European Food Safety Authority

ZOONOSES MONITORING

SPAIN

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 2012

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: Spain

Reporting Year: 2012

Laboratory name	Description	Contribution
Subdireccion General de Sanidad e Higiene Animal y Trazabilidad	Ministerio de Agricultura, Alimentación y Medio Ambiente	Reporting Officer
Subdireccion General de Coordinacion de Alertas y Programacion de Control Oficial	Agencia Española de Seguridad Alimentaria y Nutricion	National Reporter
Centro Nacional de Epidemiologia	Instituto de Salud Carlos III.Ministerio de Economia y Competitividad.	National Reporter
Subdireccion General de Medios de Produccion Ganaderos	Ministerio de Agricultura, Alimentacion y Medio Ambiente	National Reporter
Servicios de Sanidad Animal	Consejerias de Agricultura y Ganaderia de las Comunidades Autonomas	National Reporter

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 Spain during the year 2012 .

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

REGA (National Register for Livestock Holdings) was the source for the total number of holdings and animals in all species. The figures in this report were taken at December/31/2012.

Dates the figures relate to and the content of the figures

Number of holdings and animals: 31/12/2012

Definitions used for different types of animals, herds, flocks and holdings as well as the types covered by the information

'holding' in REGA means 'Whatever place where farming animals are'. They are classified in breeding and production holdings and special holdings (such as markets, slaughterhouses, quarantine centers, ...). It have been taken into account only breeding and production holdings.

The specific definitions adopted by REGA for different types of holdings are those fixed in EU or Spanish Regulations.
Bovine animals
Calves for slaughter: Bovine animals less than 1 year old for slaughter as calves.
Calves: Domestic animals of the bovine species, of not more than 300 kg live weight and not yet having permanent teeth.
Heifers: Female bovines more than 1 year old that have not yet calved.

Heifers for breeding purposes: Heifers raised for breeding and intended to replace dairy cows.
Cows: Female bovines that have calved
Dairy cows: Cows kept exclusively or principally for the production of milk for human consumption and/or dairy produce.
Meat production animals: bovine animals, other than calves, kept exclusively for the production of meat and including cows, heifers and bulls

Sheep: Domestic animals of the species Ovis.
Ewes and ewe lambs put to the ram: Females of the ovine species which have already lambed at least once as well as those which have been put to the ram for the first time.
Milk ewes: Ewes which are kept exclusively or principally to produce milk for human consumption and/or for processing into dairy products. This includes cast milk sheep (whether fattened or not between their last lactation and slaughtering).
Other ewes: Ewes other than milk ewes; to be included in meat production animals
Lambs: Male or female sheep under 12 months old

Goats: domestic animals of the species Capra.

Pigs: Domestic animals of the species Sus.

Table Susceptible animal populations

* Only if different than current reporting year

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	Category of animals	Data	Year*	Data	Year*	Data	Year*	Data	Year*
Cattle (bovine animals)	meat production animals					2000451		87394	
	dairy cows and heifers					851321		24073	
	calves (under 1 year)					2088892		23299	
	mixed herds					34962		8327	
	- in total					4975626		143093	
Deer	farmed - in total					0		227	
Ducks	meat production flocks					403932		111	
	parent breeding flocks					80			
	grandparent breeding flocks					82		5	
	elite breeding flocks					0		1	
	breeding flocks, unspecified - in total					0		0	
	laying ducks					138		7	
	mixed flocks/holdings					0		0	

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	Data	Year*	Data	Year*	Data	Year*	Data	Year*
Ducks	- in total					1065121		124	
Gallus gallus (fowl)	breeding flocks for egg production line - in total					1034117		304	
	breeding flocks for meat production line - in total					7080646		196	
	breeding flocks, unspecified - in total					8114763		500	
	elite breeding flocks for egg production line					0		0	
	elite breeding flocks for meat production line					0		0	
	elite breeding flocks, unspecified - in total					0		0	
	parent breeding flocks for egg production line					0		0	
	parent breeding flocks for meat production line					0		0	
	parent breeding flocks, unspecified - in total					0		0	
	grandparent breeding flocks for egg production line					749		10	
	grandparent breeding flocks for meat production line					213363		25	
	grandparent breeding flocks, unspecified - in total					214112		35	
	laying hens					38983698		1087	

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	Data	Year*	Data	Year*	Data	Year*	Data	Year*
Gallus gallus (fowl)	broilers					229335550		5034	
	mixed flocks/holdings					0		0	
	- in total					276648123		6656	
Geese	meat production flocks					1336		40	
	parent breeding flocks					90		3	
	grandparent breeding flocks					20		1	
	elite breeding flocks					6090			
	breeding flocks, unspecified - in total							52	
	laying geese					4754		12	
	mixed flocks/holdings					0		0	
	- in total					6200		56	
Goats	meat production animals					1418273		49450	
	animals under 1 year					566905		556	
	animals over 1 year					2003918			

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	Data	Year*	Data	Year*	Data	Year*	Data	Year*
Goats	milk goats					585645		7609	
	mixed herds							8041	
	- in total					2570823		65656	
Pigs	breeding animals					4132323		4116	
	fattening pigs					17178433		48113	
	breeding animals - unspecified - sows and gilts					2059444		306	
	mixed herds					670523		18170	
	- in total					24040723		70705	
Reindeers	farmed - in total					0		0	
Sheep	meat production animals					9502312		88045	
	animals under 1 year (lambs)					3373188			
	animals over 1 year					13236052		8965	
	milk ewes					7106928		7772	
	mixed herds							1558	

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	Data	Year*	Data	Year*	Data	Year*	Data	Year*
Sheep	- in total					16609240		106340	
Solipeds, domestic	horses - in total					660889		176540	
Turkeys	meat production flocks					5483401		648	
	parent breeding flocks					95985		11	
	grandparent breeding flocks					0		0	
	elite breeding flocks					0		0	
	breeding flocks, unspecified - in total							8	
	laying hens					1013		8	
	mixed flocks/holdings					0		0	
	- in total					5580399		667	
Wild boars	farmed - in total							284	

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

History of the disease and/or infection in the country

Salmonellosis is the second main zoonoses (in number of human cases) in European Union, also in Spain. Salmonella is the agent more frequently involved in foodborne outbreaks in Spain.
In poultry, after the introducion in the 60's of the american production method, the especific pathology of avian salmonellosis was caused by S. pullorum and S. gallinarum. In the middle of the 80's come up a new infection in breeding flocks for meat production caused by S. enteritidis, and following it, also in laying hens and in feed S. enteritidis was isolated.

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

Nowadays the sources of infection are widespread along the food chain: feed, animals, food(eggs and ovoproducts, meat)and humans can be a source of infection.
At animal level, data in breeding flocks for Salmonella spp are(from 2.68% in 2011 to 2.93% in 2012) and of top 5 serovars (from 0.32% in 2011 to 0.12% in 2012). Spain have reached the community target in 2012.
In layin hens, flock incidence decreased from 13.56% in 2011 to 11.78%(Salmonella spp.) and SE/ST decreased from 2.8% in 2011 to 2.2% in 2012(adult flocks). In broiler flocks, the flock prevalence decreased from 2.19% (Salmonella spp.) and 0.14% (S. Enteritidis+ S. Typhimurium) in 2011 to 2.22% and 0,07% respectively in 2012 (results of FBO´s and official controls).

Data indicate that prevalence is deceasing in poultry in Spain, with the implementation of control programmes.

At human level salmonellosis is a notifiable disease according to Royal Decree 2210/1995, laying down Epidemiological Surveillance National Network

According to Royal Decree 328/2003, laying down the Poultry Health Plan, all veterinarians have to notify to the Competent Authority cases of zoonoses and zoonotic agents.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

It is very difficult to establish the relevance of the data in the different steps of the food chain as sources of infection, because epidemiology of salmonellosis is very complex.

Nevertheless, human cases are mainly linked to eggs and egg derived food consumption.

Recent actions taken to control the zoonoses

Ministry of Agriculture, Food and Environment and Ministry of Health, Social Policy and Equality of Spain are carrying out a Control Programme of Salmonella in poultry, eggs and ovoproducts along the overall food chain, starting with monitoring systems at holdings(National Surveillance Programme).

Additional information

Spanish legislation on Salmonella in foodstuff:
Royal Decree 1254/1991 of August 2, laying down rules to preparation and conservation of mayonnaise prepared in the own stablishment and for immediat consumption foods with eggs as ingredient.
Royal Decree 3484/2000 of december 29, laying down hygiene rules to elaboration, distribution and commercialisation of ready-to-eat food
Royal Decree 640/2006, of May 26, 2006, laying down specific implementation conditions of the Communities rules concernig hygiene subjets, as well as foodstuff's production and commercialisation.

2.1.2 Salmonellosis in humans

A. Salmonellosis in humans

Reporting system in place for the human cases

In December of 1995 the National Network of Epidemiological Surveillance was created by law. This law and its development produced changes in the surveillance system. During 1997 the protocols of statutory notification of diseases were approved and implemented in Spain. In Spain the Autonomous Regions have wide powers with respect to epidemiological surveillance and national decisions are usually taken by consensus.

All practising doctors are obliged to notify, both those in the public health service and in private practice, and both those practising outside and within hospitals. On occasions the appearance of cases and outbreaks is detected by other means (from the mass media, from citizens complaints, etc.) and in these cases the information is checked and if confirmed it is incorporated into the system at the corresponding level.

Microbiological Information System
The Microbiological Information System has been based since 1989 on voluntary weekly reporting by clinical microbiology laboratories (principally hospital laboratories). Currently, in order to improve the notification, this procedure is becoming compulsory for a designated group of representative laboratories. The information in these reports is based on individual cases and includes the following variables: agent, time, place, age, sex, etc.

Enter-net
Spain participates in Enter-net, an European network for the surveillance of human gastrointestinal infections. Enternet has monitored salmonellosis since 1994 and Vero cytotoxin producing Escherichia coli O157 since 1999. Each country participates with a microbiologist of the national reference laboratory (source of the data) and the epidemiologist responsible for national surveillance.

Outbreak reporting
In Spain outbreaks are the main source of information for the foodborne diseases

Case definition

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Diagnostic/analytical methods used

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC

Notification system in place

Royal Decree 2210/1995, December 25, by Epidemiological Surveillance National Net is created.

History of the disease and/or infection in the country

Salmonellosis is the second main zoonoses (in number of human cases) in Spain.
Salmonella is the agent more frequently involved in foodborne
outbreaks in Spain.
In 2012 the Microbiological Information System have recorded 4.181 human cases

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

The number of human cases reported to the Microbiological Surveillance System shows a stable trend in recent years although this year has been shown a slight increase.
In 2012 the number of human cases reported was 4181.

Relevance as zoonotic disease

High

2.1.3 Salmonella in foodstuffs

A. Salmonella spp. in broiler meat and products thereof

Monitoring system

Sampling strategy

At slaughterhouse and cutting plant

The activities are made pursuant to Regulation (EC) no 178/2002. (i.e. rapid alert system, traceability of food, feed, food-producing animals and all substances incorporated into foodstuffs must be established at all stages of production, processing and distribution. To this end, business operators are required to apply appropriate systems and procedures.

Frequency of the sampling

At slaughterhouse and cutting plant

Sampling distributed evenly throughout the year

At meat processing plant

Sampling distributed evenly throughout the year

At retail

Sampling distributed evenly throughout the year

Diagnostic/analytical methods used

At slaughterhouse and cutting plant

Bacteriological method: ISO 6579:2002

At meat processing plant

Bacteriological method: ISO 6579:2002

At retail

Bacteriological method: ISO 6579:2002

B. Salmonella spp. in pig meat and products thereof

Monitoring system

Sampling strategy

At slaughterhouse and cutting plant

The activities are made pursuant to Regulation (EC) no 178/2002. (i.e. rapid alert system, traceability of food, feed, food-producing animals and all substances incorporated into foodstuffs must be established at all stages of production, processing and distribution. To this end, business operators are required to apply appropriate systems and procedures.

Frequency of the sampling

At slaughterhouse and cutting plant

Sampling distributed evenly throughout the year

At meat processing plant

Sampling distributed evenly throughout the year

At retail

Sampling distributed evenly throughout the year

Diagnostic/analytical methods used

At slaughterhouse and cutting plant

Bacteriological method: ISO 6579:2002

At meat processing plant

Bacteriological method: ISO 6579:2002

At retail

Bacteriological method: ISO 6579:2002

C. Salmonella spp. in bovine meat and products thereof

Monitoring system

Sampling strategy

At slaughterhouse and cutting plant

The activities are made pursuant to Regulation (EC) no 178/2002. (i.e. rapid alert system, traceability of food, feed, food-producing animals and all substances incorporated into foodstuffs must be established at all stages of production, processing and distribution. To this end, business operators are required to apply appropriate systems and procedures.

Frequency of the sampling

At slaughterhouse and cutting plant

Sampling distributed evenly throughout the year

At meat processing plant

Sampling distributed evenly throughout the year

At retail

Sampling distributed evenly throughout the year

Methods of sampling (description of sampling techniques)

At slaughterhouse and cutting plant

Metodo

Diagnostic/analytical methods used

At slaughterhouse and cutting plant

Bacteriological method: ISO 6579:2002

At meat processing plant

Bacteriological method: ISO 6579:2002

At retail

Bacteriological method: ISO 6579:2002

D. Salmonella spp. in eggs and egg products

Monitoring system

Sampling strategy

The activities are made pursuant to Regulation (EC) no 178/2002. (i.e. rapid alert system, traceability of food, feed, food-producing animals and all substances incorporated into foodstuffs must be established at all stages of production, processing and distribution. To this end, business operators are required to apply appropriate systems and procedures.

Frequency of the sampling

Eggs at egg packing centres (foodstuff based approach)

Sampling distributed evenly throughout the year

Eggs at retail

Sampling distributed evenly throughout the year

Raw material for egg products (at production plant)

Sampling distributed evenly throughout the year

Egg products (at production plant and at retail)

Sampling distributed evenly throughout the year

Diagnostic/analytical methods used

Eggs at egg packing centres (foodstuff based approach)

Bacteriological method: ISO 6579:2002

Eggs at retail

Bacteriological method: ISO 6579:2002

Raw material for egg products (at production plant)

Bacteriological method: ISO 6579:2002

Egg products (at production plant and at retail)

Bacteriological method: ISO 6579:2002

Control program/mechanisms

Recent actions taken to control the zoonoses

In 2003 a workshop was organised for "Salmonella in eggs and egg products" coordinated by the Spanish Food Safety and Nutrition Agency. The result was the approval between all the competent authorities in this area of the "Programme on Salmonella spp in eggs and egg products".

Table Salmonella in poultry meat and products thereof

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Meat from broilers (Gallus gallus) - carcase - at slaughterhouse - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	203	30	3	1
Meat from broilers (Gallus gallus) - fresh - at processing plant - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	74	9	0	0
Meat from broilers (Gallus gallus) - fresh - at retail - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	89	2	0	0
Meat from broilers (Gallus gallus) - meat products - raw and intended to be eaten raw - at cutting plant	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	23	2		2
Meat from broilers (Gallus gallus) - meat products - raw and intended to be eaten raw - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	42	0		
Meat from broilers (Gallus gallus) - meat products - raw but intended to be eaten cooked - at cutting plant	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	16	1	0	0
Meat from broilers (Gallus gallus) - meat products - raw but intended to be eaten cooked - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	44	1	0	0
Meat from poultry, unspecified - fresh - at cutting plant	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	6	0		
Meat from poultry, unspecified - fresh - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	9	0		
Meat from poultry, unspecified - fresh - at slaughterhouse	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	24	3	0	0
Meat from poultry, unspecified - meat products - raw and intended to be eaten raw - at cutting plant	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	5	0		

Table Salmonella in poultry meat and products thereof

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Meat from poultry, unspecified - meat products - raw and intended to be eaten raw - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	9	0		
Meat from poultry, unspecified - meat products - raw but intended to be eaten cooked - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	3	0		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. 4,5,12:i:-	S. Anatum	S. Derby	S. Kentucky	S. Mbandaka	S. Ohio	S. Rissen	S. Thompson
Meat from broilers (Gallus gallus) - carcase - at slaughterhouse - Surveillance		15		1		6	1	5		1
Meat from broilers (Gallus gallus) - fresh - at processing plant - Surveillance		9								
Meat from broilers (Gallus gallus) - fresh - at retail - Surveillance		2								
Meat from broilers (Gallus gallus) - meat products - raw and intended to be eaten raw - at cutting plant										
Meat from broilers (Gallus gallus) - meat products - raw and intended to be eaten raw - at retail										
Meat from broilers (Gallus gallus) - meat products - raw but intended to be eaten cooked - at cutting plant		1								
Meat from broilers (Gallus gallus) - meat products - raw but intended to be eaten cooked - at retail		1								

Table Salmonella in poultry meat and products thereof

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. 4,5,12:i:-	S. Anatum	S. Derby	S. Kentucky	S. Mbandaka	S. Ohio	S. Rissen	S. Thompson
Meat from poultry, unspecified - fresh - at cutting plant										
Meat from poultry, unspecified - fresh - at retail										
Meat from poultry, unspecified - fresh - at slaughterhouse		3								
Meat from poultry, unspecified - meat products - raw and intended to be eaten raw - at cutting plant										
Meat from poultry, unspecified - meat products - raw and intended to be eaten raw - at retail										
Meat from poultry, unspecified - meat products - raw but intended to be eaten cooked - at retail										

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.

Table Salmonella in milk and dairy products

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Dairy products (excluding cheeses) - butter - made from raw or low heat-treated milk - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown		25 g	3	0		
Dairy products (excluding cheeses) - cream - made from raw or low heat-treated milk - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown		25 g	6	0		
Dairy products (excluding cheeses) - ice-cream - made from raw or low heat-treated milk - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown		25 g	204	0		
Dairy products (excluding cheeses) - milk powder and whey powder - at retail - Surveillance	F	Objective sampling	Official sampling	food sample > milk			25 g	25	0		
Cheeses, made from mixed milk from cows, sheep and/or goats - fresh - made from raw or low heat-treated milk	F	Objective sampling	Official sampling	food sample			25 g	169	0		
Cheeses, made from mixed milk from cows, sheep and/or goats - hard - made from raw or low heat-treated milk	F	Objective sampling	Official sampling	food sample			25 g	270	0		
Cheeses, made from mixed milk from cows, sheep and/or goats - soft and semi-soft - made from raw or low heat-treated milk	F	Objective sampling	Official sampling	food sample			25 g	121	0		
Dairy products, unspecified (Ready to eat.)	F	Objective sampling	Official sampling	food sample			25 g	258	0		
Milk, cows' - UHT milk	F	Objective sampling	Official sampling	food sample > milk			25 g	13	0		
Milk, cows' - raw milk	F	Objective sampling	Official sampling	food sample > milk			25 g	5	0		

Table Salmonella in milk and dairy products

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Dairy products (excluding cheeses) - butter - made from raw or low heat-treated milk - at retail - Surveillance		
Dairy products (excluding cheeses) - cream - made from raw or low heat-treated milk - at retail - Surveillance		
Dairy products (excluding cheeses) - ice-cream - made from raw or low heat-treated milk - at retail - Surveillance		
Dairy products (excluding cheeses) - milk powder and whey powder - at retail - Surveillance		
Cheeses, made from mixed milk from cows, sheep and/or goats - fresh - made from raw or low heat-treated milk		
Cheeses, made from mixed milk from cows, sheep and/or goats - hard - made from raw or low heat-treated milk		
Cheeses, made from mixed milk from cows, sheep and/or goats - soft and semi-soft - made from raw or low heat-treated milk		
Dairy products, unspecified (Ready to eat.)		
Milk, cows' - UHT milk		
Milk, cows' - raw milk		

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.

Table Salmonella in milk and dairy products

Table Salmonella in other food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Eggs - table eggs - at packing centre - Surveillance	F	Objective sampling	Official sampling	food sample				240	5	4	0
Eggs - table eggs - at retail - Surveillance	F, L	Objective sampling	Official sampling	food sample				265	17	10	1
Fish - smoked - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	72	0		
Crustaceans - unspecified - cooked - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown		25 g	301	3	0	0
Live bivalve molluscs - unspecified - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown		25 g	306	5	0	0
Seeds, sprouted - ready-to-eat - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Unknown		18	0		
Foodstuffs intended for special nutritional uses - dried dietary foods for special medical purposes intended for infants below 6 months - at retail - Surveillance	F, L	Objective sampling	Official sampling	food sample	Unknown	Unknown		94	0		
Infant formula - dried - intended for infants below 6 months - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Unknown		43	0		
Egg products	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	55	3	1	0
Egg products - ready-to-eat	F,L	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	91	5	5	
Fish (Fresh/frozen.)	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	60	0		
Fishery products, unspecified	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	111	0		
Fruits and vegetables - pre-cut - ready-to-eat	F	Objective sampling	Official sampling	food sample	Unknown	Single		614	2	0	0
Juice - fruit juice - unpasteurised (Ready to eat.)	F	Objective sampling	Official sampling	food sample	Unknown			290	0		

Table Salmonella in other food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Other food (Ready to eat.)	F, L	Objective sampling	Official sampling	food sample	Unknown			7046	34	9	7

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Corvallis	S. Infantis	S. Ohio
Eggs - table eggs - at packing centre - Surveillance		0	1		
Eggs - table eggs - at retail - Surveillance		4		1	1
Fish - smoked - at retail - Surveillance					
Crustaceans - unspecified - cooked - at retail - Surveillance		3			
Live bivalve molluscs - unspecified - at retail - Surveillance		5			
Seeds, sprouted - ready-to-eat - at retail - Surveillance					
Foodstuffs intended for special nutritional uses - dried dietary foods for special medical purposes intended for infants below 6 months - at retail - Surveillance					
Infant formula - dried - intended for infants below 6 months - at retail - Surveillance					
Egg products		2			
Egg products - ready-to-eat					

Table Salmonella in other food

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Corvallis	S. Infantis	S. Ohio
Fish (Fresh/frozen.)					
Fishery products, unspecified					
Fruits and vegetables - pre-cut - ready-to-eat		2			
Juice - fruit juice - unpasteurised (Ready to eat.)					
Other food (Ready to eat.)		18			

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.
L: NATIONAL REFERENCE LABORATORY.

Table Salmonella in red meat and products thereof

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Meat from pig - carcase - at slaughterhouse - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	206	16	0	1
Meat from pig - fresh - at processing plant - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	21	1		1
Meat from pig - fresh - at retail - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	15	0		
Meat from pig - meat products - raw but intended to be eaten cooked - at processing plant - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	39	1	0	0
Meat from pig - meat products - raw but intended to be eaten cooked - at retail - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	183	0		
Meat from bovine animals - carcase - at slaughterhouse - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	189	22		
Meat from bovine animals - fresh - at processing plant - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	2	0		
Meat from bovine animals - fresh - at retail - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	40	0		
Meat from bovine animals - meat products - raw but intended to be eaten cooked - at processing plant - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	4	1	0	0
Meat from bovine animals - meat products - raw but intended to be eaten cooked - at retail - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	43	0		
Other products of animal origin - gelatin and collagen - at retail - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	2	0		

Table Salmonella in red meat and products thereof

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Meat from bovine animals - meat products - raw and intended to be eaten raw - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	27	1	0	0
Meat from other animal species or not specified - fresh - at cutting plant (Swabs.)	L			food sample > meat	Unknown	Single		180	7	2	2
Meat from other animal species or not specified - meat products - at retail (Meatballs.)	L			food sample > meat	Unknown	Single		5	5		
Meat from other animal species or not specified - meat products - raw but intended to be eaten cooked - at processing plant	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	23	0		
Meat from other animal species or not specified - meat products - raw but intended to be eaten cooked - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	135	2	0	0
Meat from other animal species or not specified - mechanically separated meat (MSM)	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	1	1	0	0
Meat from other animal species or not specified - minced meat - intended to be eaten cooked	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	1320	65	6	6
Meat from other animal species or not specified - minced meat - intended to be eaten raw	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	74	2	0	0
Meat from pig - meat products - raw and intended to be eaten raw - at processing plant	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	296	6	0	0
Meat from pig - meat products - raw and intended to be eaten raw - at processing plant	L			food sample > meat	Unknown	Single		61	0		
Meat from pig - meat products - raw and intended to be eaten raw - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	158	3	0	0
Meat, mixed meat - meat products - raw and intended to be eaten raw - at processing plant	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	45	2	1	1

Table Salmonella in red meat and products thereof

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Meat, mixed meat - meat products - raw and intended to be eaten raw - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	63	1	0	0
Meat, red meat (meat from bovines, pigs, goats, sheep, horses, donkeys, bison and water buffalos) - fresh - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	31	1	0	0
Meat, red meat (meat from bovines, pigs, goats, sheep, horses, donkeys, bison and water buffalos) - fresh - at slaughterhouse	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	69	4	0	2

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Anatum	S. Corvallis	S. Derby	S. Ohio	S. Rissen	S. Tennessee
Meat from pig - carcase - at slaughterhouse - Surveillance		15						
Meat from pig - fresh - at processing plant - Surveillance								
Meat from pig - fresh - at retail - Surveillance								
Meat from pig - meat products - raw but intended to be eaten cooked - at processing plant - Surveillance		1						
Meat from pig - meat products - raw but intended to be eaten cooked - at retail - Surveillance								
Meat from bovine animals - carcase - at slaughterhouse - Surveillance		22						

Table Salmonella in red meat and products thereof

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Anatum	S. Corvallis	S. Derby	S. Ohio	S. Rissen	S. Tennessee
Meat from bovine animals - fresh - at processing plant - Surveillance								
Meat from bovine animals - fresh - at retail - Surveillance								
Meat from bovine animals - meat products - raw but intended to be eaten cooked - at processing plant - Surveillance		1						
Meat from bovine animals - meat products - raw but intended to be eaten cooked - at retail - Surveillance								
Other products of animal origin - gelatin and collagen - at retail - Surveillance								
Meat from bovine animals - meat products - raw and intended to be eaten raw - at retail		1						
Meat from other animal species or not specified - fresh - at cutting plant (Swabs.)					2		1	
Meat from other animal species or not specified - meat products - at retail (Meatballs.)				2				3
Meat from other animal species or not specified - meat products - raw but intended to be eaten cooked - at processing plant								
Meat from other animal species or not specified - meat products - raw but intended to be eaten cooked - at retail		2						
Meat from other animal species or not specified - mechanically separated meat (MSM)		1						

Table Salmonella in red meat and products thereof

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Anatum	S. Corvallis	S. Derby	S. Ohio	S. Rissen	S. Tennessee
Meat from other animal species or not specified - minced meat - intended to be eaten cooked		48	1		2	1	1	
Meat from other animal species or not specified - minced meat - intended to be eaten raw		2						
Meat from pig - meat products - raw and intended to be eaten raw - at processing plant		6						
Meat from pig - meat products - raw and intended to be eaten raw - at processing plant								
Meat from pig - meat products - raw and intended to be eaten raw - at retail		3						
Meat, mixed meat - meat products - raw and intended to be eaten raw - at processing plant								
Meat, mixed meat - meat products - raw and intended to be eaten raw - at retail		1						
Meat, red meat (meat from bovines, pigs, goats, sheep, horses, donkeys, bison and water buffalos) - fresh - at retail		1						
Meat, red meat (meat from bovines, pigs, goats, sheep, horses, donkeys, bison and water buffalos) - fresh - at slaughterhouse		2						

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.
L: NATIONAL REFERENCE LABORATORY.

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)

Following point 2 of the Annex of Commisison Regulation (EU) 200/2010 of 10 March, implementing Regulation (EC) 2160/2003 as regards a Community target for the reduction of the prevalence of certain Salmonella serotypes in breeding flocks of Gallus gallus. This sampling strategy is implemented by the Spanish National Surveillance and Control Programme on Salmonella in Breeding Flocks of Gallus gallus, approved for co-financing by Commision Decision 2011/807/UE.

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

birds of 4 weeks of age and 2 weeks prior movement.

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

Other: FBO controls: every 2 weeks. Additionally to the FBO controls, during production period an official control sampling is performed, with the following frecuency: 1. within 4 weeks following moving to the laying phase or laying unit 2. towards the end of the laying phase and not earlier than 8 weeks before the end of the production cycle 3. during the production period at time distant enough from the sampling referred in points 1. and 2.

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

Following point 2 of the Annex of Commisison Regulation (EU) 200/2010 of 10 March, implementing Regulation (EC) 2160/2003 as regards a Community target for the reduction of the prevalence of certain Salmonella serotypes in breeding flocks of Gallus gallus.

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

Following point 2 of the Annex of Commisison Regulation (EU) 200/2010 of 10 March, implementing Regulation (EC) 2160/2003 as regards a Community target for the reduction of the prevalence of certain Salmonella serotypes in breeding flocks of Gallus gallus.

Breeding flocks: Production period

Following point 2 of the Annex of Commisison Regulation (EU) 200/2010 of 10 March, implementing Regulation (EC) 2160/2003 as regards a Community target for the reduction of the prevalence of certain Salmonella serotypes in breeding flocks of Gallus gallus.

Case definition

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

A breeding flock shall be considered positive when the presence of the relevant Salmonella serotypes (other than vaccine strains) has been detected in one or more samples taken in the flock, even if the relevant Salmonella serotypes is only detected in the dust sample, or when the confirmatory sampling as part of official controls in accordance with point 2.2.2.2(b) does not confirm the detection of relevant Salmonella serotypes but antimicrobials or bacterial growth inhibitors have been detected in the flock. This rule shall not apply in exceptional cases described in point 2.2.2.2(c) where the initial Salmonella positive result from sampling at the initiative of the food business operator has not been confirmed by the sampling as part of official controls.

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

A breeding flock shall be considered positive when the presence of the relevant Salmonella serotypes (other than vaccine strains) has been detected in one or more samples taken in the flock, even if the relevant Salmonella serotypes is only detected in the dust sample, or when the confirmatory sampling as part of official controls in accordance with point 2.2.2.2(b) does not confirm the detection of relevant Salmonella serotypes but antimicrobials or bacterial growth inhibitors have been detected in the flock. This rule shall not apply in exceptional cases described in point 2.2.2.2(c) where the initial Salmonella positive result from sampling at the initiative of the food business operator has not been confirmed by the sampling as part of official controls.

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

A breeding flock shall be considered positive when the presence of the relevant Salmonella serotypes (other than vaccine strains) has been detected in one or more samples taken in the flock, even if the relevant Salmonella serotypes is only detected in the dust sample, or when the confirmatory sampling as part of official controls in accordance with point 2.2.2.2(b) does not confirm the detection of relevant Salmonella serotypes but antimicrobials or bacterial growth inhibitors have been detected in the flock. This rule shall not apply in exceptional cases described in point 2.2.2.2(c) where the initial Salmonella positive result from sampling at the initiative of the food business operator has not been confirmed by the sampling as part of official controls.

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)

Voluntary/Compulsory in rearing flocks of the meat production line if one of the relevant Samonella serovars was detected in the preceeding flock

Other preventive measures than vaccination in place

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

Biosecurity measures.
Compliance with Good Practice Code.

Control program/mechanisms

The control program/strategies in place

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

Spanish National Control and Monitoring Programme on Salmonella in Breeding Flocks of Gallus gallus 2012, approved for co-financing by Commission Decision 2011/807/UE.

Recent actions taken to control the zoonoses

Compulsory National Control and Monitoring Programme on Salmonella in Breeding Flocks of Gallus gallus 2012.

Measures in case of the positive findings or single cases

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

According to the compulsory National Control and Monitoring Programme on Salmonella in Breeding Flocks of Gallus gallus 2012, including:
movement of live birds forbbiden
destruction or treatment of eggs
sacrifice-depopulation of the flock
epidemiological investigations
control of biosecurity measures
control of the effectiveness of cleaning and disinfection

Notification system in place

Since 1952, at least (Epizootic Diseases Law). At the moment by Animal Health Law 8/2006, Royal Decree 328/2003 and Royal Decree 1940/2004.

Results of the investigation

Sampled flocks (adults): 1635
Positive flocks: 48 Salmonella spp.; 2 top 5
Incidence:
- Salmonella spp: 2,93%
- Top 5: 0,12%

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

The incidence on Salmonella spp. has increased from 2011 (2.68%) to 2012 (2.93%) . The incidence on top 5 have decreased from 2011 (0,32%) to 2012 (0.12%) and then, Spain has reached the Community reduction target for 2012.

Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

Breeding flocks for egg production can be considered a very low source of infection for humans, with no positive flock to Salmonella

B. Salmonella spp. in Gallus Gallus - broiler flocks

Monitoring system

Sampling strategy

Broiler flocks

Following point 1 of the Annex of Commission Regulation (EC) 200/2012 implementing Regulation (EC) 2160/2003 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in broilers.

Frequency of the sampling

Broiler flocks: Before slaughter at farm

3 weeks prior to slaughter (FBO control). Official control sampling is performed in at least one flock on 10% of the holdings with more than 5000 birds.

Type of specimen taken

Broiler flocks: Before slaughter at farm

Faeces

Methods of sampling (description of sampling techniques)

Broiler flocks: Before slaughter at farm

Following point 2 of the Annex of Commission Regulation (EC) 200/2012 implementing Regulation (EC) 2160/2003 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in broilers.

Case definition

Broiler flocks: Before slaughter at farm

A flock of broilers shall be considered positive for the purpose of verifying the achievement of the Community target, where the presence of Salmonella enteritidis and/or Salmonella typhimurium (other than vaccine strains) was detected in the flock at any occasion.

Diagnostic/analytical methods used

Broiler flocks: Before slaughter at farm

Bacteriological method: ISO 6579:2002

Vaccination policy

Broiler flocks

Does not exist.

Other preventive measures than vaccination in place

Broiler flocks

Biosecurity measures
Compliance with Good Practice Code

Control program/mechanisms

The control program/strategies in place

Broiler flocks

National Control and Monitoring Plan on Salmonella in broiler flocks 2012, approved for co-financing by Commission Decision 2011/807/UE

Recent actions taken to control the zoonoses

National Control and Monitoring Plan on Salmonella in broiler flocks 2012, including biosecurity measures

and compliance with Good Practice Code following Regulations 2160/2003, 1177/2006 and 200/2012.

Measures in case of the positive findings or single cases

Broiler flocks: Before slaughter at farm

Verification of the compliance of biosecurity measures
Cleaning, disinfection and treatment against rodents and insects
Verification of the efficacy of cleaning and disinfection
Epidemiological investigation

Notification system in place

Since 1952, at least (Epizootic Diseases Law). At the moment by Animal Health Law 8/2003, Royal Decree 328/2003 and Royal Decree 1940/2004.

Results of the investigation

Sampled flocks: 29.548
Positive flocks: 657 Salmonella spp.
21 S. enteritidis+typhimurium
Prevalence:
Salmonella spp.: 2,22%
Enteritidis+Typhimurium: 0,07%

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

The decreasing trend continues in 2012 and Spain has already reached the community target.

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

Monitoring system

Sampling strategy

Laying hens flocks

Following point 2 of the Annex of Commission Regulation (EC) 517/2011 implementing Regulation (EC) 2160/2003 as regards a Community target for the reduction of the prevalence of certain salmonella serotypes in laying hens of Gallus gallus. This sampling strategy is implemented by the Spanish National Control and Monitoring Programme on Salmonella in Laying Hens 2012, approved by Commision Decision 2011/807/UE.

Frequency of the sampling

Laying hens: Day-old chicks

Every flock is sampled

Laying hens: Rearing period

2 weeks prior to moving to laying unit (FBO control).

Laying hens: Production period

Every 15 weeks (FBO control). Official control is done in one flock per year per holding comprising at least 1000 birds at the end of the production cycle; at the age of 24 +- 2 weeks in flocks housed in buildings where Salmonella was detected in the preceding flock; and in any case of suspicion of Salmonella in the holding.

Type of specimen taken

Laying hens: Production period

Other: fecal material and dust samples if the hygiene and bio-security are deficient or the competent authority considers appropriate

Methods of sampling (description of sampling techniques)

Laying hens: Day-old chicks

Following part B of Annex II of Council Regulation 2160/2003

Laying hens: Rearing period

Following part B of Annex II of Council Regulation 2160/2003

Laying hens: Production period

Following point 2 of the Annex of Commission Regulation (EC) 517/2011. This sampling strategy is implemented by the Spanish National Control and Monitoring Programme on Salmonella in Laying Hens 2012.

Case definition

Laying hens: Rearing period

A rearing flock shall be considered positive where:
the presence of the relevant Salmonella serotypes (other than vaccine strains) has been detected in one or more samples taken in the flock, even if the relevant Salmonella serotype is only detected in the dust sample or dust swab; or
antimicrobials or bacterial growth inhibitors have been detected in the flock.
This rule shall not apply in exceptional cases described in Annex II D point 4 of Regulation (EC) No 2160/2003, where the initial Salmonella positive result has not been confirmed by that respective sampling protocol.

Laying hens: Production period

A laying flock shall be considered positive for the purpose of ascertaining the achievement of the Union target where:
the presence of the relevant Salmonella serotypes (other than vaccine strains) has been detected in one or more samples taken in the flock, even if the relevant Salmonella serotype is only detected in the dust sample or dust swab; or
antimicrobials or bacterial growth inhibitors have been detected in the flock.
This rule shall not apply in exceptional cases described in Annex II D point 4 of Regulation (EC) No 2160/2003, where the initial Salmonella positive result has not been confirmed by that respective sampling protocol.

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

Compulsory in rearing period against Salmonella species with impact in public health (at least S. Enteritidis should be included). The competent authority may provide derogation from this provision to a holding if preventive and biocecurity measures have been taken on the holding and absence of Salmonella Enteritidis and Typhimurium was demostrated during 12 months preceding the arrival of the animals.

Other preventive measures than vaccination in place

Laying hens flocks

Biosecurity measures
Compulsory notification
Compulsory monitoring and control programmes
Compliance with Good Practice Code

Control program/mechanisms

The control program/strategies in place

Laying hens flocks

National Control and Monitoring Programme on Salmonella in Laying Hens 2012, approved by Commision Decision 2011/807/UE.

Recent actions taken to control the zoonoses

National Control and Monitoring Programme on Salmonella in Laying Hens 2012, including vaccination, biosecurity measures and compliance with good practices code following criteria of Regulations 2160/2003,517/2011 and 1177/2006.

Measures in case of the positive findings or single cases

Laying hens flocks

According to National Control and Monitoring Programme on Salmonella in Laying Hens 2012,including movement restrictions of live birds (forbidden),destruction or treatment of eggs, sacrifice-depopulation of the flock,epidemiological investigations, control of the bio-security measures and of the efficiency of the

cleaning and disinfection.

