
Deaths	0
Foodstuff implicated	Pig meat and products thereof
More Foodstuff	Raw cured ham
Type of evidence	Analytical epidemiological evidence, Laboratory detection in human cases, Laboratory detection in implicated food
Setting	Household
Place of origin of problem	Household, domestic kitchen
Origin of foodstuff	Domestic
Contributory factors	Other contributory factor
Outbreaks	1
Comment	Causative Agent: C. botulinum Type B Cont. factor: inadequate prossed

Verified Foodborne Outbreaks: detailed data

S. aureus

	Value
Code	
Subagent Choice	Staphylococcus; S. aureus
Outbreak type	General
Human cases	6
Hospitalized	4
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	Cooked duck rice
Type of evidence	Laboratory detection in implicated food, Analytical epidemiological evidence
Setting	School, kindergarten
Place of origin of problem	Other place of origin
Origin of foodstuff	Domestic
Contributory factors	Storage time/temperature abuse, Infected food handler
Outbreaks	1
Comment	Canteen

S. aureus

	Value
Code	
Subagent Choice	
Outbreak type	General
Human cases	4
Hospitalized	4
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	Cooked meat with eggs and potatos
Type of evidence	Laboratory detection in implicated food
Setting	Canteen or workplace catering
Place of origin of problem	Other place of origin
Origin of foodstuff	Domestic
Contributory factors	Storage time/temperature abuse, Infected food handler
Outbreaks	1
Comment	Canteen

S. aureus

	Value
Code	
Subagent Choice	Staphylococcus; S. aureus; S. aureus enterotoxins
Outbreak type	General
Human cases	23
Hospitalized	23
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	Cooked codfish in bread
Type of evidence	Laboratory detection in implicated food, Analytical epidemiological evidence
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Catering services, restaurant
Origin of foodstuff	Domestic
Contributory factors	Storage time/temperature abuse, Infected food handler
Outbreaks	1
Comment	

S. aureus

	Value
Code	
Subagent Choice	Staphylococcus; S. aureus; S. aureus enterotoxins
Outbreak type	General
Human cases	16
Hospitalized	16
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	
Type of evidence	Laboratory detection in implicated food, Analytical epidemiological evidence
Setting	Residential institution (nursing home, prison, boarding school)
Place of origin of problem	Other place of origin
Origin of foodstuff	Domestic
Contributory factors	Storage time/temperature abuse, Infected food handler
Outbreaks	1
Comment	Canteen