Notification system in place

Since 1952 at least (Epizootic Diseases Law). At the moment by Animal Health Law 8/2003, Royal Decree 328/2003 and Royal Decree 1940/2004.

Results of the investigation

Number of flocks (adults)tested: 1943
Number of positive flocks:
- Salmonella spp.: 229
- Enteritidis+Typhimurium: 43

Incidence:
- Salmonella spp: 11,78%
- Enteritidis+Typhimurium: 2,21%

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

The incidence of both Salmonella Enteritidis+Typhimurium has decreased in 2012. Spain has reached the community target for 2012.

D. Salmonella spp. in bovine animals

Monitoring system

Sampling strategy

Samples have been taken ramdomly (day of sampling each month) in 16 slaughterhouses (distribution of the number of samples according to the capacity of sacrifice of each slaughterhouse) placed in different regions of Spain and representative of the total volume of sacrifice of the country (around 50%)

Frequency of the sampling

Animals at slaughter (herd based approach)

from June to October

Type of specimen taken

Animals at slaughter (herd based approach)

Faeces

Methods of sampling (description of sampling techniques)

Animals at slaughter (herd based approach)

Two faecal samples at colon level have been taken in all the slaughter batches in the day of sampling, with a maximun of 30 batches by slaughterhouse and day of sampling . Each batch belonged to different holdings.
Sampling has been performed in 16 slaughterhouses placed in the provinces of Barcelona(3), Valencia, Huesca, Lerida, Caceres,Madrid, Lugo, Pontevedra, Segovia, Salamanca, Avila, Cordoba, Asturias and Ciudad Real. These slaughterhouses have a high volume of activity, representing an important part of all the bovines sacrified in Spain (around 50%).

A total of 292 samples have been taken, belonging to 146 slaughter batches and 146 different holdings.

Faeces were taken from the colon, refrigerated immediatly and sent to the laboratory and analyzed within 24 hours.

Case definition

Animals at slaughter (herd based approach)

A slaughter batch is positive if Salmonella spp. has been isolated from at least one of the two samples of each slaughter batch of young bovines (1-2 years old).

Diagnostic/analytical methods used

Animals at slaughter (herd based approach)

Bacteriological method: ISO 6579:2002/Amd 1:2007; PCR.

Results of the investigation

Number of slaughter batches analyzed: 146
Positive : 9 Salmonella spp.
slaughter batch prevalence: 6,2%

E. Salmonella spp. in pigs

Monitoring system

Sampling strategy

Fattening herds

Samples have been taken ramdomly (day of each month) in 16 slaughterhouses (distribution of the number of samples according to the capacity of sacrifice of each slaughterhouse)placed in different regions of Spain and representative of the total volume of sacrifice of the country(around 50%)

Frequency of the sampling

Fattening herds at slaughterhouse (herd based approach)

between June and October

Type of specimen taken

Fattening herds at slaughterhouse (herd based approach)

faeces

Methods of sampling (description of sampling techniques)

Fattening herds at slaughterhouse (herd based approach)

Two faecal samples at colon level have been taken from all the slaughter batches in the day of sampling, with a maximun of 30 batches by slaughterhouse and day of sampling . Each batch belonged to different herds.
Sampling has been performed in 16 slaughterhouses placed in the provinces of Cuenca, Barcelona(2),Ciudad Real, Murcia, Pontevedra, Burgos, Asturias, Málaga, Gerona (2), León, Madrid, Huesca, Valencia and Lérida. These slaughterhouses have a high volume of activity, representing an important part of all the pigs sacrified in Spain.
A total of 326 samples have been taken, belonging to 163 slaughter batches and 163 different holdings.
Samples were refrigerated immediatly and sent to the laboratory and analyzed within 24 hours.

Case definition

Fattening herds at slaughterhouse (herd based approach)

A slaughter batch is considered positive for the purpose of this survey if Salmonella spp. has been isolated from the pooled sample of faeces.

Diagnostic/analytical methods used

Fattening herds at slaughterhouse (herd based approach)

Bacteriological method: ISO 6579:2002/Amd 1:2007; PCR

Results of the investigation

Fattening pigs at slaughterhouses:
Tested slaughter batches: 163
Positive: 48
Slaughter batch prevalence: 29,5% Salmonella spp.

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

The prevalence remains at the same level of previous years.

F. Salmonella spp. in turkey - breeding flocks and meat production flocks

Monitoring system

Sampling strategy

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

Following points 1 and 2 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

Meat production flocks

Following points 1 and 2 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

Frequency of the sampling

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

Following point 1 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

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

Following point 1 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

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

Other: Following points 1 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

Meat production flocks: Before slaughter at farm

Other: Following point 1 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

Type of specimen taken

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

Other: Following points 2 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

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

Other: Following point 2 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

Meat production flocks: Before slaughter at farm

Other: Following points 2 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

Methods of sampling (description of sampling techniques)

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

Following points 1 and 2 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in

turkeys.

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

Following points 1 and 2 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

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

Following points 1 and 2 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

Meat production flocks: Before slaughter at farm

Following points 1 and 2 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

Case definition

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

A flock of turkeys shall be considered positive , where the presence of Salmonella enteritidis and/or Salmonella typhimurium (other than vaccine strains) was detected in the flock at any occasion.

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

A flock of turkeys shall be considered positive for the purpose of verifying the achievement of the Community target, where the presence of Salmonella enteritidis and/or Salmonella typhimurium (other than vaccine strains) was detected in the flock at any occasion.
Positive flocks of turkeys shall be counted only once per round, irrespective of the number of sampling and testing operations and only be reported in the year of the first positive sampling.

Meat production flocks: Day-old chicks

Meat production flocks: Before slaughter at farm

A flock of turkeys shall be considered positive for the purpose of verifying the achievement of the Community target, where the presence of Salmonella enteritidis and/or Salmonella typhimurium (other than vaccine strains) was detected in the flock at any occasion.

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): Production period

Bacteriological method: ISO 6579:2002

Meat production flocks: Before slaughter at farm

Bacteriological method: ISO 6579:2002

Vaccination policy

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

Voluntary

Meat production flocks

Does not exists.

Other preventive measures than vaccination in place

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

Biosecurity measures.
Compliance with Good Practice Code

Meat production flocks

Biosecurity measures.
Compliance with Good Practice Code

Control program/mechanisms

The control program/strategies in place

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

Spanish National Control and Monitoring Programme on Salmonella in Breeding Flocks of Turkeys, approved for co-financing by Commission Decision 2011/807/UE.

Meat production flocks

Spanish National Control and Monitoring Programme on Salmonella in Meat Production Flocks of Turkeys, approved for co-financing by Commission Decision 2011/807/UE

Recent actions taken to control the zoonoses

Compulsory National Control and Monitoring Programme on Salmonella in Breeding Flocks and Meat Production Flocks of Turkeys 2012, following criteria of Regulation (EC) 584/2008.

Measures in case of the positive findings or single cases

According to Compulsory National Control and Monitoring Programme on Salmonella in Breeding Flocks and Meat Production Flocks of Turkeys 2012, following criteria of Regulation (EC) 584/2008.

Notification system in place

Since 1952, at least (Epizootic Diseases Law). At the moment by Animal Health Law 8/2006, Royal Decree 328/2003 and Royal Decree 1940/2004.

Results of the investigation

Breeding turkeys:
number of adult flocks tested : 57
positive (Enteritidis+ Typhimurium): 0
positive Salmonella spp.:3
flock prevalence SE y ST: 0%
flock prevalence Salmonella spp.:5.26
Fattening turkeys:
number of flocks tested: 2117
positive (Enteritidis+ Typhimurium): 32
flock prevalence: 1,51%
positive Salmonella spp.: 325
flock prevalence: 15,35%

Table Salmonella in breeding flocks of Gallus gallus

	No of flocks under control programme	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Target Verification	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis
Gallus gallus (fowl) - breeding flocks, unspecified - adult - Control and eradication programmes	1635	MAGRAMA	Census	Official and industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	1635	48	1
Gallus gallus (fowl) - breeding flocks for broiler production line - adult - at farm - Control and eradication programmes	1558	MAGRAMA	Census	Official and industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	1558	48	1
Gallus gallus (fowl) - breeding flocks for broiler production line - adult - at farm - Control and eradication programmes	1558	MAGRAMA	Census	Official sampling	environmental sample > boot swabs	Domestic	yes	Flock	1264	15	0
Gallus gallus (fowl) - breeding flocks for broiler production line - adult - at farm - Control and eradication programmes	1558	MAGRAMA	Census	Industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	1445	39	1
Gallus gallus (fowl) - breeding flocks for egg production line - adult - at farm - Control and eradication programmes	77	MAGRAMA	Census	Official and industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	77	0	0
Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Control and eradication programmes	1635	MAGRAMA	Census	Official sampling	environmental sample > boot swabs	Domestic	yes	Flock	1328	15	0
Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Control and eradication programmes	1635	MAGRAMA	Census	Industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	1491	39	1
Gallus gallus (fowl) - breeding flocks, unspecified - during rearing period - at farm - Control and eradication programmes	780	MAGRAMA	Census	Industry sampling	environmental sample > boot swabs	Domestic	no	Flock	780	11	0

Table Salmonella in breeding flocks of Gallus gallus

	S. Hadar	S. Infantis	S. Typhimurium	S. Virchow	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Gallus gallus (fowl) - breeding flocks, unspecified - adult - Control and eradication programmes	0	0	1	0	0	46
Gallus gallus (fowl) - breeding flocks for broiler production line - adult - at farm - Control and eradication programmes	1	0	0	0	0	46
Gallus gallus (fowl) - breeding flocks for broiler production line - adult - at farm - Control and eradication programmes	0	0	1	0	0	14
Gallus gallus (fowl) - breeding flocks for broiler production line - adult - at farm - Control and eradication programmes	5	0	1	0	0	32
Gallus gallus (fowl) - breeding flocks for egg production line - adult - at farm - Control and eradication programmes	0	0	0	0	0	0
Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Control and eradication programmes	0	0	1	0	0	14
Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Control and eradication programmes	5	0	1	0	0	32
Gallus gallus (fowl) - breeding flocks, unspecified - during rearing period - at farm - Control and eradication programmes	0	0	0	0	0	11

Table Salmonella in other birds

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	S. 1,4,[5],12:i:-
Quails - at farm - Monitoring	A	Selective sampling	Official sampling	animal sample > faeces		Flock	10	0			
Partridges - farmed - at farm - Monitoring	A	Selective sampling	Official sampling	animal sample > faeces		Flock	103	7		2	

	Salmonella spp., unspecified
Quails - at farm - Monitoring	
Partridges - farmed - at farm - Monitoring	5

Footnote:

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Table Salmonella in other animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	S. 1,4,[5],12:i:-
Sheep - at farm - Monitoring	A	Suspect sampling	Official sampling	animal sample	Domestic	Herd	16	2			
Goats - at farm - Monitoring	A	Suspect sampling	Official sampling	animal sample	Domestic	Herd	4	0			
Pigs - fattening pigs - at slaughterhouse - Monitoring	M.A.G.R.A.M.A	Objective sampling	Not applicable	animal sample > faeces	Domestic	Slaughter batch	163	48	0	6	14
Cattle (bovine animals) - young cattle (1-2 years) - at slaughterhouse - Monitoring - EFSA specifications	M.A.G.R.A.M.A	Objective sampling	Not applicable	animal sample > faeces	Domestic	Slaughter batch	146	9	0	1	1

	Salmonella spp., unspecified	S. 4,5:i:-	S. Derby	S. Montevideo	S. Rissen
Sheep - at farm - Monitoring	2				
Goats - at farm - Monitoring					
Pigs - fattening pigs - at slaughterhouse - Monitoring	8	0	7	0	13
Cattle (bovine animals) - young cattle (1-2 years) - at slaughterhouse - Monitoring - EFSA specifications	1	0	2	1	3

Footnote:

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Table Salmonella in other poultry

	No of flocks under control programme	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Target Verification	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis
Gallus gallus (fowl) - laying hens - during rearing period - Control and eradication programmes	780	MAGRAMA	Census	Industry sampling	animal sample > faeces	Domestic	no	Flock	780	28	2
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	1943	MAGRAMA	Census	Official and industry sampling	animal sample > faeces	Domestic	yes	Flock	1943	229	36
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	29548	MAGRAMA	Census	Official and industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	29548	657	4
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	29548	MAGRAMA	Census	Industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	29362	624	1
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	29548	MAGRAMA	Census	Official sampling	environmental sample > boot swabs	Domestic	yes	Flock	582	39	5
Turkeys - breeding flocks, unspecified - day-old chicks - at farm - Control and eradication programmes			Census	Industry sampling	animal sample > faeces	Domestic	yes				
Turkeys - breeding flocks, unspecified - during rearing period - at farm - Control and eradication programmes	25	MAGRAMA	Census	Industry sampling	environmental sample > boot swabs	Domestic	no	Flock	25	0	0
Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes	57	MAGRAMA	Census	Official and industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	57	3	0
Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes	2117	MAGRAMA	Census	Official and industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	2117	325	1
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	1943	MAGRAMA	Census	Official sampling	animal sample > faeces	Domestic	yes	Flock	683	124	35
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	1943	MAGRAMA	Census	Industry sampling	animal sample > faeces	Domestic	yes	Flock	1635	125	3

Table Salmonella in other poultry

	No of flocks under control programme	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Target Verification	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis
Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes	57	MAGRAMA	Census	Industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	53	0	0
Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes	57	MAGRAMA	Census	Official sampling	environmental sample > boot swabs	Domestic	yes	Flock	31	3	0
Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes	2117	MAGRAMA	Census	Industry sampling	environmental sample > boot swabs	Domestic	yes	Flock	2026	261	1
Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes	2117	MAGRAMA	Census	Official sampling	environmental sample > boot swabs	Domestic	yes	Flock	174	72	0

	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Gallus gallus (fowl) - laying hens - during rearing period - Control and eradication programmes	0	0	26
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	6	1	186
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	14	3	636
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	14	3	606
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	2	0	32

Table Salmonella in other poultry

	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Turkeys - breeding flocks, unspecified - day-old chicks - at farm - Control and eradication programmes			
Turkeys - breeding flocks, unspecified - during rearing period - at farm - Control and eradication programmes	0	0	0
Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes	0	0	3
Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes	31	0	293
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	6	1	82
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	1	0	121
Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes	0	0	0
Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes	0	0	3
Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes	5	0	255
Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes	26	0	46

2.1.5 Salmonella in feedingstuffs

Table Salmonella in compound feedingstuffs

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Compound feedingstuffs for cattle - final product - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	46	3		
Compound feedingstuffs for pigs - process control - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	17	0		
Compound feedingstuffs for pigs - final product - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	13	0		
Compound feedingstuffs for poultry (non specified) - process control - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	3	0		
Compound feedingstuffs for poultry (non specified) - final product - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	50	2		
Compound feedingstuffs for poultry - laying hens - final product - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	6	0		
Compound feedingstuffs for poultry - broilers - final product - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	2	0		
Compound feedingstuffs for horses - final product - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	1	0		

Table Salmonella in compound feedingstuffs

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Compound feedingstuffs for cattle - final product - at feed mill - Surveillance		3
Compound feedingstuffs for pigs - process control - at feed mill - Surveillance		
Compound feedingstuffs for pigs - final product - at feed mill - Surveillance		
Compound feedingstuffs for poultry (non specified) - process control - at feed mill - Surveillance		
Compound feedingstuffs for poultry (non specified) - final product - at feed mill - Surveillance		2
Compound feedingstuffs for poultry - laying hens - final product - at feed mill - Surveillance		
Compound feedingstuffs for poultry - broilers - final product - at feed mill - Surveillance		
Compound feedingstuffs for horses - final product - at feed mill - Surveillance		

Footnote:

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Table Salmonella in feed material of animal origin

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Feed material of land animal origin - dairy products - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	1	0		
Feed material of land animal origin - meat meal - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	4	0		
Feed material of land animal origin - meat and bone meal - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	19	2		
Feed material of land animal origin - poultry offal meal - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	1	0		
Feed material of land animal origin - feather meal - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	1	0		
Feed material of land animal origin - animal fat - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	5	0		
Feed material of marine animal origin - fish meal - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	87	3		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Feed material of land animal origin - dairy products - at feed mill - Surveillance		
Feed material of land animal origin - meat meal - at feed mill - Surveillance		
Feed material of land animal origin - meat and bone meal - at feed mill - Surveillance		2

Table Salmonella in feed material of animal origin

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Feed material of land animal origin - poultry offal meal - at feed mill - Surveillance		
Feed material of land animal origin - feather meal - at feed mill - Surveillance		
Feed material of land animal origin - animal fat - at feed mill - Surveillance		
Feed material of marine animal origin - fish meal - at feed mill - Surveillance		3

Footnote:

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Table Salmonella in other feed matter

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium
Feed material of cereal grain origin - barley derived - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	17	1		
Feed material of cereal grain origin - wheat derived - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	21	0		
Feed material of cereal grain origin - other cereal grain derived - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	2	0		
Feed material of cereal grain origin - maize derived - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	22	0		
Feed material of oil seed or fruit origin - rape seed derived - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	1	1		1
Feed material of oil seed or fruit origin - soya (bean) derived - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	15	1		
Feed material of oil seed or fruit origin - cotton seed derived - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	4	0		
Feed material of oil seed or fruit origin - sunflower seed derived - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	2	0		
Other feed material - tubers, roots and similar products - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	2	0		
Other feed material - other seeds and fruits - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	2	0		
Other feed material - forages and roughages - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	3	0		
Other feed material - other plants - at feed mill - Surveillance	A	Objective sampling	Official sampling	feed sample		Batch	25 gr	1	0		

Table Salmonella in other feed matter

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Feed material of cereal grain origin - barley derived - at feed mill - Surveillance		1
Feed material of cereal grain origin - wheat derived - at feed mill - Surveillance		
Feed material of cereal grain origin - other cereal grain derived - at feed mill - Surveillance		
Feed material of cereal grain origin - maize derived - at feed mill - Surveillance		
Feed material of oil seed or fruit origin - rape seed derived - at feed mill - Surveillance		
Feed material of oil seed or fruit origin - soya (bean) derived - at feed mill - Surveillance		1
Feed material of oil seed or fruit origin - cotton seed derived - at feed mill - Surveillance		
Feed material of oil seed or fruit origin - sunflower seed derived - at feed mill - Surveillance		
Other feed material - tubers, roots and similar products - at feed mill - Surveillance		
Other feed material - other seeds and fruits - at feed mill - Surveillance		
Other feed material - forages and roughages - at feed mill - Surveillance		
Other feed material - other plants - at feed mill - Surveillance		

Table Salmonella in other feed matter

Footnote:

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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

Serovar	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
Sources of isolates	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Number of isolates in the laboratory		9				48							
Number of isolates serotyped		9				48							
Number of isolates per serovar													
Other serovars						1							
S. 4,12:b:-													
S. 4,5:i:-		0											
S. 4:i:-													
S. 6,7:-:1,5													
S. Afula													

Table Salmonella serovars in animals

Serovar	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
Sources of isolates	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Number of isolates in the laboratory		9				48							
Number of isolates serotyped		9				48							
Number of isolates per serovar													
S. Agona													
S. Altona													
S. Amsterdam													
S. Anatum													
S. Berta													
S. Bovismorbificans													
S. Braenderup													
S. Bredeney						2							
S. Brikama						1							
S. Cerro													
S. Corvallis													

Table Salmonella serovars in animals

Serovar	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
Sources of isolates	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Number of isolates in the laboratory		9				48							
Number of isolates serotyped		9				48							
Number of isolates per serovar													
S. Cubana													
S. Dabou													
S. Derby		2				7							
S. Enteritidis													
S. Gabon													
S. Gloucester													
S. Goldcoast													
S. Grampian													
S. Hadar													
S. Havana													
S. II 42:b:e,n,x,z15													

Table Salmonella serovars in animals

Serovar / Sources of isolates	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Number of isolates in the laboratory		9				48							
Number of isolates serotyped		9				48							
Number of isolates per serovar													
S. Indiana													
S. Infantis													
S. Kapemba						2							
S. Kedougou													
S. Kentucky						1							
S. Lille		1											
S. Livingstone													
S. London						1							
S. Mbandaka													
S. Mikawasima													
S. Minna													

Table Salmonella serovars in animals

Serovar	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
Sources of isolates	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Number of isolates in the laboratory		9				48							
Number of isolates serotyped		9				48							
Number of isolates per serovar													
S. Montevideo		1											
S. Muenchen													
S. Ndolo													
S. Newport													
S. Norton													
S. Ohio													
S. Poeseldorf													
S. Potsdam													
S. Reading													
S. Rissen		3				13							
S. Schleissheim													

Table Salmonella serovars in animals

Serovar	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
Sources of isolates	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Number of isolates in the laboratory		9				48							
Number of isolates serotyped		9				48							
Number of isolates per serovar													
S. Senftenberg													
S. Soerenga													
S. Spartel													
S. Stanleyville													
S. Thompson													
S. Toulon													
S. Typhimurium		1				6							
S. Typhimurium, monophasic		1				14							
S. Virchow													
S. Wien													
S. Wisbech													

Table Salmonella serovars in animals

Serovar	Cattle (bovine animals)				Pigs				Gallus gallus (fowl)				Other poultry
Sources of isolates	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program
Number of isolates in the laboratory		9				48							
Number of isolates serotyped		9				48							
Number of isolates per serovar													
S. Worthington													
S. Zerifin													
Salmonella spp., unspecified													

Serovar	Other poultry			Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes				Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	
Sources of isolates	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring
Number of isolates in the laboratory				88				693				356	
Number of isolates serotyped				62				657				265	
Number of isolates per serovar													
Other serovars				6				1				1	
S. 4,12:b:-												1	
S. 4,5:i:-				0				0				0	

Table Salmonella serovars in animals

Serovar	Other poultry			Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes				Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	
Sources of isolates	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring
Number of isolates in the laboratory				88				693				356	
Number of isolates serotyped				62				657				265	
Number of isolates per serovar													
S. 4:i:-				0				0				0	
S. 6,7:-:1,5								3				0	
S. Afula								1				0	
S. Agona				1				0				7	
S. Altona												2	
S. Amsterdam				1				0				0	
S. Anatum								4				2	
S. Berta								1				0	
S. Bovismorbificans								1				0	
S. Braenderup												7	

Table Salmonella serovars in animals

Serovar	Other poultry			Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes				Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	
Sources of isolates	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring
Number of isolates in the laboratory				88				693				356	
Number of isolates serotyped				62				657				265	
Number of isolates per serovar													
S. Bredeney				1				1				2	
S. Brikama				0				0				0	
S. Cerro								7				1	
S. Corvallis												16	
S. Cubana												1	
S. Dabou												3	
S. Derby				0				1				0	
S. Enteritidis				1				6				41	
S. Gabon								2				0	
S. Gloucester				1				2				1	

Table Salmonella serovars in animals

Serovar	Other poultry			Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes				Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	
Sources of isolates	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring
Number of isolates in the laboratory				88				693				356	
Number of isolates serotyped				62				657				265	
Number of isolates per serovar													
S. Goldcoast								9				1	
S. Grampian								4				0	
S. Hadar				5				17				0	
S. Havana				2				3				0	
S. II 42:b:e,n,x,z15				1				0				0	
S. Indiana				1				0				0	
S. Infantis								2				13	
S. Kapemba				0				0				0	
S. Kedougou				2				0				1	
S. Kentucky				1				58				7	

Table Salmonella serovars in animals

Serovar	Other poultry			Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes				Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	
Sources of isolates	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring
Number of isolates in the laboratory				88				693				356	
Number of isolates serotyped				62				657				265	
Number of isolates per serovar													
S. Lille				0				0				0	
S. Livingstone												5	
S. London				0				2				1	
S. Mbandaka				1				0				3	
S. Mikawasima								10				1	
S. Minna								1				0	
S. Montevideo				0				1				1	
S. Muenchen				1				1				0	
S. Ndolo								1				0	
S. Newport				1				3				1	

Table Salmonella serovars in animals

Serovar	Other poultry			Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes				Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	
Sources of isolates	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring
Number of isolates in the laboratory				88				693				356	
Number of isolates serotyped				62				657				265	
Number of isolates per serovar													
S. Norton												1	
S. Ohio								1				20	
S. Poeseldorf								2				2	
S. Potsdam				2				0				0	
S. Reading												0	
S. Rissen				0				3				1	
S. Schleissheim				3				2				0	
S. Senftenberg				1				18				9	
S. Soerenga				1				0				0	
S. Spartel												1	

Table Salmonella serovars in animals

Serovar	Other poultry			Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes				Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	
Sources of isolates	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring
Number of isolates in the laboratory				88				693				356	
Number of isolates serotyped				62				657				265	
Number of isolates per serovar													
S. Stanleyville												1	
S. Thompson								1				0	
S. Toulon				3				4				0	
S. Typhimurium				1				16				6	
S. Typhimurium, monophasic								3				1	
S. Virchow				0				38				2	
S. Wien				3				5				0	
S. Wisbech												0	
S. Worthington				1				0				0	
S. Zerifin												1	

Table Salmonella serovars in animals

Serovar	Other poultry			Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes				Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	
Sources of isolates	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring
Number of isolates in the laboratory				88				693				356	
Number of isolates serotyped				62				657				265	
Number of isolates per serovar													
Salmonella spp., unspecified				21				422				101	

Serovar	Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes		Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes			
Sources of isolates	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory			3				344			
Number of isolates serotyped			3				336			
Number of isolates per serovar										
Other serovars			0							
S. 4,12:b:-										
S. 4,5:i:-			0				0			
S. 4:i:-			0				0			

Table Salmonella serovars in animals

Serovar	Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes		Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes			
Sources of isolates	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory			3				344			
Number of isolates serotyped			3				336			
Number of isolates per serovar										
S. 6,7:-:1,5			0				0			
S. Afula			0				0			
S. Agona			0				2			
S. Altona										
S. Amsterdam			0				0			
S. Anatum			0				0			
S. Berta			0				0			
S. Bovismorbificans			0				0			
S. Braenderup										
S. Bredeney			0				0			

Table Salmonella serovars in animals

Serovar	Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes		Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes			
Sources of isolates	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory			3				344			
Number of isolates serotyped			3				336			
Number of isolates per serovar										
S. Brikama			0				0			
S. Cerro			0				0			
S. Corvallis										
S. Cubana										
S. Dabou										
S. Derby			0				195			
S. Enteritidis			0				1			
S. Gabon			0				0			
S. Gloucester			0				0			
S. Goldcoast			0				0			

Table Salmonella serovars in animals

Serovar	Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes		Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes			
Sources of isolates	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory			3				344			
Number of isolates serotyped			3				336			
Number of isolates per serovar										
S. Grampian			0				0			
S. Hadar			3				42			
S. Havana			0				0			
S. II 42:b:e,n,x,z15			0				0			
S. Indiana			0				0			
S. Infantis			0				0			
S. Kapemba			0				0			
S. Kedougou			0				0			
S. Kentucky			0				7			
S. Lille			0				0			

Table Salmonella serovars in animals

Serovar	Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes		Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes			
Sources of isolates	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory			3				344			
Number of isolates serotyped			3				336			
Number of isolates per serovar										
S. Livingstone										
S. London			0				25			
S. Mbandaka			0				0			
S. Mikawasima			0				0			
S. Minna			0				0			
S. Montevideo			0				1			
S. Muenchen			0				0			
S. Ndolo			0				0			
S. Newport			0				3			
S. Norton										

Table Salmonella serovars in animals

Serovar	Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes		Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes			
Sources of isolates	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory			3				344			
Number of isolates serotyped			3				336			
Number of isolates per serovar										
S. Ohio			0				0			
S. Poeseldorf			0				1			
S. Potsdam			0				0			
S. Reading							1			
S. Rissen			0				0			
S. Schleissheim			0				0			
S. Senftenberg			0				1			
S. Soerenga			0				0			
S. Spartel										
S. Stanleyville										

Table Salmonella serovars in animals

Serovar	Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes		Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes				Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes			
Sources of isolates	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory			3				344			
Number of isolates serotyped			3				336			
Number of isolates per serovar										
S. Thompson			0				0			
S. Toulon			0				0			
S. Typhimurium			0				31			
S. Typhimurium, monophasic			0				0			
S. Virchow			0				0			
S. Wien			0				0			
S. Wisbech							1			
S. Worthington			0				0			
S. Zerifin										
Salmonella spp., unspecified			0				25			

Table Salmonella serovars in animals

Footnote:

In poultry, there are several flocks with more than 1 serovars. For this reason, the number of serovars in this table is higher than in the prevalence table.

2.1.7 Antimicrobial resistance in Salmonella isolates

A. Antimicrobial resistance in Salmonella in cattle

Sampling strategy used in monitoring

Frequency of the sampling

see text form on Salmonella spp. in bovine animals

Type of specimen taken

see text form on Salmonella spp. in bovine animals

Methods of sampling (description of sampling techniques)

see text form on Salmonella spp. in bovine animals

Procedures for the selection of isolates for antimicrobial testing

all isolates tested for antimicrobial resistance

Methods used for collecting data

Active monitoring programme 2012

Laboratory methodology used for identification of the microbial isolates

see text form on Salmonella spp. in bovine animals

Laboratory used for detection for resistance

Antimicrobials included in monitoring

see table on antimicrobial resistance Salmonella in cattle

Cut-off values used in testing

see table of breakpoints

Results of the investigation

Number of isolates tested: 9

B. Antimicrobial resistance in Salmonella in pigs

Sampling strategy used in monitoring

Frequency of the sampling

There has been a specific monitoring programme for antimicrobial surveillance running from 1999 at national level in Spain. These national active monitoring programme are performed in fattening pigs at slaughterhouse. For more information on the frequency of sampling, please, see text forms on Salmonella in pigs.

Methods of sampling (description of sampling techniques)

See text forms on Salmonella in pigs.

Procedures for the selection of isolates for antimicrobial testing

All isolates tested for antimicrobial resistance (48)

Methods used for collecting data

Following point 2 of the Annex of Commision Decision 2007/407/CE, on a harmonized monitoring scheme of antimicrobial resistance in Salmonella in fowl (Gallus gallus) and pigs.

Laboratory methodology used for identification of the microbial isolates

See text forms on Salmonella in pigs.

Laboratory used for detection for resistance

Antimicrobials included in monitoring

Following point 2 of the Annex of Commision Decision 2007/407/CE, on a harmonized monitoring scheme of antimicrobial resistance in Salmonella in fowl (Gallus gallus) and pigs.
See tables on antimicrobial resistance.

Cut-off values used in testing

Following point 2 of the Annex of Commision Decision 2007/407/CE, on a harmonized monitoring scheme of antimicrobial resistance in Salmonella in fowl (Gallus gallus) and pigs.
See table on breakpoints.

Results of the investigation

Fattening pigs:
Number of isolates tested: 48

C. Antimicrobial resistance in Salmonella in poultry

Sampling strategy used in monitoring

Frequency of the sampling

National antimicrobial resistance surveillance programme has been running from 2003 at national level. In 2012 a national control programme has been applied in breeders, laying hens, broilers and turkeys. Then, sampling strategies and frequency of sampling has been performed following Commission Regulation (EC) No 517/2011 of 25 May 2011 implementing Regulation (EC) No 2160/2003 as regards a Community target for the reduction of the prevalence of certain salmonella serotypes in laying hens of Gallus gallus ; Commission Regulation (EC) No 200/2012 of 8 March 2012 implementing Regulation (EC) No 2160/2003 of the European Parliament and of the Council as regards a Community target for the reduction of the prevalence of Salmonella enteritidis and Salmonella typhimurium in broilers; following points 1 and 2 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys and Commission Regulation (EC) No 200/2010 of 10 March 2010 implementing Regulation (EC) No 2160/2003 as regards a Community target for the reduction of the prevalence of certain salmonella serotypes in breeding hens of Gallus gallus.

Type of specimen taken

Laying hens: following point 2.2. of the Annex of Commission Regulation (EC) No 517/2011
Breeding hens: following point 2.2. of the Annex of Commission Regulation (EC) No 200/2010
Broilers: point 2 of the Annex of Commission Regulation (EC) No 200/2012 of 8 March 2012 implementing Regulation (EC) No 2160/2003 of the European Parliament and of the Council as regards a Community target for the reduction of the prevalence of Salmonella enteritidis and Salmonella typhimurium in broilers.

Turkeys: following points 1 and 2 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

Methods of sampling (description of sampling techniques)

Laying hens: following point 2.2. of the Annex of Commission Regulation (EC) No 517/2011.
Breeding hens: following point 2.2. of the Annex of Commission Regulation (EC) No 200/2010.
Broilers: point 2 of the Annex of Commission Regulation (EC) No 200/2012 of 8 MArch 2012 implementing Regulation (EC) No 2160/2003 of the European Parliament and of the Council as regards a Community target for the reduction of the prevalence of Salmonella enteritidis and Salmonella typhimurium in broilers.

Turkeys: following points 1 and 2 of the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

Procedures for the selection of isolates for antimicrobial testing

Following ponit 2 of the Annex of Commision Decision 2007/407/CE, on a harmonized monitoring scheme of antimicrobial resistance in Salmonella in fowl (Gallus gallus) and pigs.

Methods used for collecting data

Following article 2 of Commision Decision 2007/407/CE, on a harmonized monitoring scheme of antimicrobial resistance in Salmonella in fowl (Gallus gallus) and pigs.

Laboratory methodology used for identification of the microbial isolates

Laying hens: following point 3 of the Annex of Commission Regulation (EC) No 517/2011
Breeding hens: ollowing point 3 of the Annex of Commission Regulation (EC) No 200/2010
Broilers: point 3 of the Annex of Commission Regulation (EC) No 200/2012 of 8 March 2012 implementing Regulation (EC) No 2160/2003 of the European Parliament and of the Council as regards a Community target for the reduction of the prevalence of Salmonella enteritidis and Salmonella typhimurium in broilers.

Turkeys: following the Annex of Commission Regulation (EC) 584/2008 as regards a Community target for the reduction of the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys.

Laboratory used for detection for resistance

Antimicrobials included in monitoring

Following point 4 of the Annex of Commision Decision 2007/407/CE, on a harmonized monitoring scheme of antimicrobial resistance in Salmonella in fowl (Gallus gallus) and pigs.

Cut-off values used in testing

Following point 4 of the Annex of Commision Decision 2007/407/CE, on a harmonized monitoring scheme of antimicrobial resistance in Salmonella in fowl (Gallus gallus) and pigs.

Preventive measures in place

Article 2 of Commission Regulation (EC) No 1177/2006 of 1 August 2006 implementing Regulation (EC) No 2160/2003 of the European Parliament and of the Council as regards requirements for the use of specific control methods in the framework of the national programmes for the control of salmonella in poultry.

Control program/mechanisms

The control program/strategies in place

Spanish control programmes on Salmonella in breeding flocks of Gallus gallus, laying hens, broilers and turkeys 2012.

Recent actions taken to control the zoonoses

Spanish control programmes of Salmonella in breeding flocks of Gallus gallus, laying hens, broilers and turkeys 2012.

Measures in case of the positive findings or single cases

Spanish control programmes of Salmonella in breeding flocks of Gallus gallus, laying hens, broilers and turkeys 2012.

Notification system in place

Spanish control programmes of Salmonella in breeding flocks of Gallus gallus, laying hens, broilers and turkeys 2012.

Results of the investigation

Laying hens: 151 isolates tested
Broilers: 28 isolates tested
Fattening Turkeys: 169 isolates tested
Breeding Turkeys: 0 isolates tested

Table Antimicrobial susceptibility testing of Salmonella in meat from bovine animals

Salmonella	S. Typhimurium		S. 1,4,[5],12:i:-		S. Dublin		S. Infantis		Salmonella spp.	
Isolates out of a monitoring program (yes/no)									no	
Number of isolates available in the laboratory									44	
Antimicrobials:	N	n	N	n	N	n	N	n	N	n
Aminoglycosides - Gentamicin									44	1
Aminoglycosides - Kanamycin									40	0
Aminoglycosides - Streptomycin									40	2
Amphenicols - Chloramphenicol									40	1
Amphenicols - Florfenicol									4	0
Cephalosporins - 3rd generation cephalosporins									8	0
Fluoroquinolones - Ciprofloxacin									43	0
Penicillins - Ampicillin									44	5
Quinolones - Nalidixic acid									44	6
Sulfonamides									34	2
Tetracyclines - Tetracycline									39	2
Trimethoprim									1	0
Fully sensitive									44	36
Resistant to 1 antimicrobial									44	2
Resistant to 2 antimicrobials									44	4
Resistant to 3 antimicrobials									44	0
Resistant to 4 antimicrobials									44	2
Resistant to >4 antimicrobials									44	0
Cephalosporins - Cefotaxime									29	0

Table Antimicrobial susceptibility testing of Salmonella in meat from bovine animals

Salmonella	S. Typhimurium		S. 1,4,[5],12:i:-		S. Dublin		S. Infantis		Salmonella spp.	
Isolates out of a monitoring program (yes/no)									no	
Number of isolates available in the laboratory									44	
Antimicrobials:	N	n	N	n	N	n	N	n	N	n
Penicillins - Amoxicillin / Clavulanic acid									29	0
Trimethoprim + Sulfonamides									43	0

Footnote:

Source of information: Public Health Services of the Autonomous Communities.

Table Antimicrobial susceptibility testing of Salmonella in meat from pig

Salmonella	S. Typhimurium		S. 1,4,[5],12:i:-		S. Derby		S. Agona		Salmonella spp.	
Isolates out of a monitoring program (yes/no)									no	
Number of isolates available in the laboratory									67	
Antimicrobials:	N	n	N	n	N	n	N	n	N	n
Aminoglycosides - Gentamicin									67	0
Aminoglycosides - Kanamycin									51	0
Aminoglycosides - Neomycin									10	0
Aminoglycosides - Streptomycin									51	22
Amphenicols - Chloramphenicol									51	13
Amphenicols - Florfenicol									4	1
Cephalosporins - 3rd generation cephalosporins									30	0
Fluoroquinolones - Ciprofloxacin									50	0
Fluoroquinolones - Enrofloxacin									10	0
Penicillins - Ampicillin									67	29
Quinolones - Nalidixic acid									67	7
Sulfonamides									37	26
Tetracyclines - Tetracycline									51	44
Trimethoprim									29	4
Fully sensitive									67	15
Resistant to 1 antimicrobial									67	11
Resistant to 2 antimicrobials									67	14
Resistant to 3 antimicrobials									67	10
Resistant to 4 antimicrobials									67	10

Table Antimicrobial susceptibility testing of Salmonella in meat from pig

Salmonella	S. Typhimurium		S. 1,4,[5],12:i:-		S. Derby		S. Agona		Salmonella spp.	
Isolates out of a monitoring program (yes/no)									no	
Number of isolates available in the laboratory									67	
Antimicrobials:	N	n	N	n	N	n	N	n	N	n
Resistant to >4 antimicrobials									67	7
Aminoglycosides - Amikacin									2	0
Carbapenems - Imipenem									2	0
Cephalosporins - Cefotaxime									18	1
Penicillins - Amoxicillin / Clavulanic acid									8	0
Trimethoprim + Sulfonamides									48	4

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of Salmonella in meat from broilers (Gallus gallus)

Salmonella	S. Enteritidis		S. Typhimurium		S. 1,4,[5],12:i:-		S. Java		S. Agona		S. Virchow		S. Hadar		S. Kentucky		S. Infantis		Salmonella spp.	
Isolates out of a monitoring program (yes/no)																			no	
Number of isolates available in the laboratory																			40	
Antimicrobials:	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n
Aminoglycosides - Gentamicin																			40	1
Aminoglycosides - Kanamycin																			22	0
Aminoglycosides - Streptomycin																			22	2
Amphenicols - Chloramphenicol																			22	0
Amphenicols - Florfenicol																			2	0
Cephalosporins - 3rd generation cephalosporins																			21	1
Fluoroquinolones - Ciprofloxacin																			40	1
Fluoroquinolones - Enrofloxacin																			1	1
Penicillins - Ampicillin																			40	4
Quinolones - Nalidixic acid																			40	7
Sulfonamides																			8	1
Tetracyclines - Tetracycline																			22	4
Trimethoprim																			4	0
Fully sensitive																			40	31
Resistant to 1 antimicrobial																			40	5
Resistant to 2 antimicrobials																			40	0
Resistant to 3 antimicrobials																			40	1
Resistant to 4 antimicrobials																			40	2
Resistant to >4 antimicrobials																			40	1

Table Antimicrobial susceptibility testing of Salmonella in meat from broilers (Gallus gallus)

Salmonella	S. Enteritidis		S. Typhimurium		S. 1,4,[5],12:i:-		S. Java		S. Agona		S. Virchow		S. Hadar		S. Kentucky		S. Infantis		Salmonella spp.	
Isolates out of a monitoring program (yes/no)																			no	
Number of isolates available in the laboratory																			40	
Antimicrobials:	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n
Cephalosporins - Cefotaxime																			9	1
Penicillins - Amoxicillin / Clavulanic acid																			7	0
Trimethoprim + Sulfonamides																			39	0

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of Salmonella in meat from other poultry species

Salmonella	S. Enteritidis		S. Typhimurium		S. 1,4,[5],12:i:-		S. Agona		S. Virchow		S. Hadar		S. Kentucky		S. Infantis		Salmonella spp.	
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	N	n	N	n	N	n	N	n
Aminoglycosides - Gentamicin																	19	0
Aminoglycosides - Kanamycin																	19	0
Aminoglycosides - Neomycin																	7	0
Aminoglycosides - Streptomycin																	19	8
Amphenicols - Chloramphenicol																	19	1
Amphenicols - Florfenicol																	12	0
Cephalosporins - 3rd generation cephalosporins																	19	0
Fluoroquinolones - Ciprofloxacin																	19	11
Fluoroquinolones - Enrofloxacin																	7	0
Penicillins - Ampicillin																	19	1
Quinolones - Nalidixic acid																	19	17
Sulfonamides																	19	0
Tetracyclines - Tetracycline																	19	7
Trimethoprim																	19	1
Fully sensitive																	19	1
Resistant to 1 antimicrobial																	19	0
Resistant to 2 antimicrobials																	19	11
Resistant to 3 antimicrobials																	19	6
Resistant to 4 antimicrobials																	19	0

Table Antimicrobial susceptibility testing of Salmonella in meat from other poultry species

Salmonella	S. Enteritidis		S. Typhimurium		S. 1,4,[5],12:i:-		S. Agona		S. Virchow		S. Hadar		S. Kentucky		S. Infantis		Salmonella spp.	
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	N	n	N	n	N	n	N	n
Resistant to >4 antimicrobials																	19	1
Aminoglycosides - Amikacin																	12	0
Carbapenems - Imipenem																	12	0
Cephalosporins - Cefotaxime																	19	0
Penicillins - Amoxicillin / Clavulanic acid																	12	0
Trimethoprim + Sulfonamides																	7	0

Footnote:

Source of information: Public Health Services of the Autonomous Communities.

Table Antimicrobial susceptibility testing of Salmonella in Egg products

Salmonella	Salmonella spp.	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	44	
Antimicrobials:	N	n
Aminoglycosides - Gentamicin	44	0
Aminoglycosides - Kanamycin	38	0
Aminoglycosides - Neomycin	4	0
Aminoglycosides - Streptomycin	44	2
Amphenicols - Chloramphenicol	44	0
Amphenicols - Florfenicol	34	0
Cephalosporins - 3rd generation cephalosporins	44	0
Cephalosporins - Cefotaxime	44	0
Fluoroquinolones - Ciprofloxacin	44	23
Fluoroquinolones - Enrofloxacin	4	0
Penicillins - Ampicillin	44	1
Quinolones - Nalidixic acid	44	30
Sulfonamides	44	1
Tetracyclines - Tetracycline	44	1
Trimethoprim	44	0
Aminoglycosides - Amikacin	34	0
Carbapenems - Ertapenem	6	0
Carbapenems - Imipenem	40	0
Carbapenems - Meropenem	6	0

Table Antimicrobial susceptibility testing of Salmonella in Egg products

Salmonella	Salmonella spp.	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	44	
Antimicrobials:	N	n
Fluoroquinolones - Levofloxacin	6	0
Fully sensitive	44	12
Penicillins - Amoxicillin / Clavulanic acid	40	0
Resistant to 1 antimicrobial	44	8
Resistant to 2 antimicrobials	44	23
Resistant to 3 antimicrobials	44	0
Resistant to 4 antimicrobials	44	1
Resistant to >4 antimicrobials	44	0
Trimethoprim + Sulfonamides	10	0

Footnote:

Source of information: Public Health Services of the Autonomous Communities and National Reference Laboratory.

Table Antimicrobial susceptibility testing of Salmonella in Fishery products, unspecified

Salmonella	Salmonella spp.	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	4	
Antimicrobials:	N	n
Aminoglycosides - Gentamicin	4	0
Aminoglycosides - Kanamycin	4	0
Aminoglycosides - Streptomycin	4	1
Amphenicols - Chloramphenicol	4	0
Penicillins - Ampicillin	4	0
Quinolones - Nalidixic acid	4	3
Sulfonamides	4	2
Tetracyclines - Tetracycline	4	2
Trimethoprim	4	0
Fully sensitive	4	1
Resistant to 1 antimicrobial	4	1
Resistant to 2 antimicrobials	4	0
Resistant to 3 antimicrobials	4	1
Resistant to 4 antimicrobials	4	1
Resistant to >4 antimicrobials	4	0

Footnote:

Source of information: Public Health Services of the Autonomous Communities.

Table Antimicrobial susceptibility testing of Salmonella in Meat, mixed meat

Salmonella	Salmonella spp.	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	27	
Antimicrobials:	N	n
Aminoglycosides - Gentamicin	27	2
Aminoglycosides - Kanamycin	27	1
Aminoglycosides - Streptomycin	26	13
Amphenicols - Chloramphenicol	27	2
Amphenicols - Florfenicol	23	0
Cephalosporins - 3rd generation cephalosporins	24	0
Cephalosporins - Cefotaxime	27	0
Fluoroquinolones - Ciprofloxacin	27	11
Fluoroquinolones - Enrofloxacin	1	1
Penicillins - Ampicillin	27	12
Quinolones - Nalidixic acid	27	14
Sulfonamides	27	11
Tetracyclines - Tetracycline	25	10
Trimethoprim	24	0
Aminoglycosides - Amikacin	23	0
Carbapenems - Imipenem	23	0
Fully sensitive	27	1
Penicillins - Amoxicillin / Clavulanic acid	26	1
Resistant to 1 antimicrobial	27	3

Table Antimicrobial susceptibility testing of Salmonella in Meat, mixed meat

Salmonella	Salmonella spp.	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	27	
Antimicrobials:	N	n
Resistant to 2 antimicrobials	27	10
Resistant to 3 antimicrobials	27	2
Resistant to 4 antimicrobials	27	8
Resistant to >4 antimicrobials	27	3
Trimethoprim + Sulfonamides	4	0

Footnote:

Source os information: Public Health Services of the Autonomous Communities.

Table Antimicrobial susceptibility testing of S. Enteritidis - 9 in Egg products (5 mayonnaise sauce and 1 egg.) - quantitative data [Diffusion method]

Zone diameter (mm), number of isolates with a zone of inhibition equal to

9	Egg products (5 mayonnaise sauce and 1 egg.)																									
Isolates out of a monitoring program (yes/no)	yes																									
Number of isolates available in the laboratory	6																									
Antimicrobials:	Cut-off value	N	n	<=4	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Aminoglycosides - Gentamicin	12	6	0														1		1				1	2	1	
Aminoglycosides - Streptomycin	11	6	0												1			3	2							
Amphenicols - Chloramphenicol	12	6	0																				1		2	2
Cephalosporins - Cefotaxime	22	6	0																							
Fluoroquinolones - Ciprofloxacin	15	6	0																							
Penicillins - Ampicillin	13	6	0																1					4		1
Quinolones - Nalidixic acid	13	6	6	6																						
Sulfonamides	12	6	0																		1			3	2	
Tetracyclines - Tetracycline	11	6	0															1	2	1	1	1				
Trimethoprim	10	6	0																		1		1	3		1
Aminoglycosides - Amikacin	14	6	0																1	1				2	1	1
Aminoglycosides - Tobramycin	12	6	0												1	1				1	1		2			
Carbapenems - Ertapenem	18	6	0																							
Carbapenems - Imipenem	19	6	0																							
Carbapenems - Meropenem	19	6	0																							
Cephalosporins - Cefepime	14	6	0																							
Fluoroquinolones - Levofloxacin	13	6	0																					5	1	
Penicillins - Amoxicillin / Clavulanic acid	13	6	0																							

Table Antimicrobial susceptibility testing of S. Enteritidis - 9 in Egg products (5 mayonnaise sauce and 1 egg.) - quantitative data [Diffusion method]

9	Egg products (5 mayonnaise sauce and 1 egg.)																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	6																								
Antimicrobials:	Cut-off value	N	n	<=4	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Penicillins - Ampicillin / Sulbactum	11	6	0																1					4		1
Penicillins - Piperacillin	17	6	0																							
Trimethoprim + Sulfonamides	10	6	0																1							4

9	Egg products (5 mayonnaise sauce and 1 egg.)								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	6								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									
Amphenicols - Chloramphenicol	1								
Cephalosporins - Cefotaxime							2	2	2
Fluoroquinolones - Ciprofloxacin		1	3	1	1				
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides									
Tetracyclines - Tetracycline									
Trimethoprim									
Aminoglycosides - Amikacin									

Table Antimicrobial susceptibility testing of S. Enteritidis - 9 in Egg products (5 mayonnaise sauce and 1 egg.) - quantitative data [Diffusion method]

9	Egg products (5 mayonnaise sauce and 1 egg.)								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	6								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Tobramycin									
Carbapenems - Ertapenem									6
Carbapenems - Imipenem			1			2	3		
Carbapenems - Meropenem								2	4
Cephalosporins - Cefepime								2	4
Fluoroquinolones - Levofloxacin									
Penicillins - Amoxicillin / Clavulanic acid		2	4						
Penicillins - Ampicillin / Sulbactum									
Penicillins - Piperacillin		2	4						
Trimethoprim + Sulfonamides	1								

Footnote:

Source of information: National Reference Laboratory.

Table Antimicrobial susceptibility testing of S. London in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. London	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										1	1												
Aminoglycosides - Kanamycin	4	2	1													1	1									
Aminoglycosides - Streptomycin	32	2	0														1	1								
Amphenicols - Chloramphenicol	16	2	0														2									
Amphenicols - Florfenicol	16	2	0													2										
Cephalosporins - Cefotaxime	0.5	2	0							2																
Fluoroquinolones - Ciprofloxacin	0.06	2	0				1		1																	
Penicillins - Ampicillin	4	2	0											2												
Quinolones - Nalidixic acid	16	2	0													2										
Tetracyclines - Tetracycline	8	2	0												2											
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	0									2														
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	0																	1	1					

Table Antimicrobial susceptibility testing of S. London in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. London	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Kapemba in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Kapemba	Pigs - fattening pigs - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	2																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0											2												
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	2																	1	1					
Amphenicols - Chloramphenicol	16	2	0														2									
Amphenicols - Florfenicol	16	2	0													2										
Cephalosporins - Cefotaxime	0.5	2	0								1	1														
Fluoroquinolones - Ciprofloxacin	0.06	2	2										2													
Penicillins - Ampicillin	4	2	2																2							
Quinolones - Nalidixic acid	16	2	2																	2						
Tetracyclines - Tetracycline	8	2	2																	2						
Trimethoprim	2	2	2																2							
Cephalosporins - Ceftazidim	2	2	0										1	1												
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	2																						2	

Table Antimicrobial susceptibility testing of S. Kapemba in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Kapemba	Pigs - fattening pigs - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Bredeney in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Bredeney	Pigs - fattening pigs - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	2																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	1										1				1									
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	1															1			1					
Amphenicols - Chloramphenicol	16	2	1														1			1						
Amphenicols - Florfenicol	16	2	1													1				1						
Cephalosporins - Cefotaxime	0.5	2	0							1	1															
Fluoroquinolones - Ciprofloxacin	0.06	2	0						1	1																
Penicillins - Ampicillin	4	2	2																2							
Quinolones - Nalidixic acid	16	2	0													2										
Tetracyclines - Tetracycline	8	2	1												1					1						
Trimethoprim	2	2	2																2							
Cephalosporins - Ceftazidim	2	2	0									2														
Polymyxins - Colistin	2	2	2													2										
Sulfonamides - Sulfamethoxazol	256	2	2																						2	

Table Antimicrobial susceptibility testing of S. Bredeney in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Bredeney	Pigs - fattening pigs - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Thompson in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Thompson	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	1														1									
Aminoglycosides - Streptomycin	32	1	0																1							
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																	1						

Table Antimicrobial susceptibility testing of S. Thompson in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Thompson	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Rissen in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Rissen	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory													3													
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	3	0										1	2												
Aminoglycosides - Kanamycin	4	3	0													3										
Aminoglycosides - Streptomycin	32	3	1																2		1					
Amphenicols - Chloramphenicol	16	3	3																	3						
Amphenicols - Florfenicol	16	3	0														3									
Cephalosporins - Cefotaxime	0.5	3	0								2	1														
Fluoroquinolones - Ciprofloxacin	0.06	3	0				1		2																	
Penicillins - Ampicillin	4	3	3																3							
Quinolones - Nalidixic acid	16	3	0													3										
Tetracyclines - Tetracycline	8	3	3																	3						
Trimethoprim	2	3	3																3							
Cephalosporins - Ceftazidim	2	3	0										3													
Polymyxins - Colistin	2	3	0												3											
Sulfonamides - Sulfamethoxazol	256	3	3																						3	

Table Antimicrobial susceptibility testing of S. Rissen in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Rissen	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Montevideo in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Montevideo	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory													1													
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	1																		1					
Amphenicols - Chloramphenicol	16	1	0													1										
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. Montevideo in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Montevideo	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Typhimurium	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory													1													
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	1																		1					
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0									1														
Fluoroquinolones - Ciprofloxacin	0.06	1	0							1																
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	0														1									
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	1																						1	

Table Antimicrobial susceptibility testing of S. Typhimurium in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Typhimurium	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Typhimurium, monophasic	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory													1													
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	1																		1					
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	1																						1	

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Typhimurium, monophasic	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Enteritidis	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										2													
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	0													1	1									
Amphenicols - Chloramphenicol	16	2	0														2									
Amphenicols - Florfenicol	16	2	0													1	1									
Cephalosporins - Cefotaxime	0.5	2	0							1	1															
Fluoroquinolones - Ciprofloxacin	0.06	2	2									2														
Penicillins - Ampicillin	4	2	0											1	1											
Quinolones - Nalidixic acid	16	2	2																	2						
Tetracyclines - Tetracycline	8	2	0												2											
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	0									1	1													
Polymyxins - Colistin	2	2	2													2										
Sulfonamides - Sulfamethoxazol	256	2	0																1	1						

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Enteritidis	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Mikawasima in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Mikawasima	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0																1							
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	1										1													
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	0															1								
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. Mikawasima in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Mikawasima	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Kentucky in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Kentucky	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	5	2										2	1				1	1							
Aminoglycosides - Kanamycin	4	5	1													4			1							
Aminoglycosides - Streptomycin	32	5	1															1	3	1						
Amphenicols - Chloramphenicol	16	5	0														5									
Amphenicols - Florfenicol	16	5	0													4	1									
Cephalosporins - Cefotaxime	0.5	5	0							1	3	1														
Fluoroquinolones - Ciprofloxacin	0.06	5	3				1		1								3									
Penicillins - Ampicillin	4	5	2											1	2				2							
Quinolones - Nalidixic acid	16	5	3													2				3						
Tetracyclines - Tetracycline	8	5	2												3			1		1						
Trimethoprim	2	5	0										5													
Cephalosporins - Ceftazidim	2	5	0									1	2	2												
Polymyxins - Colistin	2	5	0												5											
Sulfonamides - Sulfamethoxazol	256	5	2																1	2					2	

Table Antimicrobial susceptibility testing of S. Kentucky in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Kentucky	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Lille in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Lille	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory													1													
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0															1								

Table Antimicrobial susceptibility testing of S. Lille in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Lille	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Derby in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Derby	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory														2												
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										1	1												
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	2																		2					
Amphenicols - Chloramphenicol	16	2	0														2									
Amphenicols - Florfenicol	16	2	0													1	1									
Cephalosporins - Cefotaxime	0.5	2	0								2															
Fluoroquinolones - Ciprofloxacin	0.06	2	0				2																			
Penicillins - Ampicillin	4	2	0											2												
Quinolones - Nalidixic acid	16	2	0													2										
Tetracyclines - Tetracycline	8	2	2																	2						
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	0										2													
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	2																						2	

Table Antimicrobial susceptibility testing of S. Derby in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Derby	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	2	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Hadar in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Hadar	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0											2												
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	2																		2					
Amphenicols - Chloramphenicol	16	2	0													2										
Amphenicols - Florfenicol	16	2	0													2										
Cephalosporins - Cefotaxime	0.5	2	1								1			1												
Fluoroquinolones - Ciprofloxacin	0.06	2	2									2														
Penicillins - Ampicillin	4	2	1												1				1							
Quinolones - Nalidixic acid	16	2	2																	2						
Tetracyclines - Tetracycline	8	2	2																	2						
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	1									1					1									
Polymyxins - Colistin	2	2	1												1	1										
Sulfonamides - Sulfamethoxazol	256	2	0																2							

Table Antimicrobial susceptibility testing of S. Hadar in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Hadar	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. 6,7:-:1,5 in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. 6,7:-:1,5	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	5	0									3	2													
Aminoglycosides - Kanamycin	4	5	0													5										
Aminoglycosides - Streptomycin	32	5	0														4	1								
Amphenicols - Chloramphenicol	16	5	0															5								
Amphenicols - Florfenicol	16	5	0														1	4								
Cephalosporins - Cefotaxime	0.5	5	0								1	1	3													
Fluoroquinolones - Ciprofloxacin	0.06	5	5										3	2												
Penicillins - Ampicillin	4	5	0												1	4										
Quinolones - Nalidixic acid	16	5	5																	5						
Tetracyclines - Tetracycline	8	5	0												5											
Trimethoprim	2	5	0											5												
Cephalosporins - Ceftazidim	2	5	0									1	4													
Polymyxins - Colistin	2	5	0												5											
Sulfonamides - Sulfamethoxazol	256	5	0																3	2						

Table Antimicrobial susceptibility testing of S. 6,7:-:1,5 in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. 6,7:-:1,5	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Typhimurium, monophasic	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	unknown																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	4	1										1	2					1							
Aminoglycosides - Kanamycin	4	4	2													2	1				1					
Aminoglycosides - Streptomycin	32	4	4																		4					
Amphenicols - Chloramphenicol	16	4	1														3			1						
Amphenicols - Florfenicol	16	4	1													2	1			1						
Cephalosporins - Cefotaxime	0.5	4	0							3		1														
Fluoroquinolones - Ciprofloxacin	0.06	4	1				1		2						1											
Penicillins - Ampicillin	4	4	4																4							
Quinolones - Nalidixic acid	16	4	1													2	1		1							
Tetracyclines - Tetracycline	8	4	4																	4						
Trimethoprim	2	4	1										2	1					1							
Cephalosporins - Ceftazidim	2	4	0									4														
Polymyxins - Colistin	2	4	0												4											
Sulfonamides - Sulfamethoxazol	256	4	2																	1	1		1		1	

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Typhimurium, monophasic	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. London in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. London	Pigs - fattening pigs - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory													1													
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	1															1								
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	1																		1					
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	1									1														
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	1																	1						
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																	1						

Table Antimicrobial susceptibility testing of S. London in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. London	Pigs - fattening pigs - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Kentucky in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Kentucky	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	1																1							
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	1																	1						
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	1														1									
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	1																	1						
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0											1												
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	1																						1	

Table Antimicrobial susceptibility testing of S. Kentucky in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Kentucky	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Derby in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Derby	Pigs - fattening pigs - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory													7													
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	7	0										4	3												
Aminoglycosides - Kanamycin	4	7	0													7										
Aminoglycosides - Streptomycin	32	7	1														2	2	2		1					
Amphenicols - Chloramphenicol	16	7	1													2	4			1						
Amphenicols - Florfenicol	16	7	0													3	4									
Cephalosporins - Cefotaxime	0.5	7	1								6					1										
Fluoroquinolones - Ciprofloxacin	0.06	7	1				6					1														
Penicillins - Ampicillin	4	7	1											5	1				1							
Quinolones - Nalidixic acid	16	7	1													6				1						
Tetracyclines - Tetracycline	8	7	7																3	4						
Trimethoprim	2	7	1										6						1							
Cephalosporins - Ceftazidim	2	7	1										6				1									
Polymyxins - Colistin	2	7	0												7											
Sulfonamides - Sulfamethoxazol	256	7	2																3	2					2	

Table Antimicrobial susceptibility testing of S. Derby in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Derby	Pigs - fattening pigs - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	7	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Virchow in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Virchow	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0											1	1											
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	0															2								
Amphenicols - Chloramphenicol	16	2	0												1		1									
Amphenicols - Florfenicol	16	2	0													2										
Cephalosporins - Cefotaxime	0.5	2	0							1	1															
Fluoroquinolones - Ciprofloxacin	0.06	2	2										1			1										
Penicillins - Ampicillin	4	2	0											1	1											
Quinolones - Nalidixic acid	16	2	2																	2						
Tetracyclines - Tetracycline	8	2	0												2											
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	0									2														
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	0																1	1						

Table Antimicrobial susceptibility testing of S. Virchow in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Virchow	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. 6,7:-:1,5 in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. 6,7:-:1,5	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0									1														
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0															1								
Amphenicols - Florfenicol	16	1	0															1								
Cephalosporins - Cefotaxime	0.5	1	0									1														
Fluoroquinolones - Ciprofloxacin	0.06	1	1										1													
Penicillins - Ampicillin	4	1	0													1										
Quinolones - Nalidixic acid	16	1	1																	1						
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0											1												
Cephalosporins - Ceftazidim	2	1	0											1												
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. 6,7:-:1,5 in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. 6,7:-:1,5	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. 4,5:b in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. 4,5:b	Pigs - fattening pigs - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory													1													
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0																1							
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0												1											
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. 4,5:b in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. 4,5:b	Pigs - fattening pigs - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Havana in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Havana	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0												1											
Amphenicols - Chloramphenicol	16	1	0													1										
Amphenicols - Florfenicol	16	1	0												1											
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																				
Penicillins - Ampicillin	4	1	0										1													
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0														1									

Table Antimicrobial susceptibility testing of S. Havana in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Havana	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Muenchen in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Muenchen	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	1																		1					
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	1									1														
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	1																	1						
Tetracyclines - Tetracycline	8	1	1																1							
Trimethoprim	2	1	1																1							
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	1																						1	

Table Antimicrobial susceptibility testing of S. Muenchen in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Muenchen	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Kentucky in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Kentucky	Pigs - fattening pigs - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory													1													
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0														1									
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. Kentucky in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Kentucky	Pigs - fattening pigs - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Brikama in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Brikama	Pigs - fattening pigs - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory													1													
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0													1										
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	1									1														
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	1																	1						
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. Brikama in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Brikama	Pigs - fattening pigs - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	1	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Rissen in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Rissen	Pigs - fattening pigs - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	13																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	13	0										4	9												
Aminoglycosides - Kanamycin	4	13	2													11	2									
Aminoglycosides - Streptomycin	32	13	4														3	4	2	2	2					
Amphenicols - Chloramphenicol	16	13	1														11	1	1							
Amphenicols - Florfenicol	16	13	0													2	10	1								
Cephalosporins - Cefotaxime	0.5	13	0								13															
Fluoroquinolones - Ciprofloxacin	0.06	13	1				8		4				1													
Penicillins - Ampicillin	4	13	5											5	3				5							
Quinolones - Nalidixic acid	16	13	0													12	1									
Tetracyclines - Tetracycline	8	13	13																	13						
Trimethoprim	2	13	4										8	1					4							
Cephalosporins - Ceftazidim	2	13	0									2	10	1												
Polymyxins - Colistin	2	13	0												13											
Sulfonamides - Sulfamethoxazol	256	13	4																	9					4	

Table Antimicrobial susceptibility testing of S. Rissen in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Rissen	Pigs - fattening pigs - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	13	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Montevideo in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Montevideo	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0												1											
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																	1						

Table Antimicrobial susceptibility testing of S. Montevideo in Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Montevideo	Gallus gallus (fowl) - broilers - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Typhimurium	Pigs - fattening pigs - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	6																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	6	0										3	3												
Aminoglycosides - Kanamycin	4	6	0													6										
Aminoglycosides - Streptomycin	32	6	2															3	1	1	1					
Amphenicols - Chloramphenicol	16	6	1													1	4			1						
Amphenicols - Florfenicol	16	6	0													4	1	1								
Cephalosporins - Cefotaxime	0.5	6	1							2	3			1												
Fluoroquinolones - Ciprofloxacin	0.06	6	2				1		2	1		2														
Penicillins - Ampicillin	4	6	5											1					5							
Quinolones - Nalidixic acid	16	6	2													3	1			2						
Tetracyclines - Tetracycline	8	6	4												2			1		3						
Trimethoprim	2	6	0										6													
Cephalosporins - Ceftazidim	2	6	0									4	2													
Polymyxins - Colistin	2	6	0												6											
Sulfonamides - Sulfamethoxazol	256	6	3															1	2						3	

Table Antimicrobial susceptibility testing of S. Typhimurium in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Typhimurium	Pigs - fattening pigs - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	6	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Typhimurium, monophasic	Pigs - fattening pigs - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory		14																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	14	3										6	5					3							
Aminoglycosides - Kanamycin	4	14	4													10	3	1								
Aminoglycosides - Streptomycin	32	14	12															1	1	2	10					
Amphenicols - Chloramphenicol	16	14	3													1	10			3						
Amphenicols - Florfenicol	16	14	0												1	9	2	2								
Cephalosporins - Cefotaxime	0.5	14	1							5	8					1										
Fluoroquinolones - Ciprofloxacin	0.06	14	2				6		6				2													
Penicillins - Ampicillin	4	14	12											2					12							
Quinolones - Nalidixic acid	16	14	1													10	2	1		1						
Tetracyclines - Tetracycline	8	14	14																	14						
Trimethoprim	2	14	4										10						4							
Cephalosporins - Ceftazidim	2	14	0									11	2		1											
Polymyxins - Colistin	2	14	0												14											
Sulfonamides - Sulfamethoxazol	256	14	13																	1					13	

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Pigs - fattening pigs - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Typhimurium, monophasic	Pigs - fattening pigs - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	14	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of Not typeable in Meat from broilers (Gallus gallus) - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

Not typeable	Meat from broilers (Gallus gallus)																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	33																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	9	33	1										5	3	10	6	8	1								
Aminoglycosides - Kanamycin	8	15	0										3	7		5										
Aminoglycosides - Streptomycin	16	15	2												2	3	8		2							
Amphenicols - Chloramphenicol	16	15	0										4	2		4	5									
Amphenicols - Florfenicol	16	2	0													2										
Cephalosporins - 3rd generation cephalosporins	34	21	1												6		9	5		1						
Cephalosporins - Cefotaxime	5	2	1										1				1									
Fluoroquinolones - Ciprofloxacin	2.5	33	1									8	15	9		1										
Penicillins - Ampicillin	18	33	4									5	3	10	4	2	5	0	4							
Quinolones - Nalidixic acid	24	33	7									3	2	2		8	11		5	2						
Tetracyclines - Tetracycline	8	15	4									3			1	2	5	2	1	1						
Trimethoprim	2																									
Trimethoprim + Sulfonamides	2.5	33	0									3	7	9	14											

Table Antimicrobial susceptibility testing of Not typeable in Meat from broilers (Gallus gallus) - quantitative data [Dilution method]

Not typeable	Meat from broilers (Gallus gallus)	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	33	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	2.25	288
Aminoglycosides - Kanamycin		
Aminoglycosides - Streptomycin		
Amphenicols - Chloramphenicol	17	544
Amphenicols - Florfenicol	16	512
Cephalosporins - 3rd generation cephalosporins	2.06	132
Cephalosporins - Cefotaxime	0.676	48
Fluoroquinolones - Ciprofloxacin	0.072	72
Penicillins - Ampicillin	4.566	544
Quinolones - Nalidixic acid	36.016	832
Tetracyclines - Tetracycline	9.016	768
Trimethoprim	12	1280
Trimethoprim + Sulfonamides		

Footnote:

Source of information: Public Health Services of the Autonomous Communities.
Salmonella spp. not typeable.

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

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

Salmonella spp., unspecified	Meat from bovine animals																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	14																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	9	14	0										3	2	1	5	3									
Aminoglycosides - Kanamycin	8	10	0											2	5	3										
Aminoglycosides - Streptomycin	16	10	0											1	4	3	2									
Amphenicols - Chloramphenicol	16	10	0											3	3		4									
Amphenicols - Florfenicol	16	4	0											1	1	2										
Cephalosporins - 3rd generation cephalosporins	34	8	0												3		2	1	2							
Fluoroquinolones - Ciprofloxacin	2.5	14	0									3	2	3	6											
Penicillins - Ampicillin	18	14	4												2	1	4	3	3	1						
Quinolones - Nalidixic acid	24	14	4												1	4		5	1	1	2					
Tetracyclines - Tetracycline	8	10	1										2	5		2		1								
Trimethoprim + Sulfonamides	2.5	14	0						1	2	1	1	4	2	3											

Salmonella spp., unspecified	Meat from bovine animals	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	14	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin		
Aminoglycosides - Kanamycin		

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

Salmonella spp., unspecified	Meat from bovine animals	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	14	
Antimicrobials:	lowest	highest
Aminoglycosides - Streptomycin		
Amphenicols - Chloramphenicol		
Amphenicols - Florfenicol		
Cephalosporins - 3rd generation cephalosporins		
Fluoroquinolones - Ciprofloxacin		
Penicillins - Ampicillin		
Quinolones - Nalidixic acid		
Tetracyclines - Tetracycline		
Trimethoprim + Sulfonamides		

Footnote:

Source of information: Public Health Services of the Autonomous Communities.

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

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

Salmonella spp., unspecified	Meat from pig																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	34																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	9	32	0						1	1	4	1	2	8	5	4	6									
Aminoglycosides - Kanamycin	8	18	0									1	6	3	5	1	2									
Aminoglycosides - Streptomycin	16	18	1												2	1	8	6	1							
Amphenicols - Chloramphenicol	16	18	8												4	1	2	3	5	2	1					
Fluoroquinolones - Ciprofloxacin	2.5	34	0							1	1	1	9	14	8											
Penicillins - Ampicillin	18	34	12									3	1	1	5	4	2	6	4	4	1	1	1	1		
Quinolones - Nalidixic acid	24	34	4												4	7	9	10	2	2						
Tetracyclines - Tetracycline	8	18	12												1	2	3	5	2	3	2					
Trimethoprim + Sulfonamides	2.5	32	1									6	7	9	9	1										

Salmonella spp., unspecified	Meat from pig	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	34	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin		
Aminoglycosides - Kanamycin		
Aminoglycosides - Streptomycin		
Amphenicols - Chloramphenicol		

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

Salmonella spp., unspecified	Meat from pig	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	34	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin		
Penicillins - Ampicillin		
Quinolones - Nalidixic acid		
Tetracyclines - Tetracycline		
Trimethoprim + Sulfonamides		

Footnote:

Source of information: Public Health Services of the Autonomous Communities.

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

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

Salmonella spp., unspecified	Eggs																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	34																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	9	34	0									10		8	7	5	4									
Aminoglycosides - Streptomycin	16	34	2					1	1	1	1	2	3	5	9	4	2	3	2							
Amphenicols - Chloramphenicol	16	34	0					1	1	4	1	10	5	3	1	2	4	2								
Amphenicols - Florfenicol	16	34	0			3	1	6	2	1	1	4	2	2	4	2	4	2								
Cephalosporins - 3rd generation cephalosporins	34	34	0			1	3	5	2	1	1	4	2	4	1		2	3	5							
Fluoroquinolones - Ciprofloxacin	2.5	34	23										4		7	5	7	9	2							
Penicillins - Ampicillin	18	35	1					4	2	2	3		5	6	6	4		2	1							
Quinolones - Nalidixic acid	24	34	24													3	2	5	9	7	4	4				
Sulfonamides	256	34	1														2	3	10	7	6	5	1			
Tetracyclines - Tetracycline	8	34	1	1	2	1	1	1	1	1	1	5	4	2	3	4	6	1								

Salmonella spp., unspecified	Eggs	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	34	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin		
Aminoglycosides - Streptomycin		
Amphenicols - Chloramphenicol		

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

Salmonella spp., unspecified	Eggs	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	34	
Antimicrobials:	lowest	highest
Amphenicols - Florfenicol		
Cephalosporins - 3rd generation cephalosporins		
Fluoroquinolones - Ciprofloxacin		
Penicillins - Ampicillin		
Quinolones - Nalidixic acid		
Sulfonamides		
Tetracyclines - Tetracycline		

Footnote:

Source of information: Public Health Services of the Autonomous Communities.

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Industry sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Typhimurium, monophasic	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	1																		1					
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	1																						1	

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Industry sampling - animal sample - faeces - quantitative data [Dilution method]

S. Typhimurium, monophasic	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Enteritidis	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	8	0									2	5	1												
Aminoglycosides - Kanamycin	4	8	2													6	1				1					
Aminoglycosides - Streptomycin	32	8	0												1	6	1									
Amphenicols - Chloramphenicol	16	8	0												1	1	6									
Amphenicols - Florfenicol	16	8	0													8										
Cephalosporins - Cefotaxime	0.5	8	0							2	6															
Fluoroquinolones - Ciprofloxacin	0.06	8	4			1			3			4														
Penicillins - Ampicillin	4	8	2											2	4				2							
Quinolones - Nalidixic acid	16	8	4													4				4						
Tetracyclines - Tetracycline	8	8	1											2	5				1							
Trimethoprim	2	8	1										5	1	1				1							
Cephalosporins - Ceftazidim	2	8	0									6	2													
Polymyxins - Colistin	2	8	4												4	4										
Sulfonamides - Sulfamethoxazol	256	8	1																1	6					1	

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Enteritidis	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Havana in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Havana	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0									1														
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0															1								

Table Antimicrobial susceptibility testing of S. Havana in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Havana	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. London in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. London	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	15	0										6	9												
Aminoglycosides - Kanamycin	4	15	15																		15					
Aminoglycosides - Streptomycin	32	15	5															1	9	5						
Amphenicols - Chloramphenicol	16	15	14															1	1	13						
Amphenicols - Florfenicol	16	15	0														5	10								
Cephalosporins - Cefotaxime	0.5	15	0							6	8	1														
Fluoroquinolones - Ciprofloxacin	0.06	15	8			1	4		2			6	2													
Penicillins - Ampicillin	4	15	15																15							
Quinolones - Nalidixic acid	16	15	0													7	1	7								
Tetracyclines - Tetracycline	8	15	9											5	1					9						
Trimethoprim	2	15	8										6	1					8							
Cephalosporins - Ceftazidim	2	15	0									13	2													
Polymyxins - Colistin	2	15	0												15											
Sulfonamides - Sulfamethoxazol	256	15	15																						15	

Table Antimicrobial susceptibility testing of S. London in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. London	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Altona in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Altona	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										1	1												
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	0														1	1								
Amphenicols - Chloramphenicol	16	2	0														2									
Amphenicols - Florfenicol	16	2	0													1	1									
Cephalosporins - Cefotaxime	0.5	2	0							1	1															
Fluoroquinolones - Ciprofloxacin	0.06	2	0						2																	
Penicillins - Ampicillin	4	2	0											2												
Quinolones - Nalidixic acid	16	2	0													2										
Tetracyclines - Tetracycline	8	2	0												2											
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	0									1	1													
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	0																	1	1					

Table Antimicrobial susceptibility testing of S. Altona in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Altona	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Kentucky in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Kentucky	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	2																2							
Aminoglycosides - Kanamycin	4	2	1													1					1					
Aminoglycosides - Streptomycin	32	2	2																	1	1					
Amphenicols - Chloramphenicol	16	2	1														1			1						
Amphenicols - Florfenicol	16	2	0													1	1									
Cephalosporins - Cefotaxime	0.5	2	0								2															
Fluoroquinolones - Ciprofloxacin	0.06	2	2														2									
Penicillins - Ampicillin	4	2	1											1					1							
Quinolones - Nalidixic acid	16	2	2																	2						
Tetracyclines - Tetracycline	8	2	2																	2						
Trimethoprim	2	2	1										1						1							
Cephalosporins - Ceftazidim	2	2	0										2													
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	2																						2	

Table Antimicrobial susceptibility testing of S. Kentucky in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Kentucky	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Bredeney in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Bredeney	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0											2												
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	0															2								
Amphenicols - Chloramphenicol	16	2	0														2									
Amphenicols - Florfenicol	16	2	0													2										
Cephalosporins - Cefotaxime	0.5	2	0							2																
Fluoroquinolones - Ciprofloxacin	0.06	2	0				1		1																	
Penicillins - Ampicillin	4	2	0										1	1												
Quinolones - Nalidixic acid	16	2	0													1	1									
Tetracyclines - Tetracycline	8	2	1												1					1						
Trimethoprim	2	2	1										1						1							
Cephalosporins - Ceftazidim	2	2	0									2														
Polymyxins - Colistin	2	2	1												1	1										
Sulfonamides - Sulfamethoxazol	256	2	1																1						1	

Table Antimicrobial susceptibility testing of S. Bredeney in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Bredeney	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Agona in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Agona	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0														1									
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																		1					

Table Antimicrobial susceptibility testing of S. Agona in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Agona	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Thompson in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Thompson	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. Thompson in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Thompson	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Cubana in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Cubana	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																		1					

Table Antimicrobial susceptibility testing of S. Cubana in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Cubana	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Derby in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Derby	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	105	1										26	72	6	1										
Aminoglycosides - Kanamycin	4	105	105																	2	103					
Aminoglycosides - Streptomycin	32	105	10													6	18	24	47	10						
Amphenicols - Chloramphenicol	16	105	67													1	34	3	5	62						
Amphenicols - Florfenicol	16	105	30													26	14	35	22	8						
Cephalosporins - Cefotaxime	0.5	105	0							7	56	40	2													
Fluoroquinolones - Ciprofloxacin	0.06	105	101				1		2	1		50	43	8												
Penicillins - Ampicillin	4	105	105																105							
Quinolones - Nalidixic acid	16	105	8													3	14	80	7	1						
Tetracyclines - Tetracycline	8	105	105																	105						
Trimethoprim	2	105	104										1				1		103							
Cephalosporins - Ceftazidim	2	105	0									5	82	18												
Polymyxins - Colistin	2	105	1												104	1										
Sulfonamides - Sulfamethoxazol	256	105	105																						105	

Table Antimicrobial susceptibility testing of S. Derby in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Derby	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Rissen in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Rissen	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0											1												
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																	1						

Table Antimicrobial susceptibility testing of S. Rissen in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Rissen	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Wisbech in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Wisbech	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	1																	1						
Amphenicols - Chloramphenicol	16	1	1																	1						
Amphenicols - Florfenicol	16	1	1																1							
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	1									1														
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	1																	1						
Tetracyclines - Tetracycline	8	1	1															1								
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	1																						1	

Table Antimicrobial susceptibility testing of S. Wisbech in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Wisbech	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Hadar in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Hadar	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	20	0										4	15	1											
Aminoglycosides - Kanamycin	4	20	18													2					18					
Aminoglycosides - Streptomycin	32	20	19																1	5	14					
Amphenicols - Chloramphenicol	16	20	1													2	14	3		1						
Amphenicols - Florfenicol	16	20	1													7	11	1	1							
Cephalosporins - Cefotaxime	0.5	20	0								8	11	1													
Fluoroquinolones - Ciprofloxacin	0.06	20	20									2	14	4												
Penicillins - Ampicillin	4	20	19												1				19							
Quinolones - Nalidixic acid	16	20	20																	20						
Tetracyclines - Tetracycline	8	20	19													1				19						
Trimethoprim	2	20	1										12	6	1			1								
Cephalosporins - Ceftazidim	2	20	0									5	14	1												
Polymyxins - Colistin	2	20	0												20											
Sulfonamides - Sulfamethoxazol	256	20	1															4	14	1					1	

Table Antimicrobial susceptibility testing of S. Hadar in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Hadar	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. 4,12:b:- in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. 4,12:b:-	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0																1							
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0												1											
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. 4,12:b:- in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. 4,12:b:-	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Ohio in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Ohio	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	8	0										2	6												
Aminoglycosides - Kanamycin	4	8	1													7	1									
Aminoglycosides - Streptomycin	32	8	0													1	6	1								
Amphenicols - Chloramphenicol	16	8	0													3	5									
Amphenicols - Florfenicol	16	8	0													5	3									
Cephalosporins - Cefotaxime	0.5	8	0							3	4	1														
Fluoroquinolones - Ciprofloxacin	0.06	8	0				5		2	1																
Penicillins - Ampicillin	4	8	0										1	6	1											
Quinolones - Nalidixic acid	16	8	0													8										
Tetracyclines - Tetracycline	8	8	1												6	1				1						
Trimethoprim	2	8	0										7	1												
Cephalosporins - Ceftazidim	2	8	0									3	5													
Polymyxins - Colistin	2	8	0												8											
Sulfonamides - Sulfamethoxazol	256	8	0																3	4	1					

Table Antimicrobial susceptibility testing of S. Ohio in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Ohio	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Typhimurium, monophasic	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										1	1												
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	2																		2					
Amphenicols - Chloramphenicol	16	2	0														1	1								
Amphenicols - Florfenicol	16	2	0														1	1								
Cephalosporins - Cefotaxime	0.5	2	0								1	1														
Fluoroquinolones - Ciprofloxacin	0.06	2	1						1						1											
Penicillins - Ampicillin	4	2	2																2							
Quinolones - Nalidixic acid	16	2	1													1				1						
Tetracyclines - Tetracycline	8	2	2																	2						
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	0									1	1													
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	2																						2	

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Typhimurium, monophasic	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. London in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Industry sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. London	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	1																		1					
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	1																	1						
Amphenicols - Florfenicol	16	1	0															1								
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0			1																				
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	1																						1	

Table Antimicrobial susceptibility testing of S. London in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Industry sampling - animal sample - faeces - quantitative data [Dilution method]

S. London	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Kentucky in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Kentucky	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0											2												
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	0															2								
Amphenicols - Chloramphenicol	16	2	0														2									
Amphenicols - Florfenicol	16	2	0													2										
Cephalosporins - Cefotaxime	0.5	2	0								2															
Fluoroquinolones - Ciprofloxacin	0.06	2	0						2																	
Penicillins - Ampicillin	4	2	0											2												
Quinolones - Nalidixic acid	16	2	0													2										
Tetracyclines - Tetracycline	8	2	0												2											
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	0										2													
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	0																2							

Table Antimicrobial susceptibility testing of S. Kentucky in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Kentucky	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Agona in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Agona	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	2													2										
Aminoglycosides - Kanamycin	4	2	2														1	1								
Aminoglycosides - Streptomycin	32	2	1																1		1					
Amphenicols - Chloramphenicol	16	2	1															1	1							
Amphenicols - Florfenicol	16	2	1														1		1							
Cephalosporins - Cefotaxime	0.5	2	2													2										
Fluoroquinolones - Ciprofloxacin	0.06	2	2										2													
Penicillins - Ampicillin	4	2	2																2							
Quinolones - Nalidixic acid	16	2	0															2								
Tetracyclines - Tetracycline	8	2	2																1	1						
Trimethoprim	2	2	2																2							
Cephalosporins - Ceftazidim	2	2	0											1	1											
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	2																						2	

Table Antimicrobial susceptibility testing of S. Agona in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Agona	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Senftenberg in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Senftenberg	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	1									1														
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	1																	1						
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. Senftenberg in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Senftenberg	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Dabou in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Dabou	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0													1										
Amphenicols - Chloramphenicol	16	1	0													1										
Amphenicols - Florfenicol	16	1	0												1											
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0											1												
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. Dabou in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Dabou	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Derby in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Industry sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Derby	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	unknown																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1											
Aminoglycosides - Kanamycin	4	1	1																		1				
Aminoglycosides - Streptomycin	32	1	0															1							
Amphenicols - Chloramphenicol	16	1	1																1						
Amphenicols - Florfenicol	16	1	0															1							
Cephalosporins - Cefotaxime	0.5	1	0								1														
Fluoroquinolones - Ciprofloxacin	0.06	1	1									1													
Penicillins - Ampicillin	4	1	1																1						
Quinolones - Nalidixic acid	16	1	0															1							
Tetracyclines - Tetracycline	8	1	1																	1					
Trimethoprim	2	1	1																1						
Cephalosporins - Ceftazidim	2	1	0										1												
Polymyxins - Colistin	2	1	0												1										
Sulfonamides - Sulfamethoxazol	256	1	1																					1	

Table Antimicrobial susceptibility testing of S. Derby in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Industry sampling - animal sample - faeces - quantitative data [Dilution method]

S. Derby	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Virchow in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Virchow	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										1	1												
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	0														2									
Amphenicols - Chloramphenicol	16	2	0													2										
Amphenicols - Florfenicol	16	2	0													2										
Cephalosporins - Cefotaxime	0.5	2	0							2																
Fluoroquinolones - Ciprofloxacin	0.06	2	1				1					1														
Penicillins - Ampicillin	4	2	0											2												
Quinolones - Nalidixic acid	16	2	0													1	1									
Tetracyclines - Tetracycline	8	2	0												2											
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	0									2														
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	0																2							

Table Antimicrobial susceptibility testing of S. Virchow in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Virchow	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Dembe in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Dembe	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	unknown																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	1																		1					
Aminoglycosides - Streptomycin	32	1	0																1							
Amphenicols - Chloramphenicol	16	1	1																	1						
Amphenicols - Florfenicol	16	1	0															1								
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	1									1														
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	0															1								
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	1																1							
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	1																						1	

Table Antimicrobial susceptibility testing of S. Dembe in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Dembe	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Montevideo in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Montevideo	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. Montevideo in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Montevideo	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Ohio in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Ohio	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										2													
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	0														1		1							
Amphenicols - Chloramphenicol	16	2	0														2									
Amphenicols - Florfenicol	16	2	0													2										
Cephalosporins - Cefotaxime	0.5	2	0								2															
Fluoroquinolones - Ciprofloxacin	0.06	2	0				1		1																	
Penicillins - Ampicillin	4	2	0											2												
Quinolones - Nalidixic acid	16	2	0													2										
Tetracyclines - Tetracycline	8	2	1												1					1						
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	0										2													
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	0																1	1						

Table Antimicrobial susceptibility testing of S. Ohio in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Ohio	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Typhimurium	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										2													
Aminoglycosides - Kanamycin	4	2	1													1	1									
Aminoglycosides - Streptomycin	32	2	2																		2					
Amphenicols - Chloramphenicol	16	2	1														1			1						
Amphenicols - Florfenicol	16	2	1														1			1						
Cephalosporins - Cefotaxime	0.5	2	0								2															
Fluoroquinolones - Ciprofloxacin	0.06	2	1				1					1														
Penicillins - Ampicillin	4	2	1											1					1							
Quinolones - Nalidixic acid	16	2	1													1				1						
Tetracyclines - Tetracycline	8	2	1												1					1						
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	0									2														
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	2																						2	

Table Antimicrobial susceptibility testing of S. Typhimurium in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Typhimurium	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Enteritidis	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	34	0									3	26	5												
Aminoglycosides - Kanamycin	4	34	0													34										
Aminoglycosides - Streptomycin	32	34	0												2	26	4	2								
Amphenicols - Chloramphenicol	16	34	0													14	20									
Amphenicols - Florfenicol	16	34	0												1	31	2									
Cephalosporins - Cefotaxime	0.5	34	0							17	15	2														
Fluoroquinolones - Ciprofloxacin	0.06	34	6				17		11		1	4	1													
Penicillins - Ampicillin	4	34	0											26	8											
Quinolones - Nalidixic acid	16	34	6													26	2			6						
Tetracyclines - Tetracycline	8	34	0											9	25											
Trimethoprim	2	34	0										31	2	1											
Cephalosporins - Ceftazidim	2	34	0									30	4													
Polymyxins - Colistin	2	34	11												23	11										
Sulfonamides - Sulfamethoxazol	256	34	0																6	24	4					

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Enteritidis	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Livingstone in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Livingstone	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										2													
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	0														2									
Amphenicols - Chloramphenicol	16	2	0														2									
Amphenicols - Florfenicol	16	2	0													1	1									
Cephalosporins - Cefotaxime	0.5	2	0							2																
Fluoroquinolones - Ciprofloxacin	0.06	2	0				1		1																	
Penicillins - Ampicillin	4	2	0											2												
Quinolones - Nalidixic acid	16	2	0													2										
Tetracyclines - Tetracycline	8	2	0												2											
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	0									2														
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	0																	1	1					

Table Antimicrobial susceptibility testing of S. Livingstone in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Livingstone	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. London in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. London	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																	1						

Table Antimicrobial susceptibility testing of S. London in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. London	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Mbandaka in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Mbandaka	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0											2												
Aminoglycosides - Kanamycin	4	2	1													1	1									
Aminoglycosides - Streptomycin	32	2	0															2								
Amphenicols - Chloramphenicol	16	2	0														2									
Amphenicols - Florfenicol	16	2	0														2									
Cephalosporins - Cefotaxime	0.5	2	0								2															
Fluoroquinolones - Ciprofloxacin	0.06	2	0				2																			
Penicillins - Ampicillin	4	2	0											1	1											
Quinolones - Nalidixic acid	16	2	0													2										
Tetracyclines - Tetracycline	8	2	0												2											
Trimethoprim	2	2	0										1	1												
Cephalosporins - Ceftazidim	2	2	0										2													
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	0																	1	1					

Table Antimicrobial susceptibility testing of S. Mbandaka in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Mbandaka	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Anatum in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Anatum	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0																1							
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																	1						

Table Antimicrobial susceptibility testing of S. Anatum in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Anatum	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Kentucky in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Kentucky	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	2																2							
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	2																	2						
Amphenicols - Chloramphenicol	16	2	0													1	1									
Amphenicols - Florfenicol	16	2	0													2										
Cephalosporins - Cefotaxime	0.5	2	0								2															
Fluoroquinolones - Ciprofloxacin	0.06	2	2														2									
Penicillins - Ampicillin	4	2	2																2							
Quinolones - Nalidixic acid	16	2	2																	2						
Tetracyclines - Tetracycline	8	2	2																	2						
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	0											2												
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	2																						2	

Table Antimicrobial susceptibility testing of S. Kentucky in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Kentucky	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Cerro in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Cerro	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0														1									
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0											1												
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																	1						

Table Antimicrobial susceptibility testing of S. Cerro in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Cerro	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Agona in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Industry sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Agona	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																	1						

Table Antimicrobial susceptibility testing of S. Agona in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Industry sampling - animal sample - faeces - quantitative data [Dilution method]

S. Agona	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Senftenberg in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Senftenberg	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																	1						

Table Antimicrobial susceptibility testing of S. Senftenberg in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Senftenberg	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Cubana in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Cubana	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0														1									
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0											1												
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. Cubana in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Cubana	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of Salmonella spp., unspecified in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

Salmonella spp., unspecified	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0													1										
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																		1					

Table Antimicrobial susceptibility testing of Salmonella spp., unspecified in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Salmonella spp., unspecified	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Rissen in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Rissen	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										1	1												
Aminoglycosides - Kanamycin	4	2	0													2										
Aminoglycosides - Streptomycin	32	2	0														2									
Amphenicols - Chloramphenicol	16	2	0													1	1									
Amphenicols - Florfenicol	16	2	0													1	1									
Cephalosporins - Cefotaxime	0.5	2	0							1	1															
Fluoroquinolones - Ciprofloxacin	0.06	2	0				1		1																	
Penicillins - Ampicillin	4	2	0											2												
Quinolones - Nalidixic acid	16	2	0													2										
Tetracyclines - Tetracycline	8	2	0												2											
Trimethoprim	2	2	0										2													
Cephalosporins - Ceftazidim	2	2	0										2													
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	0																	1		1				

Table Antimicrobial susceptibility testing of S. Rissen in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Rissen	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. 1,3,19:-:- in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. 1,3,19:-:-	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. 1,3,19:-:- in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. 1,3,19:-:-	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Infantis in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Infantis	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	13	0										9	4												
Aminoglycosides - Kanamycin	4	13	2													11	2									
Aminoglycosides - Streptomycin	32	13	0														4	6	3							
Amphenicols - Chloramphenicol	16	13	0													1	10	2								
Amphenicols - Florfenicol	16	13	0													3	9	1								
Cephalosporins - Cefotaxime	0.5	13	0								12		1													
Fluoroquinolones - Ciprofloxacin	0.06	13	1				3		7	2		1														
Penicillins - Ampicillin	4	13	0											7	5	1										
Quinolones - Nalidixic acid	16	13	1													10	2			1						
Tetracyclines - Tetracycline	8	13	0												11	2										
Trimethoprim	2	13	1										9	1	2				1							
Cephalosporins - Ceftazidim	2	13	0									1	11	1												
Polymyxins - Colistin	2	13	0												13											
Sulfonamides - Sulfamethoxazol	256	13	1																2	9	1				1	

Table Antimicrobial susceptibility testing of S. Infantis in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Infantis	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Corvallis in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Corvallis	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	7	0									1	6													
Aminoglycosides - Kanamycin	4	7	1													6	1									
Aminoglycosides - Streptomycin	32	7	0													2	5									
Amphenicols - Chloramphenicol	16	7	0													1	6									
Amphenicols - Florfenicol	16	7	0													7										
Cephalosporins - Cefotaxime	0.5	7	0							3	4															
Fluoroquinolones - Ciprofloxacin	0.06	7	0				6		1																	
Penicillins - Ampicillin	4	7	0											5	2											
Quinolones - Nalidixic acid	16	7	0													7										
Tetracyclines - Tetracycline	8	7	0												7											
Trimethoprim	2	7	0										7													
Cephalosporins - Ceftazidim	2	7	0									4	3													
Polymyxins - Colistin	2	7	0												7											
Sulfonamides - Sulfamethoxazol	256	7	0																3	3	1					

Table Antimicrobial susceptibility testing of S. Corvallis in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Corvallis	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Typhimurium	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0												1											
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																	1						

Table Antimicrobial susceptibility testing of S. Typhimurium in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Typhimurium	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Typhimurium, monophasic	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	2	0										1	1												
Aminoglycosides - Kanamycin	4	2	1													1					1					
Aminoglycosides - Streptomycin	32	2	2																		2					
Amphenicols - Chloramphenicol	16	2	0														2									
Amphenicols - Florfenicol	16	2	0													2										
Cephalosporins - Cefotaxime	0.5	2	0							2																
Fluoroquinolones - Ciprofloxacin	0.06	2	0						2																	
Penicillins - Ampicillin	4	2	2																2							
Quinolones - Nalidixic acid	16	2	0													2										
Tetracyclines - Tetracycline	8	2	2																	2						
Trimethoprim	2	2	1										1						1							
Cephalosporins - Ceftazidim	2	2	0									2														
Polymyxins - Colistin	2	2	0												2											
Sulfonamides - Sulfamethoxazol	256	2	2																						2	

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Typhimurium, monophasic	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - environmental sample - boot swabs - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Enteritidis	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0														1									
Amphenicols - Chloramphenicol	16	1	0													1										
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	1									1														
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	1																	1						
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	1													1										
Sulfonamides - Sulfamethoxazol	256	1	0																	1						

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - environmental sample - boot swabs - quantitative data [Dilution method]

S. Enteritidis	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Livingstone in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Livingstone	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	4	0										2	2												
Aminoglycosides - Kanamycin	4	4	0													4										
Aminoglycosides - Streptomycin	32	4	0														4									
Amphenicols - Chloramphenicol	16	4	0													1	3									
Amphenicols - Florfenicol	16	4	0													2	2									
Cephalosporins - Cefotaxime	0.5	4	0							4																
Fluoroquinolones - Ciprofloxacin	0.06	4	0				2		2																	
Penicillins - Ampicillin	4	4	0											3		1										
Quinolones - Nalidixic acid	16	4	0													3	1									
Tetracyclines - Tetracycline	8	4	2												2					2						
Trimethoprim	2	4	0										4													
Cephalosporins - Ceftazidim	2	4	0									4														
Polymyxins - Colistin	2	4	0												4											
Sulfonamides - Sulfamethoxazol	256	4	0																2		2					

Table Antimicrobial susceptibility testing of S. Livingstone in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Livingstone	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. London in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. London	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	unknown																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	1																		1					
Aminoglycosides - Streptomycin	32	1	0																1							
Amphenicols - Chloramphenicol	16	1	1																	1						
Amphenicols - Florfenicol	16	1	0														1									
Cephalosporins - Cefotaxime	0.5	1	0									1														
Fluoroquinolones - Ciprofloxacin	0.06	1	1										1													
Penicillins - Ampicillin	4	1	1																1							
Quinolones - Nalidixic acid	16	1	0															1								
Tetracyclines - Tetracycline	8	1	1																	1						
Trimethoprim	2	1	1																1							
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	1																						1	

Table Antimicrobial susceptibility testing of S. London in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. London	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Indiana in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - environmental sample - boot swabs - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Indiana	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0																1							
Amphenicols - Chloramphenicol	16	1	0													1										
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	1									1														
Penicillins - Ampicillin	4	1	0										1													
Quinolones - Nalidixic acid	16	1	1																	1						
Tetracyclines - Tetracycline	8	1	0											1												
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0															1								

Table Antimicrobial susceptibility testing of S. Indiana in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - Official sampling - environmental sample - boot swabs - quantitative data [Dilution method]

S. Indiana	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Braenderup in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Braenderup	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	3	0										1	2												
Aminoglycosides - Kanamycin	4	3	0													3										
Aminoglycosides - Streptomycin	32	3	0															1	2							
Amphenicols - Chloramphenicol	16	3	0													3										
Amphenicols - Florfenicol	16	3	0													3										
Cephalosporins - Cefotaxime	0.5	3	0							3																
Fluoroquinolones - Ciprofloxacin	0.06	3	3									3														
Penicillins - Ampicillin	4	3	0											3												
Quinolones - Nalidixic acid	16	3	0														1	2								
Tetracyclines - Tetracycline	8	3	0											1	2											
Trimethoprim	2	3	0										3													
Cephalosporins - Ceftazidim	2	3	0									3														
Polymyxins - Colistin	2	3	0												3											
Sulfonamides - Sulfamethoxazol	256	3	0																1	1	1					

Table Antimicrobial susceptibility testing of S. Braenderup in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Braenderup	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Newport in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Newport	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																		1					

Table Antimicrobial susceptibility testing of S. Newport in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Newport	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Agona in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Agona	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	3	0										3													
Aminoglycosides - Kanamycin	4	3	0													3										
Aminoglycosides - Streptomycin	32	3	0														1	1	1							
Amphenicols - Chloramphenicol	16	3	0														3									
Amphenicols - Florfenicol	16	3	0														3									
Cephalosporins - Cefotaxime	0.5	3	0								3															
Fluoroquinolones - Ciprofloxacin	0.06	3	0				2		1																	
Penicillins - Ampicillin	4	3	0											3												
Quinolones - Nalidixic acid	16	3	0													3										
Tetracyclines - Tetracycline	8	3	0												3											
Trimethoprim	2	3	0										3													
Cephalosporins - Ceftazidim	2	3	0									1	2													
Polymyxins - Colistin	2	3	0												3											
Sulfonamides - Sulfamethoxazol	256	3	0																	3						

Table Antimicrobial susceptibility testing of S. Agona in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Agona	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Soerenga in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Soerenga	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0													1										
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0											1												
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. Soerenga in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Soerenga	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Senftenberg in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Senftenberg	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	5	0										2	3												
Aminoglycosides - Kanamycin	4	5	0													5										
Aminoglycosides - Streptomycin	32	5	0															4	1							
Amphenicols - Chloramphenicol	16	5	0														5									
Amphenicols - Florfenicol	16	5	0													3	2									
Cephalosporins - Cefotaxime	0.5	5	0								4	1														
Fluoroquinolones - Ciprofloxacin	0.06	5	0						5																	
Penicillins - Ampicillin	4	5	0											4	1											
Quinolones - Nalidixic acid	16	5	0													5										
Tetracyclines - Tetracycline	8	5	0												5											
Trimethoprim	2	5	0										5													
Cephalosporins - Ceftazidim	2	5	0										5													
Polymyxins - Colistin	2	5	0												5											
Sulfonamides - Sulfamethoxazol	256	5	0																1	4						

Table Antimicrobial susceptibility testing of S. Senftenberg in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Senftenberg	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Dabou in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Dabou	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	5	0										1	4												
Aminoglycosides - Kanamycin	4	5	0													5										
Aminoglycosides - Streptomycin	32	5	0												1	3	1									
Amphenicols - Chloramphenicol	16	5	0												1	2	2									
Amphenicols - Florfenicol	16	5	0												1	4										
Cephalosporins - Cefotaxime	0.5	5	0							4	1															
Fluoroquinolones - Ciprofloxacin	0.06	5	0				5																			
Penicillins - Ampicillin	4	5	0										1	4												
Quinolones - Nalidixic acid	16	5	0													5										
Tetracyclines - Tetracycline	8	5	1											1	3					1						
Trimethoprim	2	5	0										4	1												
Cephalosporins - Ceftazidim	2	5	0									5														
Polymyxins - Colistin	2	5	0												5											
Sulfonamides - Sulfamethoxazol	256	5	0																4	1						

Table Antimicrobial susceptibility testing of S. Dabou in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Dabou	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Derby in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Derby	Turkeys - fattening flocks - before slaughter - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	12	0										9	2	1											
Aminoglycosides - Kanamycin	4	12	12																		12					
Aminoglycosides - Streptomycin	32	12	2													1	2	1	6	1	1					
Amphenicols - Chloramphenicol	16	12	7														4	1		7						
Amphenicols - Florfenicol	16	12	2													3	1	6	2							
Cephalosporins - Cefotaxime	0.5	12	0							1	6	4	1													
Fluoroquinolones - Ciprofloxacin	0.06	12	12									6	5	1												
Penicillins - Ampicillin	4	12	12																12							
Quinolones - Nalidixic acid	16	12	2														1	9	1	1						
Tetracyclines - Tetracycline	8	12	12																	12						
Trimethoprim	2	12	11											1					11							
Cephalosporins - Ceftazidim	2	12	0										8	3	1											
Polymyxins - Colistin	2	12	0												12											
Sulfonamides - Sulfamethoxazol	256	12	11																	1					11	

Table Antimicrobial susceptibility testing of S. Derby in Turkeys - fattening flocks - before slaughter - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

S. Derby	Turkeys - fattening flocks - before slaughter - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Goldcoast in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Goldcoast	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0										1													
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0													1										
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0								1															
Fluoroquinolones - Ciprofloxacin	0.06	1	0						1																	
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0										1													
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. Goldcoast in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Goldcoast	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Brandenburg in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Brandenburg	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0															1								
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	1									1														
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0															1								
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																1							

Table Antimicrobial susceptibility testing of S. Brandenburg in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Brandenburg	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Montevideo in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Montevideo	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	1	0											1												
Aminoglycosides - Kanamycin	4	1	0													1										
Aminoglycosides - Streptomycin	32	1	0																1							
Amphenicols - Chloramphenicol	16	1	0														1									
Amphenicols - Florfenicol	16	1	0													1										
Cephalosporins - Cefotaxime	0.5	1	0							1																
Fluoroquinolones - Ciprofloxacin	0.06	1	0				1																			
Penicillins - Ampicillin	4	1	0											1												
Quinolones - Nalidixic acid	16	1	0													1										
Tetracyclines - Tetracycline	8	1	0												1											
Trimethoprim	2	1	0										1													
Cephalosporins - Ceftazidim	2	1	0									1														
Polymyxins - Colistin	2	1	0												1											
Sulfonamides - Sulfamethoxazol	256	1	0																	1						

Table Antimicrobial susceptibility testing of S. Montevideo in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Montevideo	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Corvallis in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Corvallis	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	14	0										8	5	1											
Aminoglycosides - Kanamycin	4	14	0													14										
Aminoglycosides - Streptomycin	32	14	0													9	5									
Amphenicols - Chloramphenicol	16	14	0													4	10									
Amphenicols - Florfenicol	16	14	0												1	11	2									
Cephalosporins - Cefotaxime	0.5	14	0							6	7		1													
Fluoroquinolones - Ciprofloxacin	0.06	14	1				9		4			1														
Penicillins - Ampicillin	4	14	0											9	4	1										
Quinolones - Nalidixic acid	16	14	1													12	1			1						
Tetracyclines - Tetracycline	8	14	0											1	12	1										
Trimethoprim	2	14	0										14													
Cephalosporins - Ceftazidim	2	14	0									9	4	1												
Polymyxins - Colistin	2	14	0												14											
Sulfonamides - Sulfamethoxazol	256	14	0																5	8	1					

Table Antimicrobial susceptibility testing of S. Corvallis in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Corvallis	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Antimicrobial susceptibility testing of S. Typhimurium in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

S. Typhimurium	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	unknown																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	4	0										3	1												
Aminoglycosides - Kanamycin	4	4	0													4										
Aminoglycosides - Streptomycin	32	4	0														1	1	2							
Amphenicols - Chloramphenicol	16	4	0													2	2									
Amphenicols - Florfenicol	16	4	0												1	3										
Cephalosporins - Cefotaxime	0.5	4	0							3	1															
Fluoroquinolones - Ciprofloxacin	0.06	4	0			1	2			1																
Penicillins - Ampicillin	4	4	0											3	1											
Quinolones - Nalidixic acid	16	4	0													4										
Tetracyclines - Tetracycline	8	4	0												4											
Trimethoprim	2	4	0										4													
Cephalosporins - Ceftazidim	2	4	0									4														
Polymyxins - Colistin	2	4	0												4											
Sulfonamides - Sulfamethoxazol	256	4	0																1	1	2					

Table Antimicrobial susceptibility testing of S. Typhimurium in Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes - Official sampling - animal sample - faeces - quantitative data [Dilution method]

S. Typhimurium	Gallus gallus (fowl) - laying hens - adult - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	unknown	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.25	32
Aminoglycosides - Kanamycin	4	128
Aminoglycosides - Streptomycin	2	128
Amphenicols - Chloramphenicol	2	64
Amphenicols - Florfenicol	2	64
Cephalosporins - Cefotaxime	0.06	4
Fluoroquinolones - Ciprofloxacin	0.008	8
Penicillins - Ampicillin	0.5	32
Quinolones - Nalidixic acid	4	64
Tetracyclines - Tetracycline	1	64
Trimethoprim	0.5	32
Cephalosporins - Ceftazidim	0.25	16
Polymyxins - Colistin	2	4
Sulfonamides - Sulfamethoxazol	8	1024

Table Cut-off values for antibiotic resistance testing of Salmonella in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		32	
Amphenicols	Chloramphenicol		16	
Cephalosporins	Cefotaxime		0.5	
Fluoroquinolones	Ciprofloxacin		0.06	
Penicillins	Ampicillin		4	
Quinolones	Nalidixic acid		16	
Sulfonamides	Sulfonamides		256	
Tetracyclines	Tetracycline		8	
Trimethoprim	Trimethoprim		2	

Table Cut-off values for antibiotic resistance testing of Salmonella in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		32	
Amphenicols	Chloramphenicol		16	
Cephalosporins	Cefotaxime		0.5	
Fluoroquinolones	Ciprofloxacin		0.06	
Penicillins	Ampicillin		4	
Quinolones	Nalidixic acid		16	
Sulfonamides	Sulfonamides		256	
Tetracyclines	Tetracycline		8	
Trimethoprim	Trimethoprim		2	

Table Cut-off values for antibiotic resistance testing of Salmonella in Food

Test Method Used
Disc diffusion Agar dilution

Standard methods used for testing
NCCLS/CLSI M02-A11, M100-S22 M100-S16

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin	NON-EFSA	9	12
	Kanamycin		8	
	Streptomycin	NON-EFSA	16	11
	Amikacin			14
	Tobramycin			12
Amphenicols	Chloramphenicol	EFSA	16	12
	Florfenicol		16	
Cephalosporins	3rd generation cephalosporins		34	
	Cefotaxime	NON-EFSA	5	22
	Cefepime			14
Fluoroquinolones	Ciprofloxacin	NON-EFSA	2.5	15
	Levofloxacin			13
Penicillins	Ampicillin	NON-EFSA	18	13

Table Cut-off values for antibiotic resistance testing of Salmonella in Food

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Penicillins	Amoxicillin / Clavulanic acid			13
	Ampicillin / Sulbactum			11
	Piperacillin			17
Quinolones	Nalidixic acid	NON-EFSA	24	13
Sulfonamides	Sulfonamides	EFSA	256	12
Tetracyclines	Tetracycline	EFSA	8	11
Trimethoprim	Trimethoprim	EFSA	2	10
Carbapenems	Ertapenem			18
	Imipenem			19
	Meropenem			19
Trimethoprim + Sulfonamides	Trimethoprim + Sulfonamides		2.5	10

Footnote:

Source of information: National Reference Laboratory and Public Health Services of the Autonomous Communities.

2.2 CAMPYLOBACTERIOSIS

2.2.1 General evaluation of the national situation

A. Thermophilic Campylobacter general evaluation

History of the disease and/or infection in the country

Campylobacter spp. is at the moment one of the most frequent causes of gastroenteritis in humans.Poultry are the main reservoir, and infection happens usually by consume of poultry meat. Until the end of the 60's importance of Campylobacter spp. was not valued.

Notification of the disease is also infravaluated in surveillance systems. Epidemiology investigations associated cases to poultry meat consume and a deficient handle of food.
The number of human cases in Spain is at the moment supported in the notifications made to Microbiology Information System (SIM).

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

Poultry meat is the main source of infection.Another food implicated are red meat, raw milk, non pasteurized cheese, and water.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

More studies need to de developed. In 2012, active monitoring programmes have been performed in broilers, cattle and pigs (national surveys).

Recent actions taken to control the zoonoses

Monitoring of the zoonoses according to Council Directive 2003/99/EEC.

2.2.2 Campylobacteriosis in humans

A. Thermophilic Campylobacter in humans

Reporting system in place for the human cases

In December of 1995 the National Network of Epidemiological Surveillance was created by law. This law and its development produced changes in the surveillance system. During 1997 the protocols of statutory notification of diseases were approved and implemented in Spain. In Spain the Autonomous Regions have wide powers with respect to epidemiological surveillance and national decisions are usually taken by consensus.

- Microbiological Information System
The Microbiological Information System has been based since 1989 on voluntary weekly reporting by clinical microbiology laboratories (principally hospital laboratories). Currently, in order to improve the notification, this procedure is becoming compulsory for a designated group of representative laboratories. The information in these reports is based on individual cases and includes the following variables: agent, time, place, age, sex, etc.

- Enter-net
Spain participates in Enter-net, an European network for the surveillance of human gastrointestinal infections. Enternet has monitored salmonellosis since 1994 and Vero cytotoxin producing Escherichia coli O157 since 1999. Each country participates with a microbiologist of the national reference laboratory (source of the data) and the epidemiologist responsible for national surveillance.

- Outbreak reporting
In Spain outbreaks are the main source of information for the foodborne diseases

Case definition

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Diagnostic/analytical methods used

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Notification system in place

Microbiological Information System
Outbreak reporting System

History of the disease and/or infection in the country

Campylobacter is the second most common cause of bacterial foodborne disease notified to public health authorities in Spain. Despite this, outbreaks of Campylobacter illness are rare in Spain.

Results of the investigation

Campylobacter may be transmitted by food, particularly poultry, unpasteurised milk and contaminated water. In 2012 the number of Campylobacter cases reported to the Microbiological information System was 5488, most of them C. jejuni.

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

In recent years Campylobacter has been the most frequently reported zoonotic agent.

Relevance as zoonotic disease

Campylobacter may be transmitted by food, particularly poultry, unpasteurised milk and contaminated water.

2.2.3 Campylobacter in foodstuffs

A. Thermophilic Campylobacter in Broiler meat and products thereof

Monitoring system

Sampling strategy

At slaughterhouse and cutting plant

The activities are made according to Regulation (EC) no 178/2002. (i.e. rapid alert system, traceability of food, feed, food-producing animals and all substances incorporated into foodstuffs) must be established at all stages of production, processing and distribution. To this end, business operators are required to apply appropriate systems and procedures.

Frequency of the sampling

At slaughterhouse and cutting plant

Sampling distributed evenly throughout the year

At meat processing plant

Sampling distributed evenly throughout the year

At retail

Sampling distributed evenly throughout the year

Type of specimen taken

At slaughterhouse and cutting plant

fresh meat and skin

At meat processing plant

fresh meat and skin

At retail

fresh meat and skin

Diagnostic/analytical methods used

At slaughterhouse and cutting plant

bacteriological method: ISO 10272:2006

At meat processing plant

Bacteriological method:ISO10272:2006

At retail

Bacteriological method: ISO 10272:2006

Table Campylobacter in other food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Campylobacter	C. coli	C. jejuni
Meat from pig - fresh - at slaughterhouse	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	14	8	1	1
Meat from pig - fresh - at processing plant	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	19	1	0	1
Meat from pig - fresh - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	10	1	1	0
Meat from bovine animals - fresh - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	42	1	0	1
Cheeses, made from unspecified milk or other animal milk - unspecified	F	Objective sampling	Official sampling	food sample	Unknown	Single		53	0		
Dairy products (excluding cheeses) (Ready to eat.)	F	Objective sampling	Official sampling	food sample > milk	Unknown	Single		1	0		
Meat from other animal species or not specified - fresh - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	32	3	2	1
Meat from other animal species or not specified - meat preparation	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	207	37	16	23
Meat from other animal species or not specified - minced meat	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	2	2	0	0
Meat from pig - meat products - at processing plant	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	29	1	0	1
Milk from other animal species or unspecified - raw milk	F	Objective sampling	Official sampling	food sample > milk	Unknown	Single		6	0		
Other processed food products and prepared dishes (Ready to eat.)	F	Objective sampling	Official sampling	food sample	Intra EU trade	Single	25 g	119	3	0	0

Table Campylobacter in other food

	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Meat from pig - fresh - at slaughterhouse			6
Meat from pig - fresh - at processing plant			0
Meat from pig - fresh - at retail			0
Meat from bovine animals - fresh - at retail			0
Cheeses, made from unspecified milk or other animal milk - unspecified			
Dairy products (excluding cheeses) (Ready to eat.)			
Meat from other animal species or not specified - fresh - at retail			0
Meat from other animal species or not specified - meat preparation			3
Meat from other animal species or not specified - minced meat			2
Meat from pig - meat products - at processing plant			0
Milk from other animal species or unspecified - raw milk			
Other processed food products and prepared dishes (Ready to eat.)			3

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.

Table Campylobacter in poultry meat

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Campylobacter	C. coli	C. jejuni
Meat from broilers (Gallus gallus) - carcase - at slaughterhouse	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	72	39	11	3
Meat from broilers (Gallus gallus) - fresh - at processing plant	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	29	4	0	0
Meat from broilers (Gallus gallus) - fresh - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	74	37	9	31
Meat from poultry, unspecified - carcase - at slaughterhouse	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	16	6	4	2
Meat from poultry, unspecified - fresh - at processing plant	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	4	0		
Meat from poultry, unspecified - fresh - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	19	3	1	1

	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Meat from broilers (Gallus gallus) - carcase - at slaughterhouse			25
Meat from broilers (Gallus gallus) - fresh - at processing plant			4
Meat from broilers (Gallus gallus) - fresh - at retail			9
Meat from poultry, unspecified - carcase - at slaughterhouse			

Table Campylobacter in poultry meat

	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Meat from poultry, unspecified - fresh - at processing plant			
Meat from poultry, unspecified - fresh - at retail			1

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.

2.2.4 Campylobacter in animals

A. Thermophilic Campylobacter in Gallus gallus

Monitoring system

Sampling strategy

Samples have been taken ramdomly (day of sampling each month) in 15 slaughterhouses (distribution of the samples according to capacity of sacrifice of each slaughterhouse) placed in different regions of Spain and representative of the total volume of sacrifice of the country.

Frequency of the sampling

At slaughter

between June and October

Type of specimen taken

At slaughter

Faeces

Methods of sampling (description of sampling techniques)

At slaughter

10 cloacal swabs samples have been taken from 10 animals of all the slaughter batches in the day of sampling, with a maximun of 30 batches by day of sampling. Each batch belonged to different flocks. Sampling has been performed in 15 slaughterhouses placed in the provinces of Alava, Alicante, Avila, Barcelona, Castellon, Madrid(2), Navarra, Orense, Pontevedra,Tarragona, Sevilla, Toledo and Lérida(2). These slaughterhouses have a high volume of activity, representing an important part of all the broilers sacrified in Spain.
A total of 1530 samples have been taken, belonging to 153 slaughter batches and 153 different holdings. Samples were refrigerated immediatly and sent to the laboratory and analyzed within 24 hours.

Case definition

At slaughter

A slaughter batch is considered positive for the purpose of this survey if Campylobacter spp. has been isolated from at least one of the 10 samples of the slaughter batch.

Diagnostic/analytical methods used

At slaughter

Other:isolation in agar mCCDA(Oxoid) and agar Campyfood (CFA, bioMerieux) and identification by PCR multiplex.

Vaccination policy

doesn't exist

Other preventive measures than vaccination in place

biosecurity measures, implementation of good higyene practices

Control program/mechanisms

The control program/strategies in place

doesn't exist

Results of the investigation

Number of slaughter batches tested: 153
Number of slaughter batches positive: 95
Slaughter batch prevalence: 62,1% Campylobacter spp.

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

Similar prevalence than in previous years.

Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

More studies need to be performed

B. thermophilic Campylobacter spp., unspecified in animal - Pigs - fattening pigs

Monitoring system

Frequency of the sampling

2 faecal samples by slaughter batch with 10 animals or more, with a maximun of 30 slaughter batches by slaughterhouse and day of sampling. Each batch belonged to different herds.
Sampling has been performed in 16 slaughterhouses placed in the provinces of Barcelona(2),Asturias, Ciudad Real, Murcia, Cuenca, Pontevedra, Burgos, Málaga, Gerona(2), León, Madrid, Huesca, Valencia and Lérida. These slaughterhouses have a high volume of activity, representing an important part of all the bovines sacrified in Spain.
A total of 326 samples have been taken, belonging to 163 slaughter batches and 163 different holdings.
Samples were refrigerated immediatly and sent to the laboratory and analyzed within 24 hours.
Samples taken from June to October

Type of specimen taken

Faeces

Methods of sampling (description of sampling techniques)

2 faecal material samples by slaughter batch and by holding

Case definition

a slaughter batch is considered as positive if isolation by bacteriological method and PCR identification

Diagnostic/analytical methods used

isolation in agar mCCDA(Oxoid) and agar Campyfood(bioMerieux) and identification by PCR multiplex

Vaccination policy

Doesn't exist

Results of the investigation

Number of slaughter batches tested: 163
Number of slaughter batches positive: 90
Slaughter batch prevalence: 55,2% Campylobacter spp.

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

Similar prevalence than in previous years

Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

More studies need to be developed

C. thermophilic Campylobacter spp., unspecified in animal - Cattle (bovine animals)

Monitoring system

Sampling strategy

Samples have been taken ramdomly (day of sampling each month)in 16 slaughterhouses (distribution of the samples according to the capacity of sacrifice of each slaughterhouse) placed in different regions of Spain and representative of the total volume of sacrifice of the country.

Frequency of the sampling

Two faecal samples at colon level have been taken in all the slaughter batches in the day of sampling, with a maximun of 30 batches by slaughterhouse and day of sampling . Each batch belonged to different holdings.
Sampling has been performed in 16 slaughterhouses placed in the provinces of Barcelona(3), Asturias, Valencia, Huesca, Lerida, Caceres,Madrid, Lugo, Pontevedra, Segovia, Salamanca, Avila, Cordoba and Ciudad Real. These slaughterhouses have a high volume of activity, representing an important part of all the bovines sacrified in Spain (around 50%).
A total of 292 samples have been taken, belonging to 146 slaughter batches and 146 different holdings.

Faeces were taken from the colon, refrigerated immediatly and sent to the laboratory and analyzed within 24 hours.
Sampling from June to October.

Type of specimen taken

Faeces

Methods of sampling (description of sampling techniques)

Faeces were taken from the colon, refrigerated inmediatly and sent to the laboratory and analyzed before 24 hours.

Case definition

One slaughter batch was considered as positive if isolation of Campylobacter spp. by culture and identification by PCR

Diagnostic/analytical methods used

Isolation in agar mCCDA(Oxoid) and agar Campyfood (bioMerieux) and identification by PCR multiplex.

Results of the investigation

Number of slaughter batches analyzed: 146
Number of slaughter batches positive: 76
Slaughter batch prevalence: 52,1%

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

Similar prevalence than in previous tears

Table Campylobacter in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Campylobacter	C. coli	C. jejuni	C. lari
Pigs - fattening pigs - at slaughterhouse - Monitoring	MAGRAMA	Objective sampling	Not applicable	animal sample > faeces	Domestic	Slaughter batch	163	90	74	1	
Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring	MAGRAMA	Objective sampling	Not applicable	animal sample > faeces	Domestic	Slaughter batch	153	95	58	36	
Cattle (bovine animals) - young cattle (1-2 years) - at slaughterhouse - Monitoring - active	MAGRAMA	Objective sampling	Not applicable	animal sample > faeces	Domestic	Slaughter batch	146	76	7	69	

	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Pigs - fattening pigs - at slaughterhouse - Monitoring		15
Gallus gallus (fowl) - broilers - at slaughterhouse - Monitoring		1
Cattle (bovine animals) - young cattle (1-2 years) - at slaughterhouse - Monitoring - active		

2.2.5 Antimicrobial resistance in Campylobacter isolates

A. Antimicrobial resistance in Campylobacter jejuni and coli in cattle

Sampling strategy used in monitoring

Frequency of the sampling

see text form on thermophilic Campylobacter spp. in cattle

Type of specimen taken

see text form on thermophilic Campylobacter spp. in cattle

Methods of sampling (description of sampling techniques)

see text form on thermophilic Campylobacter spp. in cattle

Procedures for the selection of isolates for antimicrobial testing

All isolates of the active monitoring programme 2012 (76)

Methods used for collecting data

Active monitoring programme 2012.

Laboratory methodology used for identification of the microbial isolates

see text form on thermophilic Campylobacter spp. in cattle

Laboratory used for detection for resistance

Antimicrobials included in monitoring

see table

Cut-off values used in testing

see table

Results of the investigation

Number of isolates tested:
C. coli: 7
C. jejuni:69

B. Antimicrobial resistance in Campylobacter jejuni and coli in pigs

Sampling strategy used in monitoring

Frequency of the sampling

see text form on thermophilic Campylobacter in pigs

Type of specimen taken

see text form on thermophilic Campylobacter in pigs

Methods of sampling (description of sampling techniques)

see text form on thermophilic Campylobacter in pigs

Procedures for the selection of isolates for antimicrobial testing

All the isolates of the active monitoring programme 2012

Methods used for collecting data

Active monitoring programme 2012

Laboratory methodology used for identification of the microbial isolates

see text form on thermophilic Campylobacter in pigs

Laboratory used for detection for resistance

Antimicrobials included in monitoring

see tables of results

Cut-off values used in testing

see table of breakpoints

Results of the investigation

Number of isolates tested: 74 C. coli, 1 C. jejuni

C. Antimicrobial resistance in Campylobacter jejuni and coli in poultry

Sampling strategy used in monitoring

Frequency of the sampling

see text form on thermophilic Campylobacter in Gallus gallus

Type of specimen taken

see text form on thermophilic Campylobacter in Gallus gallus

Methods of sampling (description of sampling techniques)

see text form on thermophilic Campylobacter in Gallus gallus

Procedures for the selection of isolates for antimicrobial testing

All isolates of the active monitoring programme 2012.

Methods used for collecting data

Active monitoring programme 2012.

Laboratory methodology used for identification of the microbial isolates

see text form on thermophilic Campylobacter in Gallus gallus

Laboratory used for detection for resistance

Antimicrobials included in monitoring

Following Commision Decision 2007/516/EC.

Cut-off values used in testing

Following Commision Decision 2007/516/EC.

Results of the investigation

Number of isolates tested:
C. jejuni: 36
C. coli: 58

Table Antimicrobial susceptibility testing of Campylobacter in Meat from bovine animals

Campylobacter	C. coli		C. jejuni		Campylobacter spp., unspecified	
Isolates out of a monitoring program (yes/no)					no	
Number of isolates available in the laboratory					3	
Antimicrobials:	N	n	N	n	N	n
Aminoglycosides - Gentamicin					3	0
Fluoroquinolones - Ciprofloxacin					3	3
Macrolides - Erythromycin					3	0
Penicillins - Ampicillin					3	3
Quinolones - Nalidixic acid					3	3
Tetracyclines - Tetracycline					3	3
Fully sensitive					3	0
Resistant to 1 antimicrobial					3	0
Resistant to 2 antimicrobials					3	0
Resistant to 3 antimicrobials					3	0
Resistant to 4 antimicrobials					3	3
Resistant to >4 antimicrobials					3	0

Footnote:

Source of information: Public Health Services of the Autonomous Communities.

Table Antimicrobial susceptibility testing of Campylobacter in Meat from pig

Campylobacter	C. coli		C. jejuni		Campylobacter spp., unspecified	
Isolates out of a monitoring program (yes/no)					no	
Number of isolates available in the laboratory					26	
Antimicrobials:	N	n	N	n	N	n
Aminoglycosides - Gentamicin					6	0
Fluoroquinolones - Ciprofloxacin					26	26
Macrolides - Erythromycin					26	3
Penicillins - Ampicillin					4	4
Quinolones - Nalidixic acid					6	5
Tetracyclines - Tetracycline					26	21
Fully sensitive					26	0
Resistant to 1 antimicrobial					26	3
Resistant to 2 antimicrobials					26	18
Resistant to 3 antimicrobials					26	0
Resistant to 4 antimicrobials					26	4
Resistant to >4 antimicrobials					26	1
Aminoglycosides - Spectinomycin					2	1
Amphenicols - Chloramphenicol					2	0

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of Campylobacter in Meat from broilers (Gallus gallus)

Campylobacter	C. coli		C. jejuni		Campylobacter spp., unspecified	
Isolates out of a monitoring program (yes/no)					no	
Number of isolates available in the laboratory					110	
Antimicrobials:	N	n	N	n	N	n
Aminoglycosides - Gentamicin					23	0
Fluoroquinolones - Ciprofloxacin					110	97
Macrolides - Erythromycin					110	11
Penicillins - Ampicillin					23	14
Quinolones - Nalidixic acid					108	96
Tetracyclines - Tetracycline					25	18
Fully sensitive					110	10
Resistant to 1 antimicrobial					110	3
Resistant to 2 antimicrobials					110	2
Resistant to 3 antimicrobials					110	73
Resistant to 4 antimicrobials					110	22
Resistant to >4 antimicrobials					110	0

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of Campylobacter in Meat from other poultry species

Campylobacter	C. coli		C. jejuni		Campylobacter spp., unspecified	
Isolates out of a monitoring program (yes/no)					no	
Number of isolates available in the laboratory					6	
Antimicrobials:	N	n	N	n	N	n
Aminoglycosides - Gentamicin					1	0
Fluoroquinolones - Ciprofloxacin					6	5
Macrolides - Erythromycin					6	5
Penicillins - Ampicillin					1	0
Quinolones - Nalidixic acid					1	0
Tetracyclines - Tetracycline					6	1
Fully sensitive					6	0
Resistant to 1 antimicrobial					6	1
Resistant to 2 antimicrobials					6	5
Resistant to 3 antimicrobials					6	0
Resistant to 4 antimicrobials					6	0
Resistant to >4 antimicrobials					6	0

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of Campylobacter in Meat from other animal species or not specified

Campylobacter	Campylobacter spp., unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	71	
Antimicrobials:	N	n
Aminoglycosides - Gentamicin	71	2
Aminoglycosides - Streptomycin	66	27
Amphenicols - Chloramphenicol	64	2
Fluoroquinolones - Ciprofloxacin	71	62
Penicillins - Ampicillin	5	2
Quinolones - Nalidixic acid	71	60
Tetracyclines - Tetracycline	71	66
Fully sensitive	71	1
Macrolides - Erythromycin	71	3
Resistant to 1 antimicrobial	71	5
Resistant to 2 antimicrobials	71	9
Resistant to 3 antimicrobials	71	30
Resistant to 4 antimicrobials	71	23
Resistant to >4 antimicrobials	71	3

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of C. coli in Pigs - fattening pigs - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

C. coli	Pigs - fattening pigs - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	73																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	73	13								1	4	45	9	1	1		12								
Aminoglycosides - Streptomycin	4	73	62											1	8	2		62								
Amphenicols - Chloramphenicol	16	73	0												46	26	1									
Fluoroquinolones - Ciprofloxacin	1	73	71								2				1	70										
Quinolones - Nalidixic acid	32	73	70														2		1	70						
Tetracyclines - Tetracycline	2	73	73													1		72								
Macrolides - Erythromycin	16	73	58										2	9	4				58							

C. coli	Pigs - fattening pigs - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	73	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.12	16
Aminoglycosides - Streptomycin	1	16
Amphenicols - Chloramphenicol	2	32
Fluoroquinolones - Ciprofloxacin	0.06	4
Quinolones - Nalidixic acid	2	64

Table Antimicrobial susceptibility testing of C. coli in Pigs - fattening pigs - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

C. coli	Pigs - fattening pigs - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	73	
Antimicrobials:	lowest	highest
Tetracyclines - Tetracycline	0.25	16
Macrolides - Erythromycin	0.5	32

Table Antimicrobial susceptibility testing of C. jejuni in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

C. jejuni	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes																									
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory	69																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	1	68	0								9	51	8													
Aminoglycosides - Streptomycin	2	68	4											63	1			4								
Amphenicols - Chloramphenicol	16	68	0												65	3										
Fluoroquinolones - Ciprofloxacin	1	68	43							14	11					43										
Quinolones - Nalidixic acid	16	68	44													20	4		4	40						
Tetracyclines - Tetracycline	2	68	41									27						41								
Macrolides - Erythromycin	4	68	0										65	3												

C. jejuni	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	69	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.12	16
Aminoglycosides - Streptomycin	1	16
Amphenicols - Chloramphenicol	2	32

Table Antimicrobial susceptibility testing of C. jejuni in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

C. jejuni	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	69	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin	0.06	4
Quinolones - Nalidixic acid	2	64
Tetracyclines - Tetracycline	0.25	16
Macrolides - Erythromycin	0.5	32

Table Antimicrobial susceptibility testing of C. jejuni in Gallus gallus (fowl) - broilers - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

C. jejuni	Gallus gallus (fowl) - broilers - Control and eradication programmes																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	36																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	1	32	2								10	17	3			1		1							
Aminoglycosides - Streptomycin	2	32	2											30				2							
Amphenicols - Chloramphenicol	16	32	1												24	6	1		1						
Fluoroquinolones - Ciprofloxacin	1	32	31							1						31									
Quinolones - Nalidixic acid	16	32	30												1	1			3	27					
Tetracyclines - Tetracycline	2	32	29									2		1		1	2	26							
Macrolides - Erythromycin	4	32	1										27	3	1				1						

C. jejuni	Gallus gallus (fowl) - broilers - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	36	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.12	16
Aminoglycosides - Streptomycin	1	16
Amphenicols - Chloramphenicol	2	32
Fluoroquinolones - Ciprofloxacin	0.06	4
Quinolones - Nalidixic acid	2	64

Table Antimicrobial susceptibility testing of C. jejuni in Gallus gallus (fowl) - broilers - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

C. jejuni	Gallus gallus (fowl) - broilers - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	36	
Antimicrobials:	lowest	highest
Tetracyclines - Tetracycline	0.25	16
Macrolides - Erythromycin	0.5	32

Table Antimicrobial susceptibility testing of C. coli in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

C. coli	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	7																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	7	2									3	2					2							
Aminoglycosides - Streptomycin	4	7	6											1				6							
Amphenicols - Chloramphenicol	16	7	0												1	6									
Fluoroquinolones - Ciprofloxacin	1	7	7													7									
Quinolones - Nalidixic acid	32	7	7																	7					
Tetracyclines - Tetracycline	2	7	7															7							
Macrolides - Erythromycin	16	7	2										2	3					2						

C. coli	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	7	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.12	16
Aminoglycosides - Streptomycin	1	16
Amphenicols - Chloramphenicol	2	32

Table Antimicrobial susceptibility testing of C. coli in Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

C. coli	Cattle (bovine animals) - meat production animals - young cattle (1-2 years) - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	7	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin	0.06	4
Quinolones - Nalidixic acid	2	64
Tetracyclines - Tetracycline	0.25	16
Macrolides - Erythromycin	0.5	32

Table Antimicrobial susceptibility testing of C. coli in Gallus gallus (fowl) - broilers - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

C. coli	Gallus gallus (fowl) - broilers - Control and eradication programmes																								
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory	58																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	54	9								1	15	27	2				9							
Aminoglycosides - Streptomycin	4	54	26											21	6	1		26							
Amphenicols - Chloramphenicol	16	54	0												30	19	4	1							
Fluoroquinolones - Ciprofloxacin	1	54	52							1	1					52									
Quinolones - Nalidixic acid	32	54	49													1	1		3	49					
Tetracyclines - Tetracycline	2	54	53										1					53							
Macrolides - Erythromycin	16	54	12										19	15	7			1	12						

C. coli	Gallus gallus (fowl) - broilers - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	58	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin	0.12	16
Aminoglycosides - Streptomycin	1	16
Amphenicols - Chloramphenicol	2	32
Fluoroquinolones - Ciprofloxacin	0.06	4
Quinolones - Nalidixic acid	2	64

Table Antimicrobial susceptibility testing of C. coli in Gallus gallus (fowl) - broilers - Control and eradication programmes - animal sample - faeces - quantitative data [Dilution method]

C. coli	Gallus gallus (fowl) - broilers - Control and eradication programmes	
Isolates out of a monitoring program (yes/no)		
Number of isolates available in the laboratory	58	
Antimicrobials:	lowest	highest
Tetracyclines - Tetracycline	0.25	16
Macrolides - Erythromycin	0.5	32

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

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

Campylobacter spp., unspecified	Meat from pig																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	26																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Fluoroquinolones - Ciprofloxacin	1	26	26												6	12	4	2	1		1					
Penicillins - Ampicillin	8	4	4															2	1	1						
Quinolones - Nalidixic acid	16	6	5															1	1	3	1					
Tetracyclines - Tetracycline	2	26	21											1	4	9	3	5	4							
Macrolides - Erythromycin	10	26	3									1	3	10	1	2	6	2	1							

Campylobacter spp., unspecified	Meat from pig	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	26	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin		
Penicillins - Ampicillin		
Quinolones - Nalidixic acid		
Tetracyclines - Tetracycline		
Macrolides - Erythromycin		

Footnote:

Source of information: Public Health Services of the Autonomous Communities.

Table Antimicrobial susceptibility testing of Campylobacter spp., unspecified in Meat from broilers (Gallus gallus) - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

Campylobacter spp., unspecified	Meat from broilers (Gallus gallus)																								
Isolates out of a monitoring program (yes/no)	no																								
Number of isolates available in the laboratory	110																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	23	0									3	1	4	15										
Fluoroquinolones - Ciprofloxacin	1	110	97								1		5	7	35	48	9	4	1						
Penicillins - Ampicillin	8	23	14												5	2	2	5	4	2		1	2		
Quinolones - Nalidixic acid	16	108	96														2	10	45	12	21	9	8	1	
Tetracyclines - Tetracycline	2	25	18									1	2	1	3	7	5	1		1	3	1			
Macrolides - Erythromycin	10	110	11											6	19	26	48	6		3	2				

Campylobacter spp., unspecified	Meat from broilers (Gallus gallus)	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	110	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin		
Fluoroquinolones - Ciprofloxacin		
Penicillins - Ampicillin		
Quinolones - Nalidixic acid		
Tetracyclines - Tetracycline		
Macrolides - Erythromycin		

Table Antimicrobial susceptibility testing of Campylobacter spp., unspecified in Meat from broilers (Gallus gallus) - quantitative data [Dilution method]

Footnote:

Source of information: Public Health Services of the Autonomous Communities.

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

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

Campylobacter spp., unspecified	Meat from bovine animals																								
Isolates out of a monitoring program (yes/no)	no																								
Number of isolates available in the laboratory	3																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	3	0										2	1											
Fluoroquinolones - Ciprofloxacin	1	3	3												1		1	1							
Penicillins - Ampicillin	8	3	3															1	1	1					
Quinolones - Nalidixic acid	16	3	3																1	2					
Tetracyclines - Tetracycline	2	3	3													1	1		1						
Macrolides - Erythromycin	10	3	0									1		1	1										

Campylobacter spp., unspecified	Meat from bovine animals	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	3	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin		
Fluoroquinolones - Ciprofloxacin		
Penicillins - Ampicillin		
Quinolones - Nalidixic acid		
Tetracyclines - Tetracycline		
Macrolides - Erythromycin		

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

Footnote:

Source of information: Public Health Services of the Autonomous Communities.

Table Cut-off values used for antimicrobial susceptibility testing of Campylobacter in Food

Test Method Used
Agar dilution

Standard methods used for testing
NCCLS/CLSI

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		2	
Fluoroquinolones	Ciprofloxacin		1	
Macrolides	Erythromycin		10	
Penicillins	Ampicillin		8	
Quinolones	Nalidixic acid		16	
Tetracyclines	Tetracycline		2	

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Cut-off values used for antimicrobial susceptibility testing of C. coli in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		4	
Fluoroquinolones	Ciprofloxacin		1	
Macrolides	Erythromycin		16	
Tetracyclines	Tetracycline		2	

Table Cut-off values used for antimicrobial susceptibility testing of C. coli in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		4	
Fluoroquinolones	Ciprofloxacin		1	
Macrolides	Erythromycin		16	
Tetracyclines	Tetracycline		2	

Table Cut-off values used for antimicrobial susceptibility testing of C. coli in Food

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		4	
Fluoroquinolones	Ciprofloxacin		1	
Macrolides	Erythromycin		16	
Tetracyclines	Tetracycline		2	

Table Cut-off values used for antimicrobial susceptibility testing of C. jejuni in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		1	
	Streptomycin		2	
Fluoroquinolones	Ciprofloxacin		1	
Macrolides	Erythromycin		4	
Tetracyclines	Tetracycline		2	

Table Cut-off values used for antimicrobial susceptibility testing of C. jejuni in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		1	
	Streptomycin		2	
Fluoroquinolones	Ciprofloxacin		1	
Macrolides	Erythromycin		4	
Tetracyclines	Tetracycline		2	

Table Cut-off values used for antimicrobial susceptibility testing of C. jejuni in Food

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		1	
	Streptomycin		2	
Fluoroquinolones	Ciprofloxacin		1	
Macrolides	Erythromycin		4	
Tetracyclines	Tetracycline		2	

2.3 LISTERIOSIS

2.3.1 General evaluation of the national situation

A. Listeriosis general evaluation

History of the disease and/or infection in the country

Listeria monocytogenes has been recognised as a human pathogen for more than 50 years. It causes invasive illness mainly in certain well defined high-risk groups, including immunocompromised persons, pregnant women and neonates. However listeriosis can occur in otherwise healthy individuals, particularly in the setting of an outbreak. The public health importance of listeriosis is not always recognised particularly because listeriosis is a relatively rare disease compared to other common food-borne illnesses such as salmonellosis. Also listeriosis is a disease that clinically affects cattle, but mainly ewes in Spain.

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

Listeria is a serious food safety issue, particularly
for pregnant women, the elderly, and those who are
immunocompromised in Spain. In 2012 the number of reported human cases was 107.

Recent actions taken to control the zoonoses

The activities are made according to Regulation (EC) 178/2002. (i.e. rapid alert system, traceability of food, feed, food-producing animals and all substances incorporated into foodstuffs). must be established at all stages of production, processing and distribution. To this end, business operators are required to apply appropriate systems and procedures.

Sampling is distributed evenly throughout the year.

Additional information

Diagnostic methods used in food : Bacteriological method: ISO 11290-2_:2004.

2.3.2 Listeriosis in humans

A. Listeriosis in humans

Reporting system in place for the human cases

Microbiological Information System
The Microbiological Information System has been based since 1989 on voluntary weekly reporting by clinical microbiology laboratories (principally hospital laboratories). Currently, in order to improve the notification, this procedure is becoming compulsory for a designated group of representative laboratories. The information in these reports is based on individual cases and includes the following variables: agent, time, place, age, sex, etc.

Outbreak reporting
In Spain outbreaks are the main source of information for foodborne diseases

Case definition

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Diagnostic/analytical methods used

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Notification system in place

Microbiological Information System
Outbreak reporting System

History of the disease and/or infection in the country

Listeria monocytogenes has been recognised in Spain as a human pathogen for more than 50 years. It causes invasive illness mainly in certain well defined high-risk groups, including immunocompromised persons, pregnant women and neonates. However listeriosis can occur in otherwise healthy individuals, particularly in the setting of an outbreak. In 2012 the number of cases reported was 107.

Results of the investigation

Listeriosis is most often found in young children 0-1 years old, especially babies and elder people. Reported Listeria spp. cases concerned Listeria monocytogenes.

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

In 2012, 107 cases of listeriosis has been comunicate to Microbiological Information System versus 91 in 2011.

Relevance as zoonotic disease

The public health importance of listeriosis is not always recognised particularly because listeriosis is a relatively rare disease compared to other common food-borne illnesses such as salmonellosis or campylobacteriosis.

2.3.3 Listeria in foodstuffs

Table Listeria monocytogenes in milk and dairy products

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for L. monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	837	7	417	2
Cheeses made from cows' milk - hard - made from pasteurised milk - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	302	4	133	3
Dairy products (excluding cheeses) - butter - at retail	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	2	0	2	0
Dairy products (excluding cheeses) - cream - at retail	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	3	0	2	0
Dairy products (excluding cheeses) - dairy desserts - at retail ((Ready to eat: Yoghurts, Curds, Ice-creams...))	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	293	0	140	0
Milk from other animal species or unspecified - pasteurised milk - at retail	F	Objective sampling	Official sampling	food sample > milk	Unknown	Single	25 g	127	1	83	0
Milk from other animal species or unspecified - raw milk - at processing plant	F	Objective sampling	Official sampling	food sample > milk	Unknown	Single	25 g	20	0	19	0

Table Listeria monocytogenes in milk and dairy products

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk - at retail - Surveillance	420	0	5
Cheeses made from cows' milk - hard - made from pasteurised milk - at retail - Surveillance	169	0	1
Dairy products (excluding cheeses) - butter - at retail	0	0	0
Dairy products (excluding cheeses) - cream - at retail	1	0	0
Dairy products (excluding cheeses) - dairy desserts - at retail ((Ready to eat: Yoghurts, Curds, Ice-creams...))	153	0	0
Milk from other animal species or unspecified - pasteurised milk - at retail	44	1	0
Milk from other animal species or unspecified - raw milk - at processing plant	1	0	0

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.

Table Listeria monocytogenes in other foods

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for L. monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g
Meat from broilers (Gallus gallus) - fresh - at processing plant - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	1	0	1	0
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	66	0	10	0
Meat from pig - fresh - at processing plant - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	15	4	8	4
Meat from pig - meat products - cooked, ready-to-eat - at retail - Surveillance	F,L	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	1113	108	645	76
Meat from bovine animals - meat products - cooked, ready-to-eat - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	44	0	28	0
Crustaceans - unspecified - cooked - at retail - Surveillance [1)]	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	116	1	41	0
Molluscan shellfish - cooked - at retail - Surveillance [2)]	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	81	0	37	0
Infant formula - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	80	0	58	0
Vegetables - pre-cut - ready-to-eat - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	159	0	38	0
Fruits - pre-cut - ready-to-eat - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	66	0	0	0
Bakery products - at retail	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	573	1	224	1
Fish - smoked - at retail (Ready to eat.)	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	406	26	166	19

Table Listeria monocytogenes in other foods

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for L. monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g
Other processed food products and prepared dishes - at retail ((Ice-creams, foies, tiger nut milk drink, tinnedfoods, juices, etcetera.))	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	5750	37	1938	17
Ready-to-eat salads - at retail	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	838	0	225	0

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Meat from broilers (Gallus gallus) - fresh - at processing plant - Surveillance	0	0	0
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail - Surveillance	56	0	0
Meat from pig - fresh - at processing plant - Surveillance	7	0	0
Meat from pig - meat products - cooked, ready-to-eat - at retail - Surveillance	468	25	7
Meat from bovine animals - meat products - cooked, ready-to-eat - at retail - Surveillance	16	0	0
Crustaceans - unspecified - cooked - at retail - Surveillance [1)]	75	1	0
Molluscan shellfish - cooked - at retail - Surveillance [2)]	44	0	0
Infant formula - at retail - Surveillance	22	0	0

Table Listeria monocytogenes in other foods

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Vegetables - pre-cut - ready-to-eat - at retail - Surveillance	121	0	0
Fruits - pre-cut - ready-to-eat - at retail - Surveillance	66	0	0
Bakery products - at retail	349	0	0
Fish - smoked - at retail (Ready to eat.)	240	2	5
Other processed food products and prepared dishes - at retail ((Ice-creams, foies, tiger nut milk drink, tinnedfoods, juices, etcetera.))	3812	15	5
Ready-to-eat salads - at retail	613	0	0

Comments:

[1)] Ready to eat

[2)] Ready to eat

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.
L: NATIONAL REFERENCE LABORATORY.

2.3.4 Listeria in animals

Table Listeria in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Listeria	L. monocytogenes	Listeria spp., unspecified
Cattle (bovine animals) - dairy cows - at farm - Monitoring	A	Convenience sampling	Official sampling	animal sample > milk	Domestic	Herd	850	1	1	

Footnote:

A: ANIMAL HEALTH SERVICES OF AUTONOMOUS COMMUNITIES

2.4 E. COLI INFECTIONS

2.4.1 General evaluation of the national situation

A. Verotoxigenic Escherichia coli infections general evaluation

History of the disease and/or infection in the country

Verotoxigenic Escherichia coli have emerged as foodborne pathogens which can cause severe and potencially fatal illness.Rumiants,specially cattle and sheep, have been implicated as the principal reservoir of VTEC.Transmission happened through consumption of undercooked meat, unpasteurized dairy products, vegetables or water contaminated by rumiant faeces.

In 2007-2011 national active monitoring programmes have been performed in young cattle 1-2 years old at slaughterhouse under a herd based approach.

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

In cattle, the percentage of animals colonized by strain O157:H7 has been similar in last monitoring programmes.Raw beef products are the main source of infection.
Small rumiants may also represent a source of transmision of VTEC to humans.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

The high percentage of animals colonized by strain O157:H7 in last years agree with growing of human incidence, but outbreaks of the disease are lower at the moment.

Recent actions taken to control the zoonoses

Surveillance of the disease according to Directive 2003/99/EEC. National monitoring programmes 2007-2011 in young cattle 1-2 years old.
Compulsory and voluntary monitoring programmes in raw meat of different species of animals, minced meat and meat products, other animal origin products, vegetables and others products.

Additional information

Diagnostic methods used in food:
- Bacteriological method: ISO 16.654:2001.
- Method ELISA
- PCR-Bax

2.4.2 E. coli infections in humans

A. Verotoxigenic Escherichia coli infections in humans

Reporting system in place for the human cases

Microbiological Information System
Outbreak reporting

Case definition

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC

Diagnostic/analytical methods used

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC

Notification system in place

Microbiological Information System
The Microbiological Information System has been based since 1989 on voluntary weekly reporting by clinical microbiology laboratories (principally hospital laboratories). Currently, in order to improve the notification, this procedure is becoming compulsory for a designated group of representative laboratories. The information in these reports is based on individual cases and includes the following variables: agent, time, place, age, sex, etc.

Outbreak reporting
In Spain outbreaks are the main source of information for the foodborne diseases.

2.4.3 Escherichia coli, pathogenic in foodstuffs

Table VT E. coli in food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Analytical Method	Sampling unit	Sample weight	Units tested	Total units positive for Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC) - VTEC O157
Meat from pig - carcase - at slaughterhouse - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Unknown	Single	25 g	14	0	0
Meat from pig - fresh - at retail - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Unknown	Single	25 g	5	0	0
Meat from bovine animals - carcase - at slaughterhouse - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Unknown	Single	25 g	8	2	2
Meat from bovine animals - fresh - at processing plant - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Unknown	Single	25 g	4	0	0
Meat from bovine animals - fresh - at retail - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Unknown	Single	25 g	22	0	0
Meat from sheep - carcase - at slaughterhouse - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Unknown	Single	25 g	4	2	2
Meat from sheep - fresh - at retail - Surveillance	F	Objective sampling	Official sampling	food sample > meat	Unknown	Unknown	Single	25 g	16	1	1
Vegetables - pre-cut - ready-to-eat - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Unknown	Single	25 g	87	0	0
Fruits - pre-cut - ready-to-eat - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Unknown	Single	25 g	14	0	0
Seeds, sprouted - ready-to-eat - at retail - Surveillance	F	Objective sampling	Official sampling	food sample	Unknown	Unknown	Single	25 g	16	0	0
Dairy products, unspecified	F	Objective sampling	Official sampling	food sample	Unknown	Unknown	Single	25 g	170	0	0
Meat from pig - meat products - at processing plant	F	Objective sampling	Official sampling	food sample > meat	Unknown	Unknown	Single	25 g	2	0	0

Table VT E. coli in food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Analytical Method	Sampling unit	Sample weight	Units tested	Total units positive for Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC) - VTEC O157
Meat from pig - meat products - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Unknown	Single	25 g	15	0	0
Meat from poultry, unspecified - fresh - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Unknown	Single	25 g	29	0	0
Meat from poultry, unspecified - meat products - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Unknown	Single	25 g	1	0	0
Meat, mixed meat (Minced meat and meat preparations.)	F	Objective sampling	Official sampling	food sample > meat	Unknown	Unknown	Single	25 g	727	9	8
Meat, mixed meat - meat products - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Unknown	Single	25 g	3	0	0
Milk from other animal species or unspecified - raw milk	F	Objective sampling	Official sampling	food sample	Unknown	Unknown	Single	25 g	1	0	0
Other processed food products and prepared dishes (Juices, mineral water, mushrooms, etcetera...)	F	Objective sampling	Official sampling	food sample	Unknown	Unknown	Single	25 g	230	0	0

	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Meat from pig - carcase - at slaughterhouse - Surveillance	0	0
Meat from pig - fresh - at retail - Surveillance	0	0
Meat from bovine animals - carcase - at slaughterhouse - Surveillance	0	0
Meat from bovine animals - fresh - at processing plant - Surveillance	0	0

Table VT E. coli in food

	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Meat from bovine animals - fresh - at retail - Surveillance	0	0
Meat from sheep - carcase - at slaughterhouse - Surveillance	0	0
Meat from sheep - fresh - at retail - Surveillance	0	0
Vegetables - pre-cut - ready-to-eat - at retail - Surveillance	0	0
Fruits - pre-cut - ready-to-eat - at retail - Surveillance	0	0
Seeds, sprouted - ready-to-eat - at retail - Surveillance	0	0
Dairy products, unspecified	0	0
Meat from pig - meat products - at processing plant	0	0
Meat from pig - meat products - at retail	0	0
Meat from poultry, unspecified - fresh - at retail	0	0
Meat from poultry, unspecified - meat products - at retail	0	0
Meat, mixed meat (Minced meat and meat preparations.)	0	1
Meat, mixed meat - meat products - at retail	0	0
Milk from other animal species or unspecified - raw milk	0	0

Table VT E. coli in food

	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Other processed food products and prepared dishes (Juices, mineral water, mushrooms, etcetera...)	0	0

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.

2.4.4 Escherichia coli, pathogenic in animals

A. Verotoxigenic Escherichia coli in cattle (bovine animals)

Vaccination policy

Results of the investigation

2.5 TUBERCULOSIS, MYCOBACTERIAL DISEASES

2.5.1 General evaluation of the national situation

A. Tuberculosis general evaluation

History of the disease and/or infection in the country

Sanitary importance of bovine tuberculosis has been based in the spread of the disease to humans. Human infection has been linked historically to raw milk consumption. At human level the surveillance of the disease is included in National Net of Epidemiological Surveillance, according with Royal Decree 2210/1995, december 25, by Epidemiological Surveillance National Net is created.

In Spain, control of milk was carried out at council town's level since 1908, but monitoring and eradication programmes in cattle didn't start systematically until begining of 90's, focused mainly in dairy cows. At the moment the programme is being applied to cattle over six weeks of age,and to goats living close to cattle, according to Directive 64/432/EEC.
Control of milk and control of fresh meat production is carried out by Autonomous Communities according to European legislation in force (hygiene package).

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

Spanish programmes for eradication on bovine tuberculosis in last years show the low level of decrease of the disease prevalence in cattle. In 2012 herd prevalence was 1,31% (1,33% in 2011, 2.14% in 2003, 1.80% in 2004, 1,54% in 2005, 1.76% in 2006 and 1.68% in 2007, 1.59% in 2008, 1,65% in 2009; 1,51% in 2010), with 97.27% of herds qualified as officially free(95.77% in 2003, 96,56% in 2004, 97.34% in 2005, 96.94% in 2006, 97,20% in 2007, 97,21% in 2008, 96,53% in 2009; 96,49% in 2010; 96,40% in 2011). Animal prevalence in 2012 was 0.23%(0.47% in 2003, 0.40% in 2004, 0.31% in 2005, 0.42% in 2006, 0,49% in 2007, 0.48% in 2008 and 0.41% in 2009; 0,36% in 2010; 0,28% in 2011). Raw milk only can be consumed if produced in herds OTF.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

Only few human cases had been identified as tuberculosis by Mycobacterium bovis in the last years. The risk of transmission from animals to humans is very low.

Recent actions taken to control the zoonoses

Spanish Programme on Eradication of Bovine Tuberculosis 2012.
Milk control and fresh meat control production are developed according to european legislation in force (Hygiene Package).

Additional information

M. caprae has been isolated in 2005-2012 from cattle, goats, wild boards,foxes, wild ruminants.

2.5.2 Tuberculosis, mycobacterial diseases in humans

A. Tuberculosis due to Mycobacterium bovis in humans

Reporting system in place for the human cases

Royal Decree 2210/1995, december 25, by Epidemiological Surveillance National Net is created

The Microbiological Information System has been based since 1989 on voluntary weekly reporting by clinical microbiology laboratories (principally hospital laboratories). Currently, in order to improve the notification, this procedure is becoming compulsory for a designated group of representative laboratories. The information in these reports is based on individual cases and includes the following variables: agent, time, place, age, sex, etc

Case definition

Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Diagnostic/analytical methods used

Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Notification system in place

National Disease Surveillance System

History of the disease and/or infection in the country

Only a few cases of infection by M bovis were reported in the last years

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

M. bovis infection in humans in Spain is related to foreign-born cases from countries with high prevalence of bovine tuberculosis, and to occupational exposure in nationals. The proportion of tuberculosis cases produced by M. bovis in humans represents less than 1% of the total number of TB cases.

Relevance as zoonotic disease

The risk of obtaining tuberculosis from animal sources is negligible

2.5.3 Mycobacterium in animals

A. Mycobacterium bovis in bovine animals

Monitoring system

Sampling strategy

Sampling strategy is defined in Spanish Programme on Eradication on Bovine Tuberculosis 2012, covering cattle according Directive 64/432/EEC(animals over six weeks of age) and goats living close to cattle. Testing is performed under supervision of competent authorities of Autonomous Comunities. At slaughterhouses samples are taken in suspicius animals and in animals with suspicius injures. Strategic use on gamma-interferon assay has been implemented since 2008 and consequently, an increase in the sensivity at animal level (intra-herd) has been applied. A total of 87.328 gamma-interferon tests have been performed in 2012.

Additionally, severe interpretation of skin test(SIT) has been applied in high prevelence areas, with 2 skin tests in OTF herds and at least 3 skin tests in non-OTF herds during 2012. These measures have increased the sensitivity at herd level as well.

More than 199.000 pre-movement tests have been performed in 2012.

Frequency of the sampling

Once a year at least, more frequent testing in not officially free herds (at least 3 tests)and in OTF herds in high prevalence areas (2 at least).

Pre-movement test in movements except if animals go to a closed fattening unit that exclusively send animals to a slaughterhouse.

Type of specimen taken

skin test, blood, organs/tissues

Methods of sampling (description of sampling techniques)

Intradermal skin test (SIT) is used in animals over 6 weeks of age. In infected herds, gamma interferon assay is used in parallel as supplementary test in animals over six months of age. In low prevalence areas, SICCT can be used if specificity problems are detected.

At slaughterhouses organs/tissues are taken from suspicius reactors animals (mainly from herds with OTF status suspended) and from injures found in routine post-mortem examination of animals slaughtered, according to the European legislation in force (Hygiene Package).

Case definition

skin test: positive and inconclusive results. In OTF herds also M. bovis isolation.

Gamma-interferon: positive results, cut-off value 0,05.

Organs/tissues:compatible lesions,auramine+, isolation or positive PCR

Diagnostic/analytical methods used

SIT, SICCT, agent isolation, PCR and gamma-interferon assay following criteria laying down by Annex B of Directive 64/432/EEC.

compatible lesions,auramine+, isolation or positive PCR, spoligotyping,VTNR

Vaccination policy

Forbidden

Other preventive measures than vaccination in place

Premovement test; Cleaning and disinfecting of positive holdings; Control of common grazing areas; Investigation of wildlife in some regions; Epidemiological investigations in breakdowns; inspections and official control of the field veterinarians.

Control program/mechanisms

The control program/strategies in place

Spain has an Eradication Programme approved for co-financing according to Decision 2011/807/UE. Legal basis of the programme measures is Council Directive 64/432/EEC,but with increased measures like:

- more frequent tests in high prevalence areas
- strategic use of gamma-interferon assay
- pre-movement test
- severe interpretation of SIT

Recent actions taken to control the zoonoses

More frequent testing and pre-movement test
Compulsory slaughtering of all animals in herds with high incidence or repeating positive results
Severe interpretation of tuberculin test
Research into other test methodologies
Reinforce over herd registers at farm level
Epidemiological studies
Surveillance of wildlife
Inspections in restricted herds
Inspections of field veterinarians
Training courses for field veterinarians

Suggestions to the European Union for the actions to be taken

Research into other test methodologies and improve the existing ones.

Measures in case of the positive findings or single cases

Confirmation by isolation/PCR of M. bovis. If confirmed, withdrawal of OTF status by holding.
Epidemiological studies, spoligotyping of the strain and inclusion in the National Database micoDB.es.

Notification system in place

Since 1952, at least (Epizootic Diseases Law).At the moment by Animal Health Law 8/2003

Results of the investigation

Herd prevalence: 1,31%
Animal prevalence: 0,23%
Herd incidence: 0,90%
Status of herds: 97,27% OTF

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

Data obtained by applying of Spanish Tuberculosis Eradication and Monitoring Programme show a moderate decrease of the disease at herd level and at animal level in the country in 2012.Trend analysis show a decreasing trend between 2006 and 2012 (Mantel test for trend: $p< 0,05$).The annual rate of decrease is -4,69% (95% C.I. for relative change = 6,31 to -3,04%).
In dairy herds, the disease is close to eradication, with a herd prevalence of 0,43%. In conclusion, milk consumption can not be considered as a current source of infection in Spain,even more if it is assumed that cow milk is thermally treated.
In herds for meat production, herd prevalence is 1,48%. Explanation of this higher prevalence can be

found in special management of this kind of herds: common grazing, ranching systems, fighting bulls, trashumance... Wildlife and goats can also be a source of infection in these holdings.
The increase in the diagnostic sensitivity in 2008-2012 has important influence in the herd prevalence and incidence, that are higher than other programmes that use less sensitivity diagnostic strategies. Then, comparations between programmes with different diagnostic strategies have to be carefully explained and interpreted.

Table Tuberculosis in other animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Mycobacterium	M. bovis	M. tuberculosis	Mycobacterium spp., unspecified
Sheep [1]	A	Selective sampling	Official sampling	animal sample > lymph nodes	Domestic	Animal	47	30	30		
Goats [2]	A	Selective sampling	Official sampling	animal sample	Domestic	Animal	146214	1145	603		
Badgers [3]	M.A.G.R.A.M.A	Convenience sampling	Official sampling	animal sample > organ/tissue	Domestic	Animal	35	4	4		
Deer - wild - fallow deer - from hunting - Surveillance [4]	M.A.G.R.A.M.A	Convenience sampling	Official sampling	animal sample > organ/tissue	Domestic	Animal	70	1	1		
Deer - wild - red deer - from hunting - Surveillance [5]	M.A.G.R.A.M.A	Convenience sampling	Official sampling	animal sample > organ/tissue	Domestic	Animal	866	53	52		
Deer - wild - roe deer - from hunting - Surveillance [6]	M.A.G.R.A.M.A	Convenience sampling	Official sampling	animal sample > organ/tissue	Domestic	Animal	69	0			
Wild boars - wild - from hunting - Surveillance [7]	M.A.G.R.A.M.A	Convenience sampling	Official sampling	animal sample > organ/tissue	Domestic	Animal	3091	274	252		

	M. caprae
Sheep [1]	
Goats [2]	542
Badgers [3]	

Table Tuberculosis in other animals

		M. caprae
Deer - wild - fallow deer - from hunting - Surveillance	4)	
Deer - wild - red deer - from hunting - Surveillance	5)	1
Deer - wild - roe deer - from hunting - Surveillance	6)	
Wild boars - wild - from hunting - Surveillance	7)	22

Comments:

1) CULTURE/PCR

2) SKIN TEST/CULTURE/PCR

3) CULTURE/PCR

4) CULTURE/PCR

5) CULTURE/PCR

6) CULTURE/PCR

7) CULTURE/PCR

Footnote:

A: ANIMAL HEALTH SERVICES OF AUTONOMOUS COMMUNITIES

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

If present, the row "Total -1" refers to analogous data of the previous year.

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
Andalucía	7499	7018	6683	380	307	14	3.68	95.23	5.69	4.59
Aragón	3098	2166	1950	27	14	3	11.11	90.03	1.38	.72
Asturias	18250	17970	17970	35	32	8	22.86	100	.19	.18
Canarias	1130	1130	1130	0	0	0	N.A.	100	0	0
Cantabria	7542	7493	7493	67	49	2	2.99	100	.89	.65
Castilla y León	14300	13878	13878	369	254	1	.27	100	2.66	1.83
Castilla-La Mancha	3005	2119	2117	75	26	4	5.33	99.91	3.54	1.23
Cataluña	5113	4838	4830	12	6	3	25	99.83	.25	.12
Comunidad Foral de Navarra	1648	1648	1648	5	2	0	0	100	.3	.12
Comunidad Valenciana	642	561	515	8	7	0	0	91.8	1.55	1.36
Comunidad de Madrid	1395	1305	1305	80	47	3	3.75	100	6.13	3.6
Extremadura	9919	9271	9219	303	205	1	.33	99.44	3.29	2.22
Galicia	42916	42911	36316	75	45	15	20	84.63	.21	.12

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

Illes Balears	585	585	497	2	2	0	0	84.96	.4	.4
La Rioja	315	281	281	1	1	0	0	100	.36	.36
Murcia	339	287	286	4	4	0	0	99.65	1.4	1.4
País Vasco	6130	6130	5518	14	9	2	14.29	90.02	.25	.16
Total : [1)]	123826	119591	111636	1457	1010	56	3.84	93.35	1.31	.9
Total - 1	126473	122068	111460	1485	938	93	6.26	91.31	1.33	.84

Comments:

[1)] N.A.

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

If present, the row "Total -1" refers to analogous data of the previous year.

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 culled	Total number of animals slaughtered	% coverage at animal level	% positive animals - animal prevalence
Andalucía	539638	534772	496285	484993	4575	4575	6139	92.8	.92
Aragón	324861	101105	99999	99999	309	532	536	98.91	.31
Asturias	373572	362280	362280	362280	179	179	985	100	.05
Canarias	18175	18175	18175	18175	0	0	3	100	0
Cantabria	280084	276368	276368	276368	680	680	737	100	.25
Castilla y León	1091614	1073729	1073729	1073729	1780	1725	3000	100	.17
Castilla-La Mancha	366735	240733	240709	240709	679	679	984	99.99	.28
Cataluña	552998	338588	337491	247586	86	86	197	99.68	.03
Comunidad Foral de Navarra	110367	93549	92549	92549	71	108	108	98.93	.08
Comunidad Valenciana	49350	48543	47112	37670	147	147	147	97.05	.31
Comunidad de Madrid	89935	81986	81986	81986	613	613	666	100	.75
Extremadura	769993	747974	702871	695316	1526	1531	1625	93.97	.22
Galicia	939743	811497	811497	811497	319	310	1195	100	.04

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

Illes Balears	29921	23992	23992	23992	2	0	9	100	.01
La Rioja	39120	33829	33829	33829	7	7	7	100	.02
Murcia	62547	47299	47299	47299	4	4	4	100	.01
País Vasco	132040	107078	107078	107078	155	155	214	100	.14
Total : [1)]	5770693	4941497	4853249	4735055	11132	11331	16556	98.21	.23
Total - 1	5849296	5086240	4901228	4765287	13968	14096	19256	96.36	.28

Comments:

[1)] N.A.

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

If present, the row "Total -1" refers to analogous data of the previous year.

	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 negative							
Region	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals
Andalucía	5306	307656	129	1786	172	18504	256	15958	17	1029	0	0	4732	270379
Aragón	2045	111050	0	0	0	0	0	0	27	2478	0	0	2018	108572
Asturias	14695	239562	0	0	10	535	196	760	17	539	0	0	14472	237728
Canarias	1027	14961	0	0	0	0	0	0	0	0	0	0	1027	14961
Cantabria	7493	276375	0	0	26	1216	9	511	13	817	0	0	7445	273831
Castilla y León	11902	843419	70	4897	282	35885	519	53074	0	0	0	0	11031	749563
Castilla-La Mancha	1685	173876	0	0	50	9034	69	11112	3	164	0	0	1563	153566
Cataluña	4837	509032	1	33	6	509	5	84	14	566	0	0	4811	507840
Extremadura	8766	677309	0	0	55	9607	251	30539	54	6958	0	0	8406	630205
Galicia	29618	376133	24	253	7	150	227	2480	45	1864	0	0	29315	371386
Illes Balears	384	11381	0	0	0	0	0	0	2	319	0	0	382	11062
La Rioja	260	29840	0	0	0	0	8	1524	0	0	0	0	252	28316
Madrid	1142	59802	0	0	31	2472	13	1120	7	479	0	0	1091	55731

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

Murcia	236	29115	0	0	0	0	6	47	12	3536	0	0	218	25532
Navarra	1344	61612	0	0	0	0	0	0	0	0	0	0	1344	61612
País Vasco	5580	91201	0	0	2	184	8	27	0	0	0	0	5570	90990
Valencia / València	560	48542	2	2	1	8	3	12	6	457	0	0	548	48063
Total : [1)]	96880	3860866	226	6971	642	78104	1570	117248	217	19206	0	0	94225	3639337
Total - 1	120024	5405892	183	2044	779	111158	3117	264901	248	25129	0	0	115697	5002660

Comments:

[1)] N.A.

2.6 BRUCELLOSIS

2.6.1 General evaluation of the national situation

A. Brucellosis general evaluation

History of the disease and/or infection in the country

Sanitary importance of brucellosis has been based in the spread of the disease to humans.At the moment brucellosis is still the main direct transmission zoonoses in the world, and in Spain as well, mainly linked to Brucella melitensis.The more frecuent source of infection for human beins have been contacts with goats and sheeps, but raw milk products consumption have had historical importance as well.Nowadays brucellosis is considered as a proffesional disease.
In Spain, milk control was carried out at council town's level since 1908. At the moment milk control and control of fresh meat production is carried out by Autonomous Communities according to the european legislation in force (Hygiene Package).
Monitoring and Eradication Programmes in cattle, goats and sheep didn't start systematically until beginig of 90's.Before, human cases had the higest incidence in last thirty years, with arround 8500 cases in middle 80´s.The sistematic application of national programmes has resulted in a continous decrease of the disease in humans.At the moment the Programmes are being applied according to Directive 64/432/EEC and Directive 91/68/EEC.

At human level disease brucellosis is a mandatory notifiable disease since 1943. It is included in National Network of Epidemiology Surveillance, (Royal Decree 2210/1995, december 25), by Epidemiological Surveillance National Net is created.

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

Spanish Programmes for eradication and monitoring of Brucellosis in cattle, goats and sheeps show the continous decreasing trend, in general, of the disease prevalence in domestic animals. In 2012 herd prevalence was 0.08%(1.45% in 2003; 1.54% in 2004; 1.25% in 2005;0,84% in 2006; 0,57% in 2007; 0,40% in 2008; 0.32% in 2009; 0,20% in 2010; 0,12% in 2011) in cattle and 0.26% (5.58% in 2003; 5.12% in 2004; 4.43% in 2005; 3.20% in 2006: 2,79% in 2007; 2,11% in 2008; 1.64% in 2009; 0,89% in 2010; 0,54% in 2011) in goats and sheep.Animal prevalence was 0.01% (0.45% in 2003; 0,59% in 2004; 0.37% in 2005;0.22% in 2006; 0,13% in 2007; 0,09% in 2008;0.07% in 2009; 0,05% in 2010; 0,02% in 2011) in cattle and 0.03% (0.87% in 2003; 0,62% in 2004; 0.45% in 2005; 0,34% in 2006; 0,25% in 2007; 0,15% in 2008; 0.11% im 2009; 0,07% in 2010; 0,04% in 2011) in goats and sheep.
Raw milk only can be consumed if produced in herds free or officially free.

Recent actions taken to control the zoonoses

Spanish Programme on eradication of bovine brucellosis 2012.
Spanish Programme on eradication of brucellosis in goats and sheep 2012.
Milk control and control of the production of fresh meat in accordance to european legislation in force (Hygiene Package).
Furthermore, the Spanish Royal Decree 640/2006, of May 26, 2006, laying down specific implementation conditions of the Community rules concernig hygiene subjets, as well as foodstuff's production and commercialisation, establishes specific conditions regarding to milk and dairy milk.

Additional information

Since 1992, there has been a sharp decline in the number of human cases, marking the beginning of a new phase of low incidence that has been maintained over the last 15 years

2.6.2 Brucellosis in humans

A. Brucellosis in humans

Reporting system in place for the human cases

Notifiable Disease Surveillance System (NDSS)

In December of 1995 the National Network of Epidemiological Surveillance was created by law. This law and its development produced changes in the surveillance system.
During 1997 the protocols of statutory notification of diseases were approved and implemented in Spain.
In Spain the Autonomous Regions have wide powers with respect to epidemiological surveillance and national decisions are usually taken by consensus.
All practising doctors are obliged to notify, both those in the public health service and in private practice, and both those practising outside and within hospitals. On occasions the appearance of cases and outbreaks is detected by other means (from the mass media, from citizens complants, etc.) and in these cases the information is checked and if confirmed it is incorporated into the system at the corresponding level.
The notification may be carried out using a variety of systems: mail, fax, telephone, e-mail, etc. Presently all the regions (and in many cases levels below) transmit the data by e-mail. A network is being developed for the National Epidemiological Surveillance Network which will permit the flow of data from the local level.
In Spain the main source of information of these diseases is the notification of outbreaks. This notification has been compulsory by law for all doctors since 1982. It includes disease outbreaks of any origin, not only those related to food

Case definition

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Diagnostic/analytical methods used

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Notification system in place

Royal Decree 2210/1995, december 25, by Epidemiological Surveillance National Net is created.

Notifiable Disease Surveillance System (NDSS)

History of the disease and/or infection in the country

As the single zoonotic disease accountable for the greatest number of cases in Spain, brucellosis has been a statutorily notifiable disease since 1943.

The disease is distributed throughout all of Spain's regions, albeit in varying degrees, there being disease-free regions (Canary Islands), regions with low incidence rates (Mediterranean and Cantabrian

seaboards) and regions where incidence can be considered high or very high (central and southern mainland Spain). This pattern is linked to a tradition of sheep- and goat-ranching in these areas.

The disease constitutes a problem, not only from a public health but also from a socio-economic stance. Herein lies the sensitivity surrounding its surveillance, demonstrated by the different Administrations and reflected from the highest echelons in the form of specific legislation designed to control the disease and comply with international commitments

Results of the investigation

From 1943 onwards, the disease time series describes 3 well-differentiated multi-annual waves: the first being from 1943 to 1959, with a maximum incidence rate in 1949 (19,83x100,000 population); the second, a seven-year cycle terminating in 1977, marked by a maximum peak in 1973 with an incidence rate of 20,32x100,000 population; and the last and third cyclical wave, registering a maximum peak in 1984 with a rate of 22.69 per 100,000 population.

The number of human cases reported to the NDSS in 2012 was 87 (70 confirmed).

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

In 2012 the incidence was lower than the previous year, in consonance with the sustained downward trend observed in the country.

Epidemic outbreaks of brucellosis aetiology were reported in the last years. The predominant transmission mechanism was direct contact with animals followed by foodftuffs. The foodstuff most frequently associated with the outbreaks was cottage-style cheese.

Relevance as zoonotic disease

High

2.6.3 Brucella in foodstuffs

Table Brucella in food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Brucella	B. abortus	B. melitensis	B. suis
Dairy products, unspecified	F		Official sampling	food sample		Single	10	0			

	Brucella spp., unspecified
Dairy products, unspecified	

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES

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

The 2 provinces of the Canary Islands since june 2009.

Monitoring system

Sampling strategy

Sampling strategy is defined in Spanish Programme for Eradication of Bovine Brucellosis, covering cattle according to Directive 64/432/EEC(animals over 12 months of age). Test are carried out by competent authorities of Autonomous Communities.At slaughterhouses samples are taken in suspicius animals, mainly in positive animals coming from free or officially free herds (suspended estatus) to confirm the disease.

Frequency of the sampling

Twice a year at least. Only regions with low herd prevalence can apply a reduction of the frequency following Annex A.II.2 of Council Directive 64/432/CEE.
Pre-movement test.

Type of specimen taken

serum, blood, milk, organs/tissues,swabs

Methods of sampling (description of sampling techniques)

In animals over one year of age Rose Bengal as screening test or i-ELISA in milk; and Complement Fixation test or i-ELISA in serum as confirmatory test.As complementary test competition ELISA has been used as well.
At slaughterhouses swabs, organs and tissues are taken in suspicius animals,mainly from herds with free or officially free status suspended, to isolate Brucella and confirm the infection.

Case definition

Positive result to Rose Bengal test confirmed by positive result to Complement Fixation test or ELISA. In high prevalence areas, positive result to any official test. In free or officially free herds Brucella abortus isolation as well.
Positive result of i-Elisa in milk confirmed by serological methods.

Diagnostic/analytical methods used

Rose Bengal test ,agent isolation,serum i-ELISA, milk i-ELISA, c-ELISA and Complement Fixation test, following criteria laying down by Annex B of Directive 64/432/EEC

Vaccination policy

Forbidden in general, but in high prevalence areas vaccination can be authorised with vaccine B-19 or other authorised vaccines(RB-51)according to Directive 64/432/EEC.

Other preventive measures than vaccination in place

Pre-movement test
Cleaning and disinfecting of positive holdings
Control of common grazing areas
Investigation of possible wildlife reservoirs in some regions

Epidemiological investigations in breakdowns
Inspections and official control of field veterinarians
Inspections of restricted herds.

Control program/mechanisms

The control program/strategies in place

Spain has an Eradication and Monitoring Programme approved for co-financing according to Decision 2011/807/UE.
Legal basis of the programme measures is Directive 64/432/EEC and Royal Decree 2611/1996, at last ammended. Increased measures have been implemented:

pre-movement test
stamping out in low prevalence areas
vaccination in high prevalence areas
more frequent testing
inspections and official controls of field veterinarians
inspections of restricted herds

Recent actions taken to control the zoonoses

More frecuent testing and pre-movement test
Compulsory slaughter of all animals in herds with high incidence or repeating positive results, and in low prevalence areas if infection is confirmed
Research into other test methodologies
Reinforce over herd registers at farm level
Epidemiological studies

Suggestions to the European Union for the actions to be taken

Research into other test methodologies and improve existing ones.

Measures in case of the positive findings or single cases

Confirmation of the infection by complement fixation test and culture, and if herd is free or officially free,status is suspended and if isolation of Brucella abortus is confirmed, lost of status by holding and, if the herd is placed in a low plevalence area, depopulation.

Notification system in place

Since 1952, at least(Epizootic Diseases Law)

At the moment by Animal Health Law 8/2003

Results of the investigation

Herd prevalence: 0,08%
Animal prevalence: 0,01%
Herd incidence: 0,06%
Herd status: 97.06% OBF; 2,07% BF

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

Data obtained by the implementation of Spanish Eradication and Monitoring Programme on Bovine Brucellosis show a moderate increase of the disease in the country in 2004, following by an important decrease in 2005, 2006 and mainly in 2007, 2008, 2009,2010, 2011 and 2012.
Herd prevalence: 2,30%(2002);1,45%(2003);1,54(2004); 1,25%(2005); 0,84%(2006); 0,57 (2007); 0,40(2008); 0,32%(2009); 0,20%(2010); 0,12%(2011);0,08(2012)
Animal prevalence: 0,39%(2002);0,45%(2003);0,59%(2004); 0,37% (2005); 0,22(2006); 0,13(2007); 0,09(2008); 0,07(2009); 0,05%(2010); 0,02% (2011); 0,06 (2012).

Disease is close to eradication in dairy herds.Herd prevalence is below 1%(0,02%).In conclusion, milk consumption can't be considered as a current source of infection in Spain, even more if it is assumed that almost all the cow milk is thermally treated.
In herds for meat production, herd prevalence is below 1% as well (0,24%).

Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

Brucellosis in humans is linked in Spain mainly to B. melitensis.

B. Brucella melitensis in goats

Status as officially free of caprine brucellosis during the reporting year

Free regions

Canary Islands by Decision 2001/292/EC

Balearic Islands by Decision 2010/695/EU

Monitoring system

Sampling strategy

see brucella melitensis in sheep

Frequency of the sampling

see brucella melitensis in sheep

Methods of sampling (description of sampling techniques)

see brucella melitensis in sheep

Case definition

see brucella melitensis in sheep

Diagnostic/analytical methods used

see brucella melitensis in sheep

Vaccination policy

see brucella melitensis in sheep

Other preventive measures than vaccination in place

see brucella melitensis in sheep

Control program/mechanisms

The control program/strategies in place

see brucella melitensis in sheep

Recent actions taken to control the zoonoses

see brucella melitensis in sheep

Suggestions to the European Union for the actions to be taken

see brucella melitensis in sheep

Measures in case of the positive findings or single cases

see brucella melitensis in sheep

Notification system in place

see brucella melitensis in sheep

Results of the investigation

see brucella melitensis in sheep

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

see brucella melitensis in sheep

Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

see brucella melitensis in sheep

C. Brucella melitensis in sheep

Status as officially free of ovine brucellosis during the reporting year

Free regions

Canary Islands by Decision 2001/292/EC
Balearic Islands by Decision 2010/695/EU

Monitoring system

Sampling strategy

Sampling strategy is defined in Spanish Programme on eradication and monitoring of brucellosis in sheep and goats, according to Directive 91/68/EEC:
- animals over 6 months of age if not vaccined
- animals over 18 months of age if vaccined
Tests are carried out by competent authorities of Autonomous Communities. At slaughterhouse samples are taken in suspicius animals, mainly in positive animals coming from free or oficially free herds(suspended status)to confirm de disease.

Frequency of the sampling

Once a year at least in herds free or officially free.
Twice a year at least in non qualified herds.

Type of specimen taken

serum, blood, milk, organs/tissues

Methods of sampling (description of sampling techniques)

At herd level, in animals over 6 or 18 months of age Rose Bengal as screening test and Complement Fixation as confirmatory test.
At slaugterhouses or at holdings, swabs, milk, organs or tissues are taken in suspicious animals, mainly from herds with free or officially free status suspended, to isolate Brucella and confirm the infection.

Case definition

Positive result to Rose Bengal confirmed by positive result to Complement Fixation.In infecterd herds, positive results to any official test.
In free or officially free herds Brucella melitensis isolation as well.

Diagnostic/analytical methods used

Rose Bengal test, agent isolation, Complement Fixation test following criteria laying down by Annex C of Directive 91/68/EEC

Vaccination policy

Animals between 3 and 6 months of age (not in officially free herds or free herds that are on the way to gain oficially free status in low prevalence areas)
In high incidence areas adults can be vaccined exceptionally to control the spread of the disease to other herds or humans.

Other preventive measures than vaccination in place

Pre-movement test in trashumance in certain areas
Cleaning and desinfecting of positive holdings
Control of common grazing areas
Epidemiological investigations in breakdowns
Inspections and official control of the field veterinarians

Control program/mechanisms

The control program/strategies in place

Spain has an Eradication Programme approved for co-financing according to Decision 2011/807/UE.
Legal basis of the programme measures are Directive 91/68/EEC and Royal Decree 1941/2004.

Recent actions taken to control the zoonoses

More frequent testing in non qualified herds
Compulsory slaughter of all animals in herds with high incidence or repeating positive results
Research in other test methodologies
Reinforce over herd register at farm level
Epidemiological studies

Suggestions to the European Union for the actions to be taken

Research into other test methologies and into other vaccines. Authoritation of new tests (ELISA,FPA)

Measures in case of the positive findings or single cases

Confirmation by complement fixation test, and if herd free or officially free, status is suspended and if isolation of Brucella melitensis, lost of status by holding and depopulation if herd is placed in low prevalence area

Notification system in place

Since 1952, at least(Epizootic Diseases Law)

At the moment by Animal Helth Law 8/2003

Results of the investigation

Herd prevalence: 0.26%
Animal prevalence: 0,03%
Herd incidence: 0,18%
Herd status: 60,12% OMF; 33,64% free

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

Data obtained by implementation of Spanish Programme for Eradication and Monitoring of Brucellosis in Sheep and Goats show continous decreasing trend of the disease in the country, following the trends of previous years:
Herd prevalence:7,18%(2002);5,58%(2003);5,12%(2004);4,43%(2005);3,20%(2006); 2,79%(2007); 2,11%(2008);1,64%(2009); 0,89% (2010); 0,54% (2011);0,26% (2012)
Animal prevalence:0,98%(2002);0,87%(2003);0,61%(2004);0,45%(2005);0,34%(2006);0,25%(2007); 0,15%(2008); 0,11%(2009); 0,07% (2010); 0,04% (2011); 0,03% (2012).

Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

The human cases have been identified mainly as Brucella melitensis, caused by direct contact between humans and infected herds, as a professional disease (farmers, veterinary surgeons...).

Table Brucellosis in other animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Brucella	B. abortus	B. melitensis	B. suis
Pigs [1)]	A	Selective sampling	Official sampling	animal sample > blood	Unknown	Animal	1132	0			
Badgers - wild - natural habitat - Surveillance [2)]	M.A.G.R.A.M.A.	Convenience sampling	Official sampling	animal sample > organ/tissue	Domestic	Animal	8	0			
Deer - wild - fallow deer - from hunting - Surveillance [3)]	M.A.G.R.A.M.A.	Convenience sampling	Official sampling	animal sample > organ/tissue	Domestic	Animal	32	0			
Deer - wild - red deer - from hunting - Surveillance [4)]	M.A.G.R.A.M.A.	Convenience sampling	Official sampling	animal sample > organ/tissue	Domestic	Animal	481	0			
Deer - wild - roe deer - from hunting - Surveillance [5)]	M.A.G.R.A.M.A.	Convenience sampling	Official sampling	animal sample > organ/tissue	Domestic	Animal	113	0			
Dromedaries - farmed - at farm - Surveillance [6)]	A	Objective sampling	Official sampling	animal sample > blood	Domestic	Animal	588	0			
Foxes - wild - from hunting - Surveillance [7)]	M.A.G.R.A.M.A.	Convenience sampling	Official sampling	animal sample > organ/tissue	Domestic	Animal	2	0			
Mouflons - wild - from hunting - Surveillance [8)]	M.A.G.R.A.M.A.	Convenience sampling	Official sampling	animal sample > organ/tissue	Domestic	Animal	28	0			
Wild boars - wild - from hunting - Surveillance [9)]	M.A.G.R.A.M.A	Convenience sampling	Official sampling	animal sample > organ/tissue	Domestic	Animal	1794	23			23

Table Brucellosis in other animals

	Brucella spp., unspecified
Pigs [1)]	
Badgers - wild - natural habitat - Surveillance [2)]	
Deer - wild - fallow deer - from hunting - Surveillance [3)]	
Deer - wild - red deer - from hunting - Surveillance [4)]	
Deer - wild - roe deer - from hunting - Surveillance [5)]	
Dromedaries - farmed - at farm - Surveillance [6)]	
Foxes - wild - from hunting - Surveillance [7)]	
Mouflons - wild - from hunting - Surveillance [8)]	
Wild boars - wild - from hunting - Surveillance [9)]	

Comments:

[1)] SEROLOGY/CULTURE/PCR

[2)] CULTURE/PCR

[3)] CULTURE/PCR

[4)] CULTURE/PCR

[5)] CULTURE/PCR

[6)] SEROLOGY

[7)] CULTURE/PCR

Table Brucellosis in other animals

Comments:

[8)] CULTURE/PCR

[9)] CULTURE/PCR

Footnote:

A: ANIMAL HEALTH SERVICES OF AUTONOMOUS COMMUNITIES

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

If present, the row "Total -1" refers to analogous data of the previous year.

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
Andalucía	7046	6994	5966	1	1	0	0	85.3	.02	.02
Aragón	3097	2765	1373	0	0	0	N.A.	49.66	0	0
Asturias	18250	18250	18250	0	0	0	N.A.	100	0	0
Canarias	1130	1130	233	0	0	0	N.A.	20.62	0	0
Cantabria	7542	7493	7493	31	26	4	12.9	100	.41	.35
Castilla y León	14300	13878	13878	25	20	2	8	100	.18	.14
Castilla-La Mancha	3005	3005	2396	1	1	0	0	79.73	.04	.04
Cataluña	5113	4838	4817	0	0	0	N.A.	99.57	0	0
Extremadura	9919	9271	9219	25	14	4	16	99.44	.27	.15
Galicia	42916	42911	36075	0	0	0	N.A.	84.07	0	0
Illes Balears	585	497	497	0	0	0	N.A.	100	0	0
La Rioja	315	315	315	0	0	0	N.A.	100	0	0
Madrid	1395	1386	1386	0	0	0	N.A.	100	0	0

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

Murcia	339	295	294	0	0	0	N.A.	99.66	0	0
Navarra	1648	1648	1648	0	0	0	N.A.	100	0	0
País Vasco	6130	6130	5408	0	0	0	N.A.	88.22	0	0
Valencia / València	642	580	471	0	0	0	N.A.	81.21	0	0
Total : [1)]	123372	121386	109719	83	62	10	12.05	90.39	.08	.06
Total - 1	126435	123070	111367	136	90	6	4.41	90.49	.12	.08

Comments:

[1)] N.A.

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

If present, the row "Total -1" refers to analogous data of the previous year.

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
Andalucía	17804	17551	16513	178	145	20	11.24	94.09	1.08	.88
Aragón	4055	3989	3877	2	1	0	0	97.19	.05	.03
Asturias	6452	6452	6452	0	0	0	N.A.	100	0	0
Canarias	3907	3907	755	0	0	0	N.A.	19.32	0	0
Cantabria	4346	4344	4344	0	0	0	N.A.	100	0	0
Castilla y León	10903	10860	10860	0	0	0	N.A.	100	0	0
Castilla-La Mancha	6419	6107	6107	37	23	2	5.41	100	.61	.38
Cataluña	3561	3437	3360	23	5	1	4.35	97.76	.68	.15
Extremadura	15465	14320	14104	10	1	1	10	98.49	.07	.01
Galicia	22857	22857	22857	0	0	0	N.A.	100	0	0
Illes Balears	4639	4639	1323	0	0	0	N.A.	28.52	0	0
La Rioja	428	402	400	1	1	0	0	99.5	.25	.25
Madrid	659	649	649	1	0	1	100	100	.15	0

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

Murcia	2148	2083	1970	19	12	0	0	94.58	.96	.61
Navarra	2393	2393	2393	0	0	0	N.A.	100	0	0
País Vasco	8266	8266	7622	0	0	0	N.A.	92.21	0	0
Valencia / València	1452	1424	1302	1	1	0	0	91.43	.08	.08
Total : [1)]	115754	113680	104888	272	189	25	9.19	92.27	.26	.18
Total - 1	117818	115733	104225	567	339	30	5.29	90.06	.54	.33

Comments:

[1)] N.A.

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

If present, the row "Total -1" refers to analogous data of the previous year.

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 culled	Total number of animals slaughtered	% coverage at animal level	% positive animals - animal prevalence
Andalucía	504354	500345	352211	352211	12	12	13	70.39	0
Aragón	324458	74317	73962	73962	0	0	1	99.52	0
Asturias	366775	280743	280743	280743	0	0	9	100	0
Canarias	18175	18175	3523	3523	0	0	0	19.38	0
Cantabria	280084	226628	226628	226628	71	71	511	100	.03
Castilla y León	1091614	1073729	774387	774387	265	264	763	72.12	.03
Castilla-La Mancha	366735	168101	168101	168101	3	3	3	100	0
Cataluña	553025	192264	191660	191660	0	0	28	99.69	0
Extremadura	769993	540140	528516	520932	93	244	336	97.85	.02
Galicia	939743	668418	668418	668418	0	0	10	100	0
Illes Balears	29921	18219	18219	4191	0	0	0	100	0
La Rioja	39120	22129	22129	22129	0	0	0	100	0
Madrid	89935	59735	59735	59735	3	3	4	100	.01

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

Murcia	62547	8671	8671	8671	0	0	0	100	0
Navarra	110367	71099	71099	70229	0	1	1	100	0
País Vasco	132040	91699	91699	86785	0	0	0	100	0
Valencia / València	49271	48444	40949	25915	0	0	0	84.53	0
Total : [1)]	5728157	4062856	3580650	3538220	447	598	1679	88.13	.01
Total - 1	5838459	4101948	3687391	3658739	737	864	3002	89.89	.02

Comments:

[1)] N.A.

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

If present, the row "Total -1" refers to analogous data of the previous year.

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 culled	Total number of animals slaughtered	% coverage at animal level	% positive animals - animal prevalence
Andalucía	3012536	2623949	2602146	2008486	2553	2554	7966	99.17	.1
Aragón	1491153	1415167	1410087	1410087	0	0	72	99.64	0
Asturias	91217	91217	91217	91217	0	0	0	100	0
Canarias	356736	356736	37068	36648	0	0	0	10.39	0
Cantabria	76670	76670	76670	76670	0	0	19	100	0
Castilla y León	3145534	3145534	3145534	1000437	0	0	47	100	0
Castilla-La Mancha	2892159	2356291	2356291	1412016	779	779	1120	100	.03
Cataluña	611779	487418	484556	484556	652	585	2269	99.41	.13
Extremadura	3922945	3026320	3009493	1149043	324	832	1135	99.44	.01
Galicia	246827	246827	246827	246827	0	0	21	100	0
Illes Balears	336034	81490	81490	36026	0	0	0	100	0
La Rioja	110209	102742	102661	102661	1	1	1	99.92	0
Madrid	80218	78377	78377	78377	28	28	717	100	.04

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

Murcia	681869	467061	460944	460944	130	117	117	98.69	.03
Navarra	563873	558778	558778	179961	0	3	3	100	0
País Vasco	287979	206830	206830	174571	0	0	0	100	0
Valencia / València	407487	407487	379384	210034	1	1	1	93.1	0
Total : [1)]	18315225	15728894	15328353	9158561	4468	4900	13488	97.45	.03
Total - 1	19092970	15583294	15378697	10435485	6632	7267	15027	98.69	.04

Comments:

[1)] N.A.

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

If present, the row "Total -1" refers to analogous data of the previous year.

	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 negative							
Region	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals
Andalucía	6994	499209	441	21778	0	0	59	1509	0	0	1	432	6493	475490
Aragón	3095	324861	0	0	0	0	0	0	9	220	0	0	3086	324641
Asturias	18223	264543	1	0	0	0	99	799	0	0	0	0	18133	263744
Canarias	1130	18175	0	0	0	0	0	0	0	0	0	0	1130	18175
Cantabria	7493	226628	0	0	15	852	3	440	12	832	1	68	7462	224436
Castilla y León	13878	1048612	20	1477	32	5211	172	9102	0	0	2250	192203	11404	840619
Castilla-La Mancha	3005	366735	0	0	1	685	0	0	0	0	0	0	3004	366050
Cataluña	4837	509032	1	33	0	0	5	84	7	129	0	0	4824	508786
Extremadura	9091	723997	0	0	8	640	70	5549	31	2662	213	24875	8769	690271
Galicia	41725	934797	24	253	0	0	12	120	16	733	0	0	41673	933691
Illes Balears	588	29921	0	0	0	0	0	0	0	0	0	0	588	29921
La Rioja	315	22129	0	0	0	0	0	0	0	0	0	0	315	22129
Madrid	1386	61679	0	0	0	0	0	0	0	0	0	0	1386	61679

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

Murcia	290	40569	0	0	0	0	10	62	0	0	0	0	280	40507
Navarra	1648	110367	0	0	0	0	0	0	0	0	0	0	1648	110367
País Vasco	6130	132040	0	0	0	0	0	0	0	0	0	0	6130	132040
Valencia / València	555	48509	3	5	0	0	2	18	0	0	0	0	550	48486
Total : [1)]	120383	5361803	490	23546	56	7388	432	17683	75	4576	2465	217578	116875	5091032
Total - 1	120466	5292594	192	1921	58	7753	2234	39841	152	12498	3304	288959	114547	4932163

Comments:

[1)] N.A.

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

If present, the row "Total -1" refers to analogous data of the previous year.

	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 negative							
Region	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals
Andalucía	17475	3854148	437	66385	93	34657	1013	113592	32	13807	11484	2995038	4416	630669
Aragón	4055	1491153	0	0	0	0	0	0	4	1199	1072	342117	2979	1147837
Asturias	10268	92926	0	0	0	0	441	1689	0	0	0	0	9827	91237
Canarias	3907	356736	0	0	0	0	0	0	0	0	0	0	3907	356736
Cantabria	4344	76670	0	0	0	0	0	0	7	99	0	0	4337	76571
Castilla y León	10812	3143878	10	465	0	0	0	0	0	0	0	0	10802	3143413
Castilla-La Mancha	6108	2356291	0	0	21	18816	94	28346	10	3238	1993	655706	3990	1650185
Cataluña	3436	550583	21	6102	13	9447	131	12376	53	9164	2682	438634	536	74860
Extremadura	14165	3808158	0	0	6	3894	765	36062	32	1280	13213	3672208	149	94714
Galicia	22303	242650	63	219	0	0	97	615	25	649	0	0	22118	241167
Illes Balears	4639	336034	0	0	0	0	0	0	0	0	0	0	4639	336034
La Rioja	402	102742	0	0	0	0	0	0	2	81	0	0	400	102661
Madrid	649	78377	0	0	0	0	0	0	0	0	577	58464	72	19913

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

Murcia	2017	448430	0	0	13	7818	297	19624	8	2747	1584	370392	115	47849
Navarra	2393	558778	0	0	0	0	0	0	0	0	0	0	2393	558778
País Vasco	8266	295227	0	0	0	0	0	0	0	0	0	0	8266	295227
Valencia / València	1424	407487	0	0	0	0	22	2479	12	5432	879	282864	511	116712
Total : [1)]	116663	18200268	531	73171	146	74632	2860	214783	185	37696	33484	8815423	79457	8984563
Total - 1	115652	18075725	1149	40472	241	144645	4232	351736	305	62477	38432	10150221	71293	7326174

Comments:

[1)] N.A.

2.7 YERSINIOSIS

2.7.1 General evaluation of the national situation

A. Yersinia enterocolitica general evaluation

History of the disease and/or infection in the country

Microbiolgical Surveillance System was the Spanish surveillance system for epidemiological surveillance of yersinia infection in humans. It is based on the number of incident cases sent by hospital laboratories to Microbiological Information System (National Centre of Epidemiology).

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

The number of Yersinia enterocolitica human cases reported to the Microbiological Information System was 220 in 2012, versus 264 cases in 2011.

At animal level, an active monitoring programme in fattening pigs at slaughter in 2011 detected Y. enterocolítica in 43,2% of the slaughter batches tested. All the strains belonged to biotype 4 serotype O:3.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

Animals are the main source of Yersinia. Fecal wastes from animals (particularly pigs) may contaminate water, milk and foods and become a source of infection for people or other animals.

Recent actions taken to control the zoonoses

The activities are made according to Regulation (EC) no 178/2002. (i.e. rapid alert system, traceability of food, feed, food-producing animals and all substances incorporated into foodstuffs). Controls must be established at all stages of production, processing and distribution. To this end, business operators are required to apply appropriate systems and procedures.

At animal level, active monitoring programmeshave been performed in pigs at slaugtherhouse in 2007-2011.

2.7.2 Yersiniosis in humans

A. Yersinosis in humans

Reporting system in place for the human cases

In December of 1995 the National Network of Epidemiological Surveillance was created by law. This law and its development produced changes in the surveillance system.

In Spain the Autonomous Regions have wide powers with respect to epidemiological surveillance and national decisions are usually taken by consensus.

- Microbiological Information System
The Microbiological Information System has been based since 1989 on voluntary weekly reporting by clinical microbiology laboratories (principally hospital laboratories). Currently, in order to improve the notification, this procedure is becoming compulsory for a designated group of representative laboratories. The information in these reports is based on individual cases and includes the following variables: agent, time, place, age, sex, etc.

- Outbreak reporting System
In Spain outbreaks are the main source of information for the foodborne diseases.

Case definition

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Diagnostic/analytical methods used

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC

Notification system in place

Microbiological Information System
Outbreak Reporting System

History of the disease and/or infection in the country

Yersinia is the third most common cause of bacterial gastrointestinal infection in Spain

Results of the investigation

The number of cases of Y. enterocolitica reported
has increased steadily since it was made notifiable in 1989.
In 2012 the number of human cases reported was 220, versus 264 in 2011.

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

Infants and young adults are particularly likely to be infected. More than 50% are in the groups less of five years.
It is usually transmitted to humans via consumption of food contaminated with animal feces.

Relevance as zoonotic disease

Enteric yersiniosis can be transmitted between animals and humans.
Yersiniosis have a high relevance as zoonotic disease.

2.7.3 Yersinia in foodstuffs

Table Yersinia in food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Yersinia	Y. enterocolitica	Y. pseudotuberculosis
Meat from pig - fresh - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	73	9	7	0
Meat from pig - fresh - at processing plant	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	32	10	10	0
Meat from bovine animals - fresh - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	2	2	2	0
Meat from broilers (Gallus gallus) - fresh - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	23	9	9	0
Meat from other animal species or not specified - fresh - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	18	4	4	0
Meat from other animal species or not specified - meat preparation	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	70	18	18	0
Meat from other animal species or not specified - minced meat	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	3	1	1	0
Meat from other poultry species - fresh - at retail	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	6	4	4	0

	Yersinia spp., unspecified	Y. enterocolitica - O:3	Y. enterocolitica - O:9	Y. enterocolitica - unspecified
Meat from pig - fresh - at retail	2	1	0	6
Meat from pig - fresh - at processing plant	0	0	0	10

Table Yersinia in food

	Yersinia spp., unspecified	Y. enterocolitica - O:3	Y. enterocolitica - O:9	Y. enterocolitica - unspecified
Meat from bovine animals - fresh - at retail	0	0	0	2
Meat from broilers (Gallus gallus) - fresh - at retail	0	0	0	9
Meat from other animal species or not specified - fresh - at retail	0	0	0	4
Meat from other animal species or not specified - meat preparation	0	0	0	18
Meat from other animal species or not specified - minced meat	0	0	0	1
Meat from other poultry species - fresh - at retail	0	0	0	4

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.

2.8 TRICHINELLOSIS

2.8.1 General evaluation of the national situation

A. Trichinellosis general evaluation

History of the disease and/or infection in the country

Trichinellosis is a notifiable zoonosis, which causes two to three outbreaks per year in Spain. In 1995, the National Network of Epidemiological Surveillance (NNES) developed a standard protocol to detect every single case of trichinellosis, and notify the health authorities as quickly as possible when an outbreak occurs

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

Sources of infection are mainly associated to the consume of meat and raw meat products of wild boars killed in hunting or pigs slaughtered at home and which carcasses has not been examinated post-mortem.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

Most cases are caused by Trichinella spiralis. Trichinella britovi has previously been associated with outbreaks due to the consumption of boar meat, and meat from other wild animals but in the last years T britovi was associated with pork meat and transmitted through the consumption of meat from a domestic pig.

Recent actions taken to control the zoonoses

The activities against this zoonoses are the Official Control:

Examination of fresh meat and killed in hunting according to European legislation in force:

Commission Regulation (EC) Number 2075/2005 of December 5, 2005 laying down specific rules on official controls for trichinella in meat and Commission Regulation (EC) Number 1665/2006 amending Comission Regulation (EC) Number 2075/2005)

Domestic killing for self consumption and wild game meat to be sold at retail is regulated by the Spanish Royal Decree 640/2006, of May 26, 2006, laying down specific implementation conditions of the Communities rules concerning hygiene subjets, as well as foodstuff's production and commercialisation.

According to article seven of the Commission Regulation (EC) Number 2075/2005 of December 5, 2005, laying down specific rules on official controls for Trichinella in meat, Spain has prepared a contingency plan outlining all action to be taken when samples referred to in articles 2 and 16 test are positive to Trichinella. This plan includes details covering:

(a)traceability of infested carcass(s);

(b)measures for dealing with infested carcass(s) and parts thereof;

(c)investigation of the source of investigation and any spreading among wildlife;

(d)any measures to be taken at retail or consumer level;

(e)measures to be taken where the infested carcass(s) cannot be identified at the slaughterhouse;

(f)determination of the Triquinella species involved.

In Spain the Triquinella examination is compulsory for meat from trichinella susceptible species, including domestic killing for self-consumption.

2.8.2 Trichinellosis in humans

A. Trichinellosis in humans

Reporting system in place for the human cases

- Outbreak reporting

In Spain outbreaks are the main source of information for the foodborne diseases.
The notification of outbreaks is mandatory and standardised.

The results of the statistical and epidemiological analysis are disseminated in annual reports. In addition they are published in epidemiological bulletins (national, regional and other). The weekly national epidemiological bulletin can be found at:
http://www.isciii.es/jsps/centros/epidemiologia/boletinesSemanal.jsp
Outbreak investigations as well as necessary control measures are carried out by the health authorities of the autonomous regions.

Case definition

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC

Diagnostic/analytical methods used

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC

Notification system in place

Outbreak Reporting System Notifiable Disease Surveillance System (NDSS)

In Spain the main source of information of trichinellosis is the notification of outbreaks. This notification has been compulsory by law for all doctors since 1982. It includes disease outbreaks of any origin, not only those related to food outbreak reporting
In Spain outbreaks are the main source of information for trichinellosis.
The notification of outbreaks is mandatory and standardised. All the outbreaks must be reported immediately at the regional level. At the national level it is obligatory to report immediately only those outbreaks which, by law, are defined as being supra-communitary (considered to be of national interest) in order to facilitate their rapid control, where as the rest of the outbreaks are reported quarterly.
The results of the statistical and epidemiological analysis are disseminated in annual reports. In addition they are published in epidemiological bulletins (national, regional and other). The weekly national epidemiological bulletin.

Outbreak investigations as well as necessary control measures are carried out by the health authorities of the autonomous regions.
Training courses and guidelines on outbreak investigation addressed to doctors dealing with these problems have been set up in all regions.

History of the disease and/or infection in the country

Trichinellosis is a notifiable zoonosis, which causes several outbreaks per year in Spain. Most outbreaks are caused by Trichinella spiralis. Trichinella britovi has been associated with outbreaks due to the

consumption of pig meat, boar meat.

Description of the positive cases detected during the reporting year

The majority of human trichinellosis is linked to the consumption of undercooked or raw pig or wild boar meat products.
In 2012, 2 outbreaks have been notified.

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

In the last years most Spanish outbreaks were due to consumption wild boar meat. Outbreaks from wild boar meat are increasingly frequent in certain regions of Spain and could be explained by ecological modifications in rural areas

Relevance as zoonotic disease

high

2.8.3 Trichinella in animals

Table Trichinella in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Units tested	Total units positive for Trichinella	T. spiralis	Trichinella spp., unspecified	T. britovi
Pigs - fattening pigs - not raised under controlled housing conditions - at slaughterhouse - Surveillance	F	Census	Official sampling	animal sample	Unknown	Animal	40783578	115	0	115	0
Solipeds, domestic - horses - at slaughterhouse - Surveillance [1)]	F	Census	Official sampling	animal sample	Unknown	Animal	69087	1	0	1	0
Wild boars - wild - Surveillance	F,L	Census	Official sampling	animal sample	Unknown	Animal	123597	245	14	221	10
Deer - wild	F	Census	Official sampling	animal sample	Unknown	Animal	184	0	0	0	0
Pigs (Domestic slaughter for self-consumption.)	F,L	Census	Official sampling	animal sample	Unknown	Animal	32987	1	1	0	0

Comments:

[1)] Only one larva from a pool of four horse muscles was available for the identification. When the larva was sent to the Spanish laboratory for its identification, it was very destroyed and the only available information was ‘Trichinella larva unspecified’.

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.
L: NATIONAL REFERENCE LABORATORY.

2.9 ECHINOCOCCOSIS

2.9.1 General evaluation of the national situation

A. Echinococcus spp. general evaluation

History of the disease and/or infection in the country

Hidatid disease is considered an endemic disease in Spain, associated mainly with extensive or semi-extensive sheep-raising regions in the central part of the country.
Hydatidosis is an endemic disease in Spain, mainly in regions with extensive systems of animal production.

Human hydatidosis has been a Mandatory Notifiable disease since 1982, year in which were comunicated around 2000 cases.Royal Decree 2210/1995, laying down the National Epidemiologyc Surveillance Network, classify hydatidosis as an endemic disease at regional frame.

In 80´s many regions started to set up a control programme based in control of animal hydatidosis and in general people´s health education and focused in professionals related with animals and at school level. Similar control programmes have been developed in other Authonomous Communities.

The implementation of these control programmes got good results in the decrease of the incidence of the disease.
Routine post-mortem examination at slaughterhouse has being carried out according to european legislation in force (Hygiene Package).

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

Control programmes in endemic regions got good results in the dicrease of the disease at human level.
Main source of infection in Spain is cycle between sheep,dog and humans.
The epidemiological surveillance of human CE was initiated in the 1950s by the provincial health government authorities, through an active search of cases with individualized information. In 1982 CE was included in the Spanish list of compulsory notifiable diseases (CND), being recorded at national level until 1996.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

Higher incidence values of human cases are situated in regions with the highest census of sheep and goats.

Recent actions taken to control the zoonoses

Surveillance according to Directive 2003/99/EEC.
Control programmes in endemic regions.
Inclusion in National Epidemiologyc Surveillance Network according to Royal Decree 2210/1996.

The activities against this zoonoses are the Official Control in fresh meat according to european Legislation in force (Hygiene package).

2.9.2 Echinococcosis in humans

A. Echinococcus spp. in humans

Reporting system in place for the human cases

Human incidence were gathered from national epidemiological
surveillance information systems, Notifiable Disease Surveillance System (NDSS)

In December of 1995 the National Network of Epidemiological Surveillance was created by law. This law and its development produced changes in the surveillance system.
During 1997 the protocols of statutory notification of diseases were approved and implemented in Spain.
In Spain the Autonomous Regions have wide powers with respect to epidemiological surveillance and national decisions are usually taken by consensus.
All practising doctors are obliged to notify, both those in the public health service and in private practice, and both those practising outside and within hospitals. On occasions the appearance of cases and outbreaks is detected by other means (from the mass media, from citizens complants, etc.) and in these cases the information is checked and if confirmed it is incorporated into the system at the corresponding level.

Case definition

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Diagnostic/analytical methods used

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Notification system in place

In 1982, Notifiable Disease Surveillance System list was enhanced, and it was introduced the hydatidosis numerical notification. The health system collected the information from the medical consultations where the diagnosis was performed, the notification of suspect cases and incidents.

History of the disease and/or infection in the country

In Spain, E. granulosus is endemic in various regions, the trend curve showed a significant decrease from 1986 to 2011 with 55 confirmed cases reporting at National surveillance System.

The geographical distribution remains heterogeneous, with more cases in the peninsular plateau regions. The analysis of the demographic variables shows that, although the disease affects all age groups, the older age groups are the most affected. There are not significant sex differences.

Results of the investigation

In 2012 the number of confirmed cases reported to the NDSS was 96, showing an increase in relation to 2011. Nevertheless, the total number of cases has a decreasing trend.

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

There is a notable decrease in human echinococcosis. This decrease is most likely a result of a continued control programme, particularly in endemic regions with extensive animal production

Relevance as zoonotic disease

Cystic echinococcosis caused by the cestode Echinococcus granulosus is an endemic disease in Spain. Although specific control programmes initiated in the 1980s have led to marked reductions in CE infection rates in Spain, the disease still remains an important human and animal health problem in many regions of the country.

2.9.3 Echinococcus in animals

Table Echinococcus in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Region	Units tested	Total units positive for Echinococcus	E. granulosus	E. multilocularis
Cattle (bovine animals) - at slaughterhouse - Surveillance	F	Objective sampling	Official sampling	animal sample	Unknown	Animal		2382031	18937	18937	0
Sheep - at slaughterhouse - Surveillance	F	Objective sampling	Official sampling	animal sample	Unknown	Animal		10901168	104105	104105	0
Goats - at slaughterhouse - Surveillance	F	Objective sampling	Official sampling	animal sample	Unknown	Animal		688908	4762	4762	0
Pigs - at slaughterhouse - Surveillance	F	Objective sampling	Official sampling	animal sample	Unknown	Animal		40783578	3374	3374	0
Solipeds, domestic - horses - at slaughterhouse - Surveillance	F	Objective sampling	Official sampling	animal sample	Unknown	Animal		69087	487	487	0
Foxes - Monitoring	F	Objective sampling	Official sampling	animal sample	Unknown	Animal		1969	0	0	0
Deer - wild - at game handling establishment	F	Objective sampling	Official sampling	animal sample	Unknown	Animal		159262	75	75	0
Pigs (Domestic killing for self-consumption.)	F	Objective sampling	Official sampling	animal sample	Unknown	Animal		26248	170	170	0
Wild boars - wild	F	Objective sampling	Official sampling	animal sample	Unknown	Animal		72562	48	48	0

	Echinococcus spp., unspecified
Cattle (bovine animals) - at slaughterhouse - Surveillance	0
Sheep - at slaughterhouse - Surveillance	0

Table Echinococcus in animals

	Echinococcus spp., unspecified
Goats - at slaughterhouse - Surveillance	0
Pigs - at slaughterhouse - Surveillance	0
Solipeds, domestic - horses - at slaughterhouse - Surveillance	0
Foxes - Monitoring	0
Deer - wild - at game handling establishment	0
Pigs (Domestic killing for self-consumption.)	0
Wild boars - wild	0

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.

2.10 TOXOPLASMOSIS

2.10.1 General evaluation of the national situation

A. Toxoplasmosis general evaluation

History of the disease and/or infection in the country

Toxoplasmosis in production animals has been associated classically to the production of miscarriage.The main source of infection is linked to the contamination of feed by cat faeces, although the use of dung in pasture natural fertilitation has to be considered as an important source of infection for adults.
For humans, there are two main sources of infection: contact with cats and comsumption of vegetables, water or animal products, mainly sheep and pig meat.
In 60's and 70's studies in some regions of Spain detected prevalences between 12-45% in sheep; between 11- 42% in pig;and between 14-36%in cattle.
More recent studies seem prevalences between 30-57% in sheep;between 41-62% in pig;and between 25 -43% in cattle.
In cats, the incidence founded by private clinics are close to 30%.

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

Main sources of infection for humans are cats and comsumption of meat insufficientment cooked.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

More studies need to be developed about incidence of congenital toxoplasmosis.

Recent actions taken to control the zoonoses

Surveillance according to Directive 2003/99/EC
Primary prevention of the disease with recommendations to prevent infection during pregnance in humans

2.10.2 Toxoplasmosis in humans

A. Toxoplasmosis in humans

Reporting system in place for the human cases

Royal Decree 2210/1995, december 25, by Epidemiological Surveillance National Net is created.

Microbiological Information System

Case definition

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC

Diagnostic/analytical methods used

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Notification system in place

Microbiological Information System
The Microbiological Information System has been based since 1989 on voluntary weekly reporting by clinical microbiology laboratories (principally hospital laboratories). Currently, in order to improve the notification, this procedure is becoming compulsory for a designated group of representative laboratories. The information in these reports is based on individual cases and includes the following variables: agent, time, place, age, sex, etc

Results of the investigation

After depuration of the Microbiological Information System database, only one congenital case was notified in 2011. In 2012 there were no cases reported.

Additional information

Only congenital cases

2.10.3 Toxoplasma in animals

Table Toxoplasma in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Analytical Method	Sampling unit	Units tested	Total units positive for Toxoplasma	T. gondii	Toxoplasma spp., unspecified
Cattle (bovine animals) - at farm - Monitoring	A	Convenience sampling	Official sampling	animal sample > blood		ELISA	Herd	40	0		
Goats - at farm - Clinical investigations	A	Suspect sampling	Official sampling	animal sample > blood		ELISA	Herd	9	1		1
Dogs - Clinical investigations	A	Suspect sampling	Not applicable	animal sample > blood		ELISA	Animal	939	329	329	

Footnote:

A: ANIMAL HEALTH SERVICES OF AUTONOMOUS COMMUNITIES

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

Paralytic and furious forms of rabies are described in the second book of the Hunting Agreement in the time of King Alfonso XI (1312-1350).The Royal Assembly of Health publication of 23 November 1786 adopted measures to avoid transmission of rabies controlling movement of dogs and cats.Royal Order of 1863 describes "measures of preservation that one has to follow in each case where the bite has been from a supposed rabid animal" and also set down the measures against rabies in animals, which were to be adopted by Local Authorities.At the beginning of the 20th century the Law of 18 December 1914 and Regulation of 4 June 1915 are approved to prevent the transmission of human rabies.During the 1940s the first statistics on animal rabies appeared (513 dog cases in 1944 and 24 human cases).On 12 May 1947 the Ministry of Agriculture issued a General Order establishing the measures to be taken against rabies and a second Order of 1948 established the norms for animal vaccination and control.During the 1950s the first mass dog vaccination campaigns took place.The Epizootics Law of 20 December 1952 established the general regulations of the anti-rabies programme.

Urban rabies has been the main epidemiologycal form in the history of the disease in Spain, with dogs as reservoir of the infection.

Spain is free of land rabies since 1966, with exception of Ceuta and Melilla, that have a regular notification of cases of rabies by their situation in North Africa, where rabies is endemic.

In peninsular territory an imported outbreak was reported in 1975 in the province of Malaga by introduction of dogs coming from North Africa. This outbreak ended in 1977 with 122 animals infected (dogs and cats, and 2 foxes) and one case of human rabies.

Since 1979 only have beed notificated cases of rabies in peninsular territory by EBLV1 in bats(Eptesicus serotinus and Eptesicus isabellinus).

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

Since 1978 Spanish mainland and islands remains free of rage in terrestrial mammals. Only a few cases of EBL1 have been reported in bats.

These data show that the main source and risk for the apparition of cases of rabies in Spain is the importation of animals with the infection from Morocco and other countries of North Africa.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

Since 1975 no human cases has been reported in peninsular territory and islands.

Recent actions taken to control the zoonoses

Compulsory surveillance of the disease according to article 4 of Directive 2003/99/EEC,came into force by Royal Decree 1940/2004.

Compulsory vaccination of dogs in 11 autonomous comunities, Ceuta and Melilla. Voluntary in the rest.

Studies including active surveillance of LB-1 in bats.

Information to the citizens about no manipulation of bats.

An Action Plan has been approved, and includes risk evaluation, surveillance, mechanisms to control and a response protocol with four alert levels.

2.11.2 Rabies in humans

A. Rabies in humans

Reporting system in place for the human cases

Notifiable Disease Surveillance System (NDSS)
Royal Decree 2210/1995, december 25, by Epidemiological Surveillance National Net is created

Royal Decree 1940/2004, september 27, about zoonoses disease and zoonoses agents surveillance

Case definition

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision No 2002/253/EC and Commission Decision No 2002/543/EC

Diagnostic/analytical methods used

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Notification system in place

Notifiable Disease Surveillance System (NDSS)

On December 1995 the National Network of Epidemiological Surveillance was created by law. This law and its development produced changes in the surveillance system.

During 1997 the protocols of statutory notification of diseases were approved and implemented in Spain. In Spain the Autonomous Regions have wide powers with respect to epidemiological surveillance and national decisions are usually taken by consensus.

All practising doctors are obliged to notify, both those in the public health service and in private practice, and both those practising outside and within hospitals. On occasions the appearance of cases and outbreaks is detected by other means (from the mass media, from citizens complants, etc.) and in these cases the information is checked and if confirmed it is incorporated into the system at the corresponding level.

This notification has been compulsory by law for all doctors since 1901.

History of the disease and/or infection in the country

Spain remained free of human cases from 1975

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

Spain is free of rabies.
In 1987 bat rabies was reported. The description of the illness amongst bats lead to an immediate reaction by the health authorities, who had already brought together a group of experts in 1987 to work out recommendations and establish lines of research.

The Ministry of Health and Consume Affairs backed the study about the distribution of EBL1 in the bat

population, as well as studies of aetiology and the distribution of bat populations in different regions of Spain. They established serum prevalence towards EBL1 in different species such as Myotis myotis, Miniopterus schreibersii, Tadarida teniotis and Rhinolophus ferrumequinum, and several origins

The studies carried out in the Instituto de Salud Carlos III of the Ministry of Health, in collaboration with the Biological station in Doñaana, allow the perfecting of highly sensitive diagnostic techniques, such polymerase chain reaction (PCR), to understand the distribution, natural history and pathogenesis of the disease in insectivorous bats.

Relevance as zoonotic disease

High

2.11.3 Lyssavirus (rabies) in animals

A. Rabies in dogs

Monitoring system

Sampling strategy

Sampling strategy is targeted at 4 levels:
1. Apparently healthy terrestrial mammals that injure a person and die into the quarantine (kept under observation) period of 14 days or if the animal is suspected to be rabid (euthanasia).Samples are taken by competent authority
2.Dogs and cats imported from third countries not included in part C of Annex II of Council Regulation(EC) No 998/2003 need negative results to enter into Spain according to Council Regulation (EC) No 998/2003
3.Dogs and cats that are going to travel to United Kingdom, Ireland, Sweeden, Norwey and Malta.Samples are taken by private clinics and analisys performed by National Reference Laboratory
4. Studies including active surveillance of LB-1 in bats

Frequency of the sampling

Indeterminated

Type of specimen taken

Brain, Blood, Saliva

Methods of sampling (description of sampling techniques)

Brain of dead or sacrified animals have to be sent to National Reference Laboratory following a protocol of sending.The sample has to be taken with sterility, be submerged in salinum serum and glicerine in 50% solution and envoided refrigerated quickly.
Blood are taken by private clinics and serum(0,5 ml minimun) have to be sent following a protocol, by a quick transport service refrigerated or frozen.

Case definition

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Diagnostic/analytical methods used

Fluorescent Antibody Test (FAT), Polymerase Chain Reaction followed by DNA sequencing genomic areas, ELISA

Vaccination policy

Compulsory vaccination of dogs in 12 regions, Ceuta and Melilla.
Voluntary vaccination of dogs in 5 regions.

Other preventive measures than vaccination in place

Control of animals coming from third countries not included in part C of Annex II of Council Regulation(EC) No 998/2003
Identification and registration of dogs.
Pick up of stray dogs by council town authorities.

Control program/mechanisms

The control program/strategies in place

Several regional prevention programmes.
Control of imports and exports according to Council Regulation(EC) No 998/2003.

Recent actions taken to control the zoonoses

Imports of third countries not included in part C of Annex II of Council Regulation(EC) No 998/2003)
An Action Plan has been approved in 2010, and includes risk evaluation, surveillance, mechanisms to control and a response protocol with four alert levels.

Measures in case of the positive findings or single cases

Mandatory Notifiable disease Royal Decree 2210/1995, December 25th, by Epidemiological Surveillance National Net is created.

Oficcial Notification of the disease

Epidemiologic survey

Cases in Spain (Melilla) are imported from third countries

Notification system in place

Since 1952, at least, by Epizootic Law.
At the moment by Animal Health Law 8/2003.

Results of the investigation

Not cases.

Investigations of the human contacts with positive cases

All the people bitten by an suspected animal are investigated and complete treatment (vaccine and Ig) against rage is offered to them.
In 2012 was publicated a new protocol " Rules of procedures in case of animal aggresions"

Relevance of the findings in animals to findings in foodstuffs and to human cases (as a source of infection)

High

Additional information

In 2012 was published a new protocol " Rules of procedures in case of animal aggressions", that includes risk assessment, actions to be taken after a risk exposition and treatment after a risk exposition.

Table Rabies in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Region	Units tested	Total units positive for Lyssavirus (rabies)	Rabies virus (RABV)	EBLV-1
Cattle (bovine animals)	Ministry of Health, Social Services and Equality (MSSSI)						España	0			
Sheep	Ministry of Health, Social Services and Equality (MSSSI)						España	0			
Goats	Ministry of Health, Social Services and Equality (MSSSI)						España	0			
Pigs	Ministry of Health, Social Services and Equality (MSSSI)						España	0			
Solipeds, domestic	Ministry of Health, Social Services and Equality (MSSSI)						España	0			
Dogs - stray dogs	Ministry of Health, Social Services and Equality (MSSSI)	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	España	31	4	4	
Cats - stray cats	Ministry of Health, Social Services and Equality (MSSSI)	Suspect sampling	Official sampling	animal sample > brain	Domestic	Animal	España	23	0		

Table Rabies in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Region	Units tested	Total units positive for Lyssavirus (rabies)	Rabies virus (RABV)	EBLV-1
Bats - wild - Monitoring	Ministry of Health, Social Services and Equality (MSSSI)	Suspect sampling	Official sampling	animal sample > brain	Unknown	Animal	España	93	2		1
Foxes - wild - Monitoring	Ministry of Health, Social Services and Equality (MSSSI)	Suspect sampling	Official sampling	animal sample > brain	Unknown	Animal	España	15	0		
Raccoon dogs - wild - Monitoring	Ministry of Health, Social Services and Equality (MSSSI)						España	0			
Raccoons - wild - Monitoring	Ministry of Health, Social Services and Equality (MSSSI)	Suspect sampling	Official sampling	animal sample > brain	Unknown	Animal	España	8	0		
Wolves - wild - Monitoring	Ministry of Health, Social Services and Equality (MSSSI)						España	0			
Badgers - wild - unspecified - Monitoring	Ministry of Health, Social Services and Equality (MSSSI)	Suspect sampling	Official sampling	animal sample > brain	Unknown	Animal	España	1	0		
Dogs - unspecified - Monitoring (IMPORTED) [1)]	Ministry of Health, Social Services and Equality (MSSSI)	Suspect sampling	Official sampling	animal sample > brain	Imported from outside EU	Animal	Ciudad Autónoma de Melilla	1	1	1	

Table Rabies in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Region	Units tested	Total units positive for Lyssavirus (rabies)	Rabies virus (RABV)	EBLV-1
Ferrets - wild - unspecified - Monitoring	Ministry of Health, Social Services and Equality (MSSSI)	Suspect sampling	Official sampling	animal sample > brain	Unknown	Animal	España	2	0		
Marten - wild - unspecified - Monitoring	Ministry of Health, Social Services and Equality (MSSSI)	Suspect sampling	Official sampling	animal sample > brain	Unknown	Animal	España	1	0		
Monkeys - unspecified - Monitoring	Ministry of Health, Social Services and Equality (MSSSI)	Suspect sampling	Official sampling	animal sample > brain	Unknown	Animal	España	1	0		
Other carnivores - wild - unspecified - Monitoring [2)]	Ministry of Health, Social Services and Equality (MSSSI)	Suspect sampling	Official sampling	animal sample > brain	Unknown	Animal	España	1	0		
Rodents - wild - unspecified - Monitoring	Ministry of Health, Social Services and Equality (MSSSI)	Suspect sampling	Official sampling	animal sample > brain	Unknown	Animal	España	27	0		
Squirrels - wild - unspecified - Monitoring	Ministry of Health, Social Services and Equality (MSSSI)	Suspect sampling	Official sampling	animal sample > brain	Unknown	Animal	España	1	0		

Table Rabies in animals

	EBLV-2	Lyssavirus (unspecified virus)
Cattle (bovine animals)		
Sheep		
Goats		
Pigs		
Solipeds, domestic		
Dogs - stray dogs		
Cats - stray cats		
Bats - wild - Monitoring		1
Foxes - wild - Monitoring		
Raccoon dogs - wild - Monitoring		
Raccoons - wild - Monitoring		
Wolves - wild - Monitoring		
Badgers - wild - unspecified - Monitoring		
Dogs - unspecified - Monitoring (IMPORTED) [1)]		
Ferrets - wild - unspecified - Monitoring		
Marten - wild - unspecified - Monitoring		
Monkeys - unspecified - Monitoring		
Other carnivores - wild - unspecified - Monitoring [2)]		
Rodents - wild - unspecified - Monitoring		

Table Rabies in animals

	EBLV-2	Lyssavirus (unspecified virus)
Squirrels - wild - unspecified - Monitoring		

Comments:

[1)] Imported from Morocco

[2)] Genet

Footnote:

The 4 positives declared were from Ceuta (1 case) and Melilla (3 cases), spanish cities of North Africa. Spain (mainland and islands) is free of rabies

2.12 STAPHYLOCOCCUS INFECTION

2.12.1 General evaluation of the national situation

2.12.2 Staphylococcus in foodstuffs

Table Staphylococcus in Food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Staphylococcus	S. aureus, meticillin resistant (MRSA)	S. aureus, meticillin resistant (MRSA) - spa -type t011
Milk, cows' - raw milk - intended for direct human consumption - at farm - Monitoring	F	Objective sampling	Official sampling	food sample > milk	Unknown	Single	25 g	1	0	0	0
Milk, goats' - raw milk for manufacture - intended for manufacture of raw or low heat-treated products - at processing plant - Monitoring	F	Objective sampling	Official sampling	food sample > milk	Unknown	Single	25 g	5	0	0	0
Fruits - pre-cut - ready-to-eat - at retail - Monitoring	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	109	2	2	0
Meat from bovine animals - fresh	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	1	0	0	0
Meat from bovine animals - minced meat	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	3	0	0	0
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	201	25	25	0
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	2	0	0	0
Meat from duck - fresh	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	1	0	0	0
Meat from pig - fresh	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	60	1	1	1

Table Staphylococcus in Food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Staphylococcus	S. aureus, meticillin resistant (MRSA)	S. aureus, meticillin resistant (MRSA) - spa -type t011
Meat from pig - meat products	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	59	0	0	0
Meat from pig - minced meat	F	Objective sampling	Official sampling	food sample > meat	Unknown	Single	25 g	3	0	0	0
Meat from turkey - meat preparation - intended to be eaten cooked	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	6	0	0	0
Meat from turkey - meat products - cooked, ready-to -eat	F	Objective sampling	Official sampling	food sample	Unknown	Single	25 g	4	0	0	0
Meat from turkey - minced meat - intended to be eaten cooked	F	Convenience sampling	Official sampling	food sample	Unknown	Single	25 g	1	0	0	0

	S. aureus, meticillin resistant (MRSA) - spa -type t108	S. aureus, meticillin resistant (MRSA) - spa -type t034	S. aureus, meticillin resistant (MRSA) - MRSA, unspecified
Milk, cows' - raw milk - intended for direct human consumption - at farm - Monitoring	0	0	0
Milk, goats' - raw milk for manufacture - intended for manufacture of raw or low heat-treated products - at processing plant - Monitoring	0	0	0
Fruits - pre-cut - ready-to-eat - at retail - Monitoring	0	0	2
Meat from bovine animals - fresh	0	0	0
Meat from bovine animals - minced meat	0	0	0
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked	0	0	25

Table Staphylococcus in Food

	S. aureus, meticillin resistant (MRSA) - spa -type t108	S. aureus, meticillin resistant (MRSA) - spa -type t034	S. aureus, meticillin resistant (MRSA) - MRSA, unspecified
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat	0	0	0
Meat from duck - fresh	0	0	0
Meat from pig - fresh	0	0	0
Meat from pig - meat products	0	0	0
Meat from pig - minced meat	0	0	0
Meat from turkey - meat preparation - intended to be eaten cooked	0	0	0
Meat from turkey - meat products - cooked, ready-to -eat	0	0	0
Meat from turkey - minced meat - intended to be eaten cooked	0	0	0

2.13 Q-FEVER

2.13.1 General evaluation of the national situation

A. Coxiella burnetii (Q-fever) general evaluation

History of the disease and/or infection in the country

Q fever is a zoonosis with widely extended in the world. In Spain the first cases were documented in 1949.

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

Q fever cases and outbreak in Spain are reported to Epidemiological Notifiable Disease Surveillance System (outbreak) (NDDS) and Microbiological Information System (SIM)

2.13.2 Q-fever in humans

A. C. burnetii in humans

Reporting system in place for the human cases

In December of 1995 the National Network of Epidemiological Surveillance was created by law. This law and its development produced changes in the surveillance system.
During 1997 the protocols of statutory notification of diseases were approved and implemented in Spain. In Spain the Autonomous Regions have wide powers with respect to epidemiological surveillance and national decisions are usually taken by consensus.

- Microbiological Information System
The Microbiological Information System has been based since 1989 on voluntary weekly reporting by clinical microbiology laboratories (principally hospital laboratories). Currently, in order to improve the notification, this procedure is becoming compulsory for a designated group of representative laboratories. The information in these reports is based on individual cases and includes the following variables: agent, time, place, age, sex, etc.

Case definition

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC

Diagnostic/analytical methods used

According to Decision No. 2119/98/EC of the European Parliament and of the Council, Commission Decision 2002/253/EC and Commission Decision 2002/543/EC

Notification system in place

Microbiological Information System
Outbreak reporting system

History of the disease and/or infection in the country

Q fever is a zoonosis with widely extended in the world. In Spain the first cases were documented in 1949.

The most common animal reservoirs are livestock and the main form of infection is by inhalation of contaminated aerosols.

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

Most of cases and outbreaks are related to care of sheep, other form of an occupational nature such as abattoirs were presents.

In 2012, 58 cases of Q fever have been reported to the Microbiological Information System.

Relevance as zoonotic disease

high

2.13.3 Coxiella (Q-fever) in animals

Table Coxiella burnetii (Q fever) in animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Analytical Method	Sampling unit	Units tested	Total units positive for Coxiella (Q-fever)	C. burnetii	No of clinically affected herds
Sheep - at farm - Clinical investigations [1)]	MAGRAMA	Suspect sampling	Official sampling	animal sample	Domestic	PCR	Herd	1	0	0	0
Sheep - at farm - Monitoring	A	Convenience sampling	Official sampling	animal sample > blood	Domestic	ELISA	Animal	185	0		
Goats - at farm - Clinical investigations [2)]	MAGRAMA	Suspect sampling	Official sampling	animal sample	Domestic	PCR	Herd	8	6	6	6
Goats - at farm - Monitoring	A	Convenience sampling	Official sampling	animal sample > blood	Domestic	ELISA	Animal	284	133	133	

Comments:

[1)] milk, faces, vaginal swabs

[2)] milk, faces, vaginal swabs

Footnote:

A: ANIMAL HEALTH SERVICES OF AUTONOMOUS COMMUNITIES

2.14 WEST NILE VIRUS INFECTIONS

2.14.1 General evaluation of the national situation

2.14.2 West Nile Virus in animals

A. West Nile Virus in Animals

Monitoring system

Sampling strategy

Passive and active surveillance is undertaken on wild birds, as well as vector surveillance and active and passive surveillance in horses

Frequency of the sampling

Passive surveillance is conducted all along the year. Active surveillance frequency is risk based determined and always on the period of vector activity (March-November)

Type of specimen taken

blood serum, cefalorraquidean liquid, organs

Methods of sampling (description of sampling techniques)

Active surveillance on wild birds:
•Virus isolation on animals dead during their stay on a recovery center
•Serological sampling on zoological parks to detect seroconversion
•Capture-recapture based surveillance on wetlands.

Passive surveillance on wild birds is conducted on birds found dead apparently not due to other causes. On this case, kidney, brain and heart are sampled.

Passive surveillance on horses located in risk areas. Samples of serum and cefalorraquidean liquid are taken for antibody and direct detection respectively. On those animals with clinical symptomatology brain, kidney and heart samples will be taken.

Active surveillance on horses When results of the surveillance in wild birds determine virus circulation on the area. Samples of serum are taken for antibody detection.

Vector monitoring of presence with specific traps and direct detection of the virus.

Case definition

Any horse showing nervous signs compatible with WNV with a IgM positive results by ELISA or any RT-PCR positive results in samples of brain, heart and kidney and cefalorraquidean liquid.

Diagnostic/analytical methods used

Direct detection: RT-PCR method.

Serological test:
ELISA IgM test and ELISA IgG test. The sero-neutralisation allows discriminating among infections by different flavivirus and is used as confirmation technique.

Vaccination policy

Vaccination is recommended as a measure of prevention. In case of a huge number of affected animals, vaccination is included on contingency plan as a possible measure of control.

Other preventive measures than vaccination in place

.In case of suspicion, active sampling will be added .Clinical surveillance is undertaken on horses mainly in those farms located in wetlands and might be up to 20 km distance to the wetland. Strengthening of wild birds surveillance. Vector control measures and use of repellents.

Control program/mechanisms

The control program/strategies in place

Surveillance actions will be taken according to the level of risk.
Level 1 Wild birds and entomological surveillance
Level 2 When virus circulation has been proved on birds and mosquitoes, active horses surveillance will be added.Results and a summary about the execution of the plan are sent every year, to the Ministry of Agriculture, Food and Environment Affaires from the different Autonomous Communities carrying out this plan.

Recent actions taken to control the zoonoses

When virus circulation is detected either in horses or birds, animal health authorities will communicate those results to public health authorities, so that measures to prevent the transmission to humans can be taken.

Suggestions to the European Union for the actions to be taken

Public education to reduce the risk of transmission: prevent exposure to mosquitoes during the hours of activity, repellent use and mosquito nets protection on houses. Information through a protocol distributed among primary care doctors and health workers in risk areas.

Measures in case of the positive findings or single cases

Surveillance increased in farms with a confirmed case. Epidemiological inquiry, census of horses and inspection of equine farms nearby. Surveillance in wild birds is strengthen.

Notification system in place

Based on the Council Directive 82/894/EEC on the notification of animal diseases within the Community and subsequent amendments transposed in Spain by Real Decreto 617/2007, of May 16, which is establishing the list of diseases notifiable animal and gives the rules for notification.
Outbreaks are notified to through national database, RASVE and directly transmitted to ADNS. WAHID notification is done when necessary.

Results of the investigation

The results are reported in the table “West Nile in Animals”.

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

The future scenario is the maintenance of WNV circulation in the area where it has been notified in previous years, with a possible extension to other areas where ecological conditions are favorable.

Relevance of the findings in animals to findings in foodstuffs and to human cases (as a

source of infection)

It’s not relevant in foodstuffs.In terms of human morbidity and mortality, WNV infections are frequently asymptomatic and probability of infection is considered very low. Horses are not considered a source of infection for humans.

Table West Nile Virus in Animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Vaccination status	Analytical Method	Sampling unit	Region	Units tested	Total units positive for West Nile Virus
Solipeds, domestic - horses - at farm - Monitoring - active	MAGRAMA	Selective sampling	Official sampling	animal sample > blood	Domestic	no	ELISA	Animal	Andalucía	85	0
Solipeds, domestic - horses - at farm - Monitoring - passive	MAGRAMA	Suspect sampling	Official sampling	animal sample > blood	Domestic	Unknown	ELISA	Animal	Cataluña	2	0
Solipeds, domestic - horses - at farm - Clinical investigations	MAGRAMA	Suspect sampling	Official sampling	animal sample > blood	Domestic	Unknown	IgM-capture ELISA (MAC-ELISA)	Animal	Andalucía	23	4
Birds - at farm - Monitoring - active [1)]	MAGRAMA	Selective sampling	Official sampling	animal sample > blood	Domestic		Seroneutralisation test	Animal	Galicia	1	0
Birds - at farm - Monitoring - active	MAGRAMA	Selective sampling	Official sampling	animal sample > blood	Domestic		ELISA	Animal	Galicia	15	1
Birds - at farm - Monitoring - active	MAGRAMA	Selective sampling	Official sampling	animal sample > blood	Domestic		ELISA	Animal	Andalucía	55	0
Birds - wild - in total - Monitoring - active	MAGRAMA	Convenience sampling	Official sampling	animal sample > blood			ELISA	Animal	Andalucía	232	0
Birds - wild - in total - Monitoring - active	MAGRAMA	Convenience sampling	Official sampling	animal sample > blood			ELISA	Animal	Extremadura	149	0
Birds - wild - in total - Monitoring - active	MAGRAMA	Convenience sampling	Official sampling	animal sample > blood			ELISA	Animal	Galicia	370	0
Birds - wild - in total - Monitoring - active [2)]	MAGRAMA	Convenience sampling	Official sampling	animal sample > blood			Seroneutralisation test	Animal	Cataluña	11	1
Birds - wild - in total - Monitoring - active	MAGRAMA	Convenience sampling	Official sampling	animal sample > blood			ELISA	Animal	Castilla y León	1164	0

Table West Nile Virus in Animals

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Vaccination status	Analytical Method	Sampling unit	Region	Units tested	Total units positive for West Nile Virus
Birds - wild - in total - Monitoring - active	MAGRAMA	Convenience sampling	Official sampling	animal sample > blood			ELISA	Animal	Cataluña	123	11
Birds - wild - in total - Monitoring - passive	MAGRAMA	Selective sampling	Official sampling	animal sample > blood			ELISA	Animal	Cataluña	21	0
Solipeds, domestic - horses - at farm - Monitoring - active	MAGRAMA	Selective sampling	Official sampling	animal sample > blood	Domestic	Unknown	ELISA	Animal	Castilla y León	145	0
Solipeds, domestic - horses - at farm - Monitoring - active	MAGRAMA	Selective sampling	Official sampling	animal sample > blood	Domestic	Unknown	IgM-capture ELISA (MAC-ELISA)	Animal	Cataluña	10	0
Solipeds, domestic - horses - at farm - Monitoring - active	MAGRAMA	Selective sampling	Official sampling	animal sample > blood	Domestic	Unknown	IgG ELISA	Animal	Cataluña	291	10
Solipeds, domestic - horses - at farm - Monitoring - passive	MAGRAMA	Selective sampling	Official sampling	animal sample > blood	Domestic	no	ELISA	Animal	Extremadura	1	0

Comments:

[1)] This is the animal previously positive to ELISA

[2)] These are the animals previouly positive to ELISA

3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE

3.1 ESCHERICHIA COLI, NON-PATHOGENIC

3.1.1 General evaluation of the national situation

A. Escherichia coli general evaluation

History of the disease and/or infection in the country

E. coli cause many infections in humans, with intestinal and extra-intestinal forms. In production animals E. coli diseases are very frequent, mainly in newborns or animals few days old of cattle, pork and sheep.Problems are often too in farms of poultry and rabbits.

Several cases and outbreaks of diarrhea for Enteropatogenic E. coli have been detected since 60´s, but these focus have reduced importantly in last decades.Serotypes in rabbits or rumiants are different than human ones.In Spain, the main serotype in rabbits is O103:H2.

E. coli Enterotoxicogenic are more frecuent associated with focus of gastroenteritis in humans, by consume of water and animal products.But predominant human serotypes in Spain(O25:H-;O153:H45;O169:H41) are different than the ones that causes diarrohea in animals. In piglets predominat serotypes are O138:K81:H14;O141:K85ab:H-;O149:K91:H10;O157:H-.

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

In production animals diseases by E. coli are very frequent. Although E. coli strains that cause infections in humans and animals can share many virulence factors, they often show different serotypes.Therefore, E.coli strains patogenic for animals are infrequent to produce infections in humans, but it is proved that animals can be a reservoir of Enteropathogenic E. coli for humans.

Environment and water can also be a source of infecction.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

It is very difficult to establish the relevance of findings as sources of infection, because E. coli is a very ubiquitous agent and strains patogenic for animals are infrequent to produce infections in humans.

3.1.2 Antimicrobial resistance in Escherichia coli, non-pathogenic

A. Antimicrobial resistance of E.coli in animal

Sampling strategy used in monitoring

Methods of sampling (description of sampling techniques)

Table Antimicrobial susceptibility testing of E. coli in Meat from bovine animals

Escherichia coli, non-pathogenic	E.coli, non-pathogenic, unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	6	
Antimicrobials:	N	n
Aminoglycosides - Gentamicin	6	0
Aminoglycosides - Kanamycin	6	0
Aminoglycosides - Streptomycin	6	1
Amphenicols - Chloramphenicol	6	1
Amphenicols - Florfenicol	5	0
Cephalosporins - 3rd generation cephalosporins	5	0
Fluoroquinolones - Ciprofloxacin	6	1
Penicillins - Ampicillin	6	2
Quinolones - Nalidixic acid	6	1
Sulfonamides	6	1
Tetracyclines - Tetracycline	6	3
Trimethoprim	5	1
Fully sensitive	6	2
Resistant to 1 antimicrobial	6	0
Resistant to 2 antimicrobials	6	2
Resistant to 3 antimicrobials	6	0
Resistant to 4 antimicrobials	6	1
Resistant to >4 antimicrobials	6	1
Cephalosporins - Cefotaxime	6	0

Table Antimicrobial susceptibility testing of E. coli in Meat from bovine animals

Escherichia coli, non-pathogenic	E.coli, non-pathogenic, unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	6	
Antimicrobials:	N	n
Penicillins - Amoxicillin / Clavulanic acid	1	0
Trimethoprim + Sulfonamides	1	0

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of E. coli in Meat from pig

Escherichia coli, non-pathogenic	E.coli, non-pathogenic, unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	11	
Antimicrobials:	N	n
Aminoglycosides - Gentamicin	11	1
Aminoglycosides - Kanamycin	11	0
Aminoglycosides - Streptomycin	11	5
Amphenicols - Chloramphenicol	11	1
Amphenicols - Florfenicol	11	1
Cephalosporins - 3rd generation cephalosporins	11	0
Fluoroquinolones - Ciprofloxacin	11	3
Penicillins - Ampicillin	11	4
Quinolones - Nalidixic acid	11	3
Sulfonamides	11	3
Tetracyclines - Tetracycline	11	3
Trimethoprim	11	4
Fully sensitive	11	5
Resistant to 1 antimicrobial	11	0
Resistant to 2 antimicrobials	11	1
Resistant to 3 antimicrobials	11	1
Resistant to 4 antimicrobials	11	0
Resistant to >4 antimicrobials	11	4
Cephalosporins - Cefotaxime	11	0

Table Antimicrobial susceptibility testing of E. coli in Meat from pig

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of E. coli in Meat from broilers (Gallus gallus)

Escherichia coli, non-pathogenic	E.coli, non-pathogenic, unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	7	
Antimicrobials:	N	n
Aminoglycosides - Gentamicin	7	1
Aminoglycosides - Kanamycin	7	1
Aminoglycosides - Streptomycin	7	3
Amphenicols - Chloramphenicol	7	1
Amphenicols - Florfenicol	6	0
Cephalosporins - 3rd generation cephalosporins	7	1
Fluoroquinolones - Ciprofloxacin	7	6
Fluoroquinolones - Enrofloxacin	1	0
Penicillins - Ampicillin	7	6
Quinolones - Nalidixic acid	7	6
Sulfonamides	7	4
Tetracyclines - Tetracycline	7	5
Trimethoprim	7	3
Fully sensitive	7	1
Resistant to 1 antimicrobial	7	0
Resistant to 2 antimicrobials	7	0
Resistant to 3 antimicrobials	7	1
Resistant to 4 antimicrobials	7	1
Resistant to >4 antimicrobials	7	4

Table Antimicrobial susceptibility testing of E. coli in Meat from broilers (Gallus gallus)

Escherichia coli, non-pathogenic	E.coli, non-pathogenic, unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	7	
Antimicrobials:	N	n
Cephalosporins - Cefotaxime	7	0
Trimethoprim + Sulfonamides	1	0

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Dairy products, unspecified

Escherichia coli, non-pathogenic	E.coli, non-pathogenic, unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	5	
Antimicrobials:	N	n
Aminoglycosides - Gentamicin	5	0
Aminoglycosides - Neomycin	5	0
Aminoglycosides - Streptomycin	5	0
Amphenicols - Chloramphenicol	5	0
Amphenicols - Florfenicol	5	0
Cephalosporins - 3rd generation cephalosporins	5	0
Cephalosporins - Cefotaxime	5	0
Fluoroquinolones - Ciprofloxacin	5	0
Penicillins - Ampicillin	5	0
Quinolones - Nalidixic acid	5	0
Sulfonamides	5	0
Tetracyclines - Tetracycline	5	0
Trimethoprim	5	0
Fully sensitive	5	5
Resistant to 1 antimicrobial	5	0
Resistant to 2 antimicrobials	5	0
Resistant to 3 antimicrobials	5	0
Resistant to 4 antimicrobials	5	0
Resistant to >4 antimicrobials	5	0

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Dairy products, unspecified

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Meat from other animal species or not specified

Escherichia coli, non-pathogenic	E.coli, non-pathogenic, unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	6	
Antimicrobials:	N	n
Aminoglycosides - Gentamicin	6	0
Aminoglycosides - Kanamycin	6	1
Aminoglycosides - Streptomycin	6	1
Amphenicols - Chloramphenicol	6	0
Amphenicols - Florfenicol	1	0
Cephalosporins - 3rd generation cephalosporins	6	2
Cephalosporins - Cefotaxime	6	2
Fluoroquinolones - Ciprofloxacin	6	2
Fluoroquinolones - Enrofloxacin	5	1
Penicillins - Ampicillin	6	1
Quinolones - Nalidixic acid	6	2
Sulfonamides	6	1
Tetracyclines - Tetracycline	6	1
Trimethoprim	6	0
Fully sensitive	6	4
Resistant to 1 antimicrobial	6	0
Resistant to 2 antimicrobials	6	0
Resistant to 3 antimicrobials	6	0
Resistant to 4 antimicrobials	6	0

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Meat from other animal species or not specified

Escherichia coli, non-pathogenic	E.coli, non-pathogenic, unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	6	
Antimicrobials:	N	n
Resistant to >4 antimicrobials	6	2
Trimethoprim + Sulfonamides	5	1

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Fishery products, unspecified

Escherichia coli, non-pathogenic	E.coli, non-pathogenic, unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	29	
Antimicrobials:	N	n
Aminoglycosides - Gentamicin	29	1
Aminoglycosides - Kanamycin	29	1
Aminoglycosides - Streptomycin	29	5
Amphenicols - Chloramphenicol	29	0
Amphenicols - Florfenicol	29	0
Cephalosporins - 3rd generation cephalosporins	29	0
Cephalosporins - Cefotaxime	29	0
Fluoroquinolones - Ciprofloxacin	29	6
Penicillins - Ampicillin	29	6
Quinolones - Nalidixic acid	29	5
Sulfonamides	29	8
Tetracyclines - Tetracycline	29	6
Trimethoprim	29	5
Fully sensitive	29	17
Resistant to 1 antimicrobial	29	4
Resistant to 2 antimicrobials	29	2
Resistant to 3 antimicrobials	29	1
Resistant to 4 antimicrobials	29	0
Resistant to >4 antimicrobials	29	5

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Fishery products, unspecified

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Meat from broilers (Gallus gallus) - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E.coli, non-pathogenic, unspecified	Meat from broilers (Gallus gallus)																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	7																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	7	1										1	3	2	1										
Aminoglycosides - Kanamycin	8	7	1												2	2	2	1								
Aminoglycosides - Streptomycin	16	7	3													1	1	2	2	1						
Amphenicols - Chloramphenicol	16	7	1												1	2	1	2		1						
Amphenicols - Florfenicol	16	7	0										2	1	2		2									
Cephalosporins - 3rd generation cephalosporins	1	7	1								1	1	1	3	1											
Cephalosporins - Cefotaxime	0.25	7	0						2	1	1	3														
Fluoroquinolones - Ciprofloxacin	0.03	7	6					1		2	1		2	1												
Penicillins - Ampicillin	8	7	6													1		2		1	2	1				
Quinolones - Nalidixic acid	16	7	6															1	2	1		2	1			
Sulfonamides	256	7	4																		2	1	3	1		
Tetracyclines - Tetracycline	8	7	5												1	1		2	1	1	1					
Trimethoprim	2	7	3										1	1	2		2	1								

Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Meat from broilers (Gallus gallus) - quantitative data [Dilution method]

E.coli, non-pathogenic, unspecified	Meat from broilers (Gallus gallus)	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	7	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin		
Aminoglycosides - Kanamycin		
Aminoglycosides - Streptomycin		
Amphenicols - Chloramphenicol		
Amphenicols - Florfenicol		
Cephalosporins - 3rd generation cephalosporins		
Cephalosporins - Cefotaxime		
Fluoroquinolones - Ciprofloxacin		
Penicillins - Ampicillin		
Quinolones - Nalidixic acid		
Sulfonamides		
Tetracyclines - Tetracycline		
Trimethoprim		

Footnote:

Source of information: Public Health Services of the Autonomous Communities.

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

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E.coli, non-pathogenic, unspecified	Meat from bovine animals																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	5																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Streptomycin	16	5	1												2			2	1							
Amphenicols - Chloramphenicol	16	5	1													1	1	2	1							
Amphenicols - Florfenicol	16	5	0													2	1	2								
Cephalosporins - 3rd generation cephalosporins	1	5	0								1		1	3												
Fluoroquinolones - Ciprofloxacin	0.03	5	1			1	2		1	1																
Penicillins - Ampicillin	8	5	2												1	1	1	1	1							
Quinolones - Nalidixic acid	16	5	1													1		3		1						
Tetracyclines - Tetracycline	8	5	3												1		1	1	1	1						
Trimethoprim	2	5	1									1	1	2		1										

E.coli, non-pathogenic, unspecified	Meat from bovine animals	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	5	
Antimicrobials:	lowest	highest
Aminoglycosides - Streptomycin		
Amphenicols - Chloramphenicol		
Amphenicols - Florfenicol		
Cephalosporins - 3rd generation cephalosporins		

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

E.coli, non-pathogenic, unspecified	Meat from bovine animals	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	5	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin		
Penicillins - Ampicillin		
Quinolones - Nalidixic acid		
Tetracyclines - Tetracycline		
Trimethoprim		

Footnote:

Source of information: Public Health Services of the Autonomous Communities

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

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E.coli, non-pathogenic, unspecified	Meat from pig																								
Isolates out of a monitoring program (yes/no)	no																								
Number of isolates available in the laboratory	11																								
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	11	1											10		1									
Aminoglycosides - Streptomycin	16	11	5													3	1	2	2	1	2				
Amphenicols - Chloramphenicol	16	11	1									1	1	2		2	1	3	1						
Cephalosporins - 3rd generation cephalosporins	1	11	0							2	1	4	1	3											
Fluoroquinolones - Ciprofloxacin	0.03	11	3				1	6	1	2	1														
Penicillins - Ampicillin	8	11	4										1	1	2	1	2	2	1	1					
Quinolones - Nalidixic acid	16	11	3											3	1	2	1	1	1	2					
Tetracyclines - Tetracycline	8	11	3											2	3	1	2	2	1						
Trimethoprim	2	11	4										3	2	2	3	1								

E.coli, non-pathogenic, unspecified	Meat from pig	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	11	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin		
Aminoglycosides - Streptomycin		
Amphenicols - Chloramphenicol		
Cephalosporins - 3rd generation cephalosporins		

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

E.coli, non-pathogenic, unspecified	Meat from pig	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	11	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin		
Penicillins - Ampicillin		
Quinolones - Nalidixic acid		
Tetracyclines - Tetracycline		
Trimethoprim		

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Dairy products, unspecified - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E.coli, non-pathogenic, unspecified	Dairy products, unspecified																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	5																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	5	0										4		1											
Amphenicols - Chloramphenicol	16	5	0													4	1									
Amphenicols - Florfenicol	16	5	0											2	1		2									
Cephalosporins - 3rd generation cephalosporins	1	5	0							1	1	1	1	1												
Fluoroquinolones - Ciprofloxacin	0.03	5	5							3		2														
Penicillins - Ampicillin	8	5	0											2	1		2									
Quinolones - Nalidixic acid	16	5	0												3		1	1								
Tetracyclines - Tetracycline	8	5	0													3	2									
Trimethoprim	2	5	0								1	1	1	1	1											

E.coli, non-pathogenic, unspecified	Dairy products, unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	5	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin		
Amphenicols - Chloramphenicol		
Amphenicols - Florfenicol		
Cephalosporins - 3rd generation cephalosporins		

Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Dairy products, unspecified - quantitative data [Dilution method]

E.coli, non-pathogenic, unspecified	Dairy products, unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	5	
Antimicrobials:	lowest	highest
Fluoroquinolones - Ciprofloxacin		
Penicillins - Ampicillin		
Quinolones - Nalidixic acid		
Tetracyclines - Tetracycline		
Trimethoprim		

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Fishery products, unspecified - quantitative data [Dilution method]

Concentration (µg/ml), number of isolates with a concentration of inhibition equal to

E.coli, non-pathogenic, unspecified	Fishery products, unspecified																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	29																									
Antimicrobials:	Cut-off value	N	n	<=0.002	<=0.004	0.008	0.015	0.016	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	>4096	1024	2048
Aminoglycosides - Gentamicin	2	29	1							2	1	5		20		1										
Aminoglycosides - Streptomycin	16	29	5								2	1	1		10	2		8	2	1	2					
Amphenicols - Chloramphenicol	16	29	0											1	15	1	7	5								
Fluoroquinolones - Ciprofloxacin	0.03	29	6	3	5	2	1	5	7	4	1	1														
Penicillins - Ampicillin	8	29	6										3	2	10	5	3	4	1	1						
Quinolones - Nalidixic acid	16	29	5										2		4	9	8	1	1	3	1					
Tetracyclines - Tetracycline	8	29	6									1	2	13	1	4	2	4	1	1						
Trimethoprim	2	29	5								3	1	7	8	5	1	1	1	1	1						

E.coli, non-pathogenic, unspecified	Fishery products, unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	29	
Antimicrobials:	lowest	highest
Aminoglycosides - Gentamicin		
Aminoglycosides - Streptomycin		
Amphenicols - Chloramphenicol		
Fluoroquinolones - Ciprofloxacin		
Penicillins - Ampicillin		

Table Antimicrobial susceptibility testing of E.coli, non-pathogenic, unspecified in Fishery products, unspecified - quantitative data [Dilution method]

E.coli, non-pathogenic, unspecified	Fishery products, unspecified	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	29	
Antimicrobials:	lowest	highest
Quinolones - Nalidixic acid		
Tetracyclines - Tetracycline		
Trimethoprim		

Footnote:

Source of information: Public Health Services of the Autonomous Communities

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		16	
Amphenicols	Chloramphenicol		16	
Cephalosporins	Cefotaxime		0.25	
Fluoroquinolones	Ciprofloxacin		0.03	
Penicillins	Ampicillin		8	
Quinolones	Nalidixic acid		16	
Sulfonamides	Sulfonamides		256	
Tetracyclines	Tetracycline		8	
Trimethoprim	Trimethoprim		2	

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		2	
	Streptomycin		16	
Amphenicols	Chloramphenicol		16	
Cephalosporins	Cefotaxime		0.25	
Fluoroquinolones	Ciprofloxacin		0.03	
Penicillins	Ampicillin		8	
Quinolones	Nalidixic acid		16	
Sulfonamides	Sulfonamides		256	
Tetracyclines	Tetracycline		8	
Trimethoprim	Trimethoprim		2	

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Food

Test Method Used	Standard methods used for testing
Disc diffusion Agar dilution	

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin	EFSA	2	12
	Kanamycin		8	13
	Streptomycin	EFSA	16	11
Amphenicols	Chloramphenicol	EFSA	16	12
	Florfenicol		16	
Cephalosporins	3rd generation cephalosporins		1	14
	Cefotaxime	EFSA	0.25	14
Fluoroquinolones	Ciprofloxacin	EFSA	0.03	15
Penicillins	Ampicillin	EFSA	8	13
Quinolones	Nalidixic acid	EFSA	16	13
Sulfonamides	Sulfonamides	EFSA	256	12
Tetracyclines	Tetracycline	EFSA	8	14
Trimethoprim	Trimethoprim	EFSA	2	10

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Food

Footnote:

Source of information: Public Health Services of the Autonomous Communities

3.2 ENTEROCOCCUS, NON-PATHOGENIC

3.2.1 General evaluation of the national situation

3.2.2 Antimicrobial resistance in Enterococcus, non-pathogenic isolates

A. Antimicrobial resistance of E. faecium in animal

Sampling strategy used in monitoring

Methods of sampling (description of sampling techniques)

Results of the investigation

Table Cut-off values for antibiotic resistance of E. faecalis in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		32	
	Streptomycin		512	
Amphenicols	Chloramphenicol		32	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	

Table Cut-off values for antibiotic resistance of E. faecalis in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		32	
	Streptomycin		512	
Amphenicols	Chloramphenicol		32	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	

Table Cut-off values for antibiotic resistance of E. faecalis in Food

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		32	
	Streptomycin		512	
Amphenicols	Chloramphenicol		32	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	

Table Cut-off values for antibiotic resistance of E. faecium in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		32	
	Streptomycin		128	
Amphenicols	Chloramphenicol		32	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		1	
Tetracyclines	Tetracycline		2	

Table Cut-off values for antibiotic resistance of E. faecium in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		32	
	Streptomycin		128	
Amphenicols	Chloramphenicol		32	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		1	
Tetracyclines	Tetracycline		2	

Table Cut-off values for antibiotic resistance of E. faecium in Food

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin		32	
	Streptomycin		128	
Amphenicols	Chloramphenicol		32	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Oxazolidines	Linezolid		4	
Penicillins	Ampicillin		4	
Streptogramins	Quinupristin/Dalfopristin		1	
Tetracyclines	Tetracycline		2	

4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS

4.1 ENTEROBACTER SAKAZAKII

4.1.1 General evaluation of the national situation

4.1.2 Cronobacter in foodstuffs

Table Cronobacter in food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Cronobacter	Cronobacter sakazakii	Cronobacter spp, unspecified
Foodstuffs intended for special nutritional uses - dried dietary foods for special medical purposes intended for infants below 6 months	F	Objective sampling	Official sampling	food sample	Unknown	Single	100 g	25	0	0	0
Infant formula - dried	F	Objective sampling	Official sampling	food sample	Unknown	Single	100 g	110	1	1	0

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.

4.2 HISTAMINE

4.2.1 General evaluation of the national situation

4.2.2 Histamine in foodstuffs

Table Histamine in food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units in non-conformity	<= 100 mg/kg	>100 - <= 200 mg/kg
Fish - Fishery products from fish species associated with a high amount of histidine - not enzyme maturated	F	Objective sampling	Official sampling	food sample	Unknown	Single	200 g	373	23	2	1
Fish - Fishery products which have undergone enzyme maturation treatment in brine	F	Objective sampling	Official sampling	food sample	Unknown	Single	200 g	576	12	9	0

	>200 - <= 400 mg/kg	> 400 mg/kg
Fish - Fishery products from fish species associated with a high amount of histidine - not enzyme maturated	6	14
Fish - Fishery products which have undergone enzyme maturation treatment in brine	0	3

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.

Table Histamine in food

4.3 STAPHYLOCOCCAL ENTEROTOXINS

4.3.1 General evaluation of the national situation

4.3.2 Staphylococcal enterotoxins in foodstuffs

Table Staphylococcal enterotoxins in food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Staphylococcal enterotoxins
Cheeses made from cows' milk - hard - made from pasteurised milk	F	Objective sampling	Official sampling	food sample	Unknown	Single	100 g	126	0
Cheeses made from cows' milk - hard - made from raw or low heat-treated milk	F	Objective sampling	Official sampling	food sample	Unknown	Single	100 g	76	0
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk	F,L	Objective sampling	Official sampling	food sample	Unknown	Single	100 g	103	0
Cheeses made from cows' milk - soft and semi-soft - made from raw or low heat-treated milk	F	Objective sampling	Official sampling	food sample	Unknown	Single	100 g	16	0
Cheeses made from goats' milk - hard - made from pasteurised milk	F	Objective sampling	Official sampling	food sample	Unknown	Single	100 g	3	0
Cheeses made from goats' milk - hard - made from raw or low heat-treated milk	F	Objective sampling	Official sampling	food sample	Unknown	Single	100 g	1	0
Cheeses made from goats' milk - soft and semi-soft - made from pasteurised milk	F	Objective sampling	Official sampling	food sample	Unknown	Single	100 g	18	0
Cheeses made from sheep's milk - hard - made from raw or low heat-treated milk	F	Objective sampling	Official sampling	food sample	Unknown	Single	100 g	58	4

Table Staphylococcal enterotoxins in food

	Source of information	Sampling strategy	Sampler	Sample type	Sample origin	Sampling unit	Sample weight	Units tested	Total units positive for Staphylococcal enterotoxins
Cheeses made from sheep's milk - soft and semi-soft - made from pasteurised milk	F	Objective sampling	Official sampling	food sample	Unknown	Single	100 g	6	0
Cheeses made from sheep's milk - soft and semi-soft - made from raw or low heat-treated milk	F	Objective sampling	Official sampling	food sample	Unknown	Single	100 g	2	0
Dairy products (excluding cheeses) - milk powder and whey powder	F	Objective sampling	Official sampling	food sample	Unknown	Single	100 g	12	0

Footnote:

F: PUBLIC HEALTH SERVICES OF THE AUTONOMOUS COMMUNITIES.
L: NATIONAL REFERENCE LABORATORY.

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 foodborne outbreaks

Royal Decree 2210/1995, december 25, by Epidemiological Surveillance National Net is created.

Notifiable Disease Surveillance System (NDSS)

In December of 1995 the National Network of Epidemiological Surveillance was created by law.
During 1997 the protocols of statutory notification of diseases were approved and implemented in Spain.
In Spain the Autonomous Regions have wide powers with respect to epidemiological surveillance and national decisions are usually taken by consensus.
All practising doctors are obliged to notify, both those in the public health service and in private practice, and both those practising outside and within hospitals. On occasions the appearance of cases and outbreaks is detected by other means (from the mass media, from citizens complants, etc.) and in these cases the information is checked and if confirmed it is incorporated into the system at the corresponding level.
The notification may be carried out using a variety of systems: mail, fax, telephone, e-mail, etc. Presently all the regions (and in many cases levels below) transmit the data by e-mail. A network is being developed for the National Epidemiological Surveillance Network which will permit the flow of data from the local level.

The notification of outbreaks is mandatory and standardised. All the outbreaks must be reported immediately at the regional level. At the national level it is obligatory to report immediately only those outbreaks which, by law, are defined as being supra-communitary (considered to be of national interest) in order to facilitate their rapid control, where as the rest of the outbreaks are reported quarterly. Some regions have set up early warning systems in order to support doctors in reporting and investigating outbreaks. A similar national system is entering into operation.
In 1997 a uniform outbreak reporting format (variables and codification) was developed in all of Spain in accordance with the one recommended by the WHO Programme. The report includes relevant information such as agent, food involved, place of consumption and contributing factors.
The results of the statistical and epidemiological analysis are disseminated in annual reports. In addition they are published in epidemiological bulletins (national, regional and other). The weekly national epidemiological bulletin can be found at:
http://www.isciii.es/jsps/centros/epidemiologia/boletinesSemanal.jsp
In Spain the investigation of outbreaks of any diseases in humans is regulated within the National Epidemiological Surveillance Network.
The responsibility and coordination falls on the epidemiologist charged with the investigation of each outbreak. In foodborne outbreaks this is also the case, but in close coordination with those who have to investigate.

Description of the types of outbreaks covered by the reporting:

The Spanish System covers all type of outbreaks, family, general and international outbreak

National evaluation of the reported outbreaks in the country:

Trends in numbers of outbreaks and numbers of human cases involved

In 2011 has been comunicatted 424 outbreaks, 165 of them with strong evidence. 1930 patients was involving in strong evidence outbreak

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

Salmonella is the agent more frequently implied in foodborne outbreak, emphasizing S. Enteritidis.

The food implied in its majority was eggs and eggs products
Eggs
Meat
Milk

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

The place of consumption of the implied food was, mainly, the familiar home, being the time of the year with more foodborne outbreaks the summer and contributor factor more frequent the inadequate temperature.

Control measures or other actions taken to improve the situation

Outbreak investigations as well as necessary control measures are carried out by the health authorities of the autonomous regions.

Table Foodborne Outbreaks: summarised data

	Weak evidence or no vehicle outbreaks					
	Number of outbreaks	Human cases	Hospitalized	Deaths	Strong evidence Number of Outbreaks	Total number of outbreaks
Salmonella - S. Typhimurium	0	unknown	unknown	unknown	0	0
Salmonella - S. Enteritidis	0	unknown	unknown	unknown	0	0
Salmonella - Other serovars	0	unknown	unknown	unknown	0	0
Campylobacter	0	unknown	unknown	unknown	0	0
Listeria - Listeria monocytogenes	0	unknown	unknown	unknown	0	0
Listeria - Other Listeria	0	unknown	unknown	unknown	0	0
Yersinia	0	unknown	unknown	unknown	0	0
Escherichia coli, pathogenic - Verotoxigenic E. coli (VTEC)	0	unknown	unknown	unknown	0	0
Bacillus - B. cereus	0	unknown	unknown	unknown	0	0
Bacillus - Other Bacillus	0	unknown	unknown	unknown	0	0
Staphylococcal enterotoxins	0	unknown	unknown	unknown	0	0
Clostridium - Cl. botulinum	0	unknown	unknown	unknown	0	0
Clostridium - Cl. perfringens	0	unknown	unknown	unknown	0	0

	Weak evidence or no vehicle outbreaks					
	Number of outbreaks	Human cases	Hospitalized	Deaths	Strong evidence Number of Outbreaks	Total number of outbreaks
Clostridium - Other Clostridia	0	unknown	unknown	unknown	0	0
Other Bacterial agents - Brucella	0	unknown	unknown	unknown	0	0
Other Bacterial agents - Shigella	0	unknown	unknown	unknown	0	0
Other Bacterial agents - Other Bacterial agents	0	unknown	unknown	unknown	0	0
Parasites - Trichinella	0	unknown	unknown	unknown	0	0
Parasites - Giardia	0	unknown	unknown	unknown	0	0
Parasites - Cryptosporidium	0	unknown	unknown	unknown	0	0
Parasites - Anisakis	0	unknown	unknown	unknown	0	0
Parasites - Other Parasites	0	unknown	unknown	unknown	0	0
Viruses - Norovirus	0	unknown	unknown	unknown	0	0
Viruses - Hepatitis viruses	0	unknown	unknown	unknown	0	0
Viruses - Other Viruses	0	unknown	unknown	unknown	0	0
Other agents - Histamine	0	unknown	unknown	unknown	0	0
Other agents - Marine biotoxins	0	unknown	unknown	unknown	0	0
Other agents - Other Agents	0	unknown	unknown	unknown	0	0

	Weak evidence or no vehicle outbreaks					
	Number of outbreaks	Human cases	Hospitalized	Deaths	Strong evidence Number of Outbreaks	Total number of outbreaks
Unknown agent	0	unknown	unknown	unknown	0	0