European Food Safety Authority

ZOONOSES MONITORING

GREECE

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: Greece

Reporting Year: 2012

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 Greece 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.

---

* 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

List of Contents

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

SUSCEPTIBLE ANIMAL POPULATION: (please advise the relevant electronic summary tables on EFSA Web – based zoonoses monitoring system for 2011 Data Collection.)

Source of information: Internal Data Base computerized system of Hellenic Ministry of Agriculture (update 2011). These statistics may vary from other national or E.U. sources of animal population records.

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					495081	2012	22202	2012
	dairy cows and heifers					204571	2012	7323	2012
	calves (under 1 year)					134443	2012		
	mixed herds					24827	2012	10697	2012
	- in total			140850	2012	730175	2012	40376	2012
	- unspecified (breeding animals)					3094	2012	100	2012
Gallus gallus (fowl)	breeding flocks, unspecified - in total	357	2012			2110770	2012	89	2012
	laying hens	739	2012			7688205	2012	354	2012
	broilers	6578	2012			85285708	2012	1027	2012
Goats	animals under 1 year					829113	2012		
	animals over 1 year					4261470	2012		
	- in total					5090583	2012	19040	2012
Pigs	fattening pigs					645345	2012		

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*
Pigs	breeding animals - unspecified - sows and gilts	3053	2012			89370	2012		
Sheep	animals under 1 year (lambs)					1745332	2012		
	animals over 1 year					9729921	2012		
	- in total					11475253	2012	55844	2012
Solipeds, domestic	- unspecified	10282	2012			26289	2012		
Turkeys	meat production flocks	58	2012			252550	2012	33	2012
	parent breeding flocks	5	2012			12450	2012	4	2012
Wild boars	farmed - in total					8150	2012		
Buffalos	- unspecified	51	2012			5486	2012		
Cats	pet animals					102078	2012	26023	2012
Dogs	pet animals					268351	2012	27904	2012
Fish	farmed (fresh water)							100	2012
	farmed (marine fish)							330	2012
Fur animals	farmed					42000	2012	38	2012

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*
Other animals	- unspecified (bee heevies) [1)]	1500000	2012					20000	2012
Rabbits	farmed					151285	2012	1400	2012

Comments:

[1)] bee heevies

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

DISEASE/AGENT: Salmonellosis, Salmonella spp.
Contaminated materials: Feed materials of animal origin, plant origin and Compound feedingstuffs

Surveillance system
The legal provisions in place and relevant requirements (Zoonoses Directive 2003 and Zoonoses Regulation 2160) had significantly improved the effectiveness of the existing monitoring situation and management practices in the field of Salmonella surveillance. New strategies and schemes for monitoring Salmonella zoonotic agents are in force in accordance with Community Salmonella reduction targets approved. Rapid adaptation and compliance on the new mandatory EU Salmonella control and eradication programmes were observed in all EU member states.

Measures in case of positiive findings
According to the current EU Directives and Community Legislation.

In 2010, five (5) Salmonella positive units (from fish meal) were reported from 212 sampling units tested in total under selective sampling and routine monitoring schemes.

In 2009, no Salmonella positive units were reported from 232 samples tested in total under selective sampling and routine monitoring schemes.

The method ISO 6579 (2002) is used for the detection and isolation of Salmonella serovars.

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

DISEASE/AGENT: Salmonellosis, Salmonella Serovars
INFECTED SPECIES: Poultry breeding flocks- Callus gallus

Susceptible population
Parent breeding stock for egg and meat production line is estimated around 2.372.881 birds of 355 breeding flocks (2010 national zoonoses statistics).

Surveillance system
From the past (Historical data), according to the Annex III of the Dir. 92/117, a Salmonella control program has been carried out since 1998. In 2009, the Salmonella national control programme in breeding flocks of Gallus gallus has been implemented and approved (co- financed) by European Commission. The programme was supervised by the Hellenic central veterinary competent authorities and was in line with the uniform EU guidelines and rules approved by the Commission. The results were collected, analyzed and evaluated by the Commission, EFSA and Member States in accordance with the Community pre-

defined targets towards the reduction of Salmonella prevalence in Breeding flocks of Gallus gallus (fowl).

Method used:
The methods ISO 6579 (2002) and ISO 6579 Amendment 1: Annex D (2007) were used for the detection and isolation of Salmonella serovars.

The Salmonella serotyping was conducted in the National Reference Veterinary Laboratory (NRVLS) for Salmonellosis in animals (located in Chalkida – Prefecture of Evia) by using the Agglutination technique: Antigenic formulas of the Salmonella Serovars (9th edition- 2007- WHO Institute Pasteur) .

Measures in case of positive findings
Slaughter of infected flocks, restrictions of placing hatching eggs to
the hatchery for as long as the disease exists and all the relevant control measures were taken based on EU Legislation and requirements in force.

Epidemiological and statistical report

The reported Salmonella Serovars from adult poultry breeders, isolated and identified during the year 2010 by the National Reference Laboratory were: S. Enteritidis (n= 5) ,S. Derby (n= 2), S.enterica sub salamae (n=1), S. Livingstone(n= 1), S. Hadar (n= 2), S. Tennessee (n=2) , S. Anatum (n=1) and S. Anatum (n=1).

The reported Salmonella Serovars from adult poultry breeders, isolated and identified during the year 2009 by the National Reference Laboratory were: S. Enteritidis (n= 5) , S. Typhimurium (n= 1), S. Blockley (n= 1) , S. Livingstone(n= 6) , S. Hadar (n= 13), S.Enterica (n= 1) , S. Umbilo (n= 1) , S.enterica sub enterica 6,7:d unspecified (n= 1).

Note: n = number of positive flocks

DISEASE/AGENT: Salmonellosis / Salmonella serovars
INFECTED SPECIES: Laying Hens and Broilers of Gallus, gallus (fowl)

Surveillance system
In 2010, Salmonella control and eradication EU- programmes in Laying hens and broilers have been implemented in the country based on suspected and objective samples submitted into the laboratories under the official investigation in 2010. Under the framework of the programme industry sampling was carried out as well.

Method used
The methods ISO 6579 (2002) and ISO 6579 Amendment 1: Annex D (2007) were used for the detection and isolation of Salmonella serovars in Laying hens and other poultry.
The Salmonella serotyping was performed by using the Agglutination technique: Antigenic formulas of the Salmonella Serovars (9th edition- 2007- WHO Institute Pasteur) .

Fifty two (52) Salmonella positive flocks isolated, serotyped and reported by the National Reference Laboratory for Salmonellosis in Greece (NRLS, Located in Chalkida, Evia prefecture) under the national control programme for Laying hens during the year 2010. The most 5 frequent Salmonella reported serovars in Layin hens at production stage is presented below:

1.S.Enteritidis (n= 6)

2.S. Typhimurium (n= 4)
3.S.Infantis (n= 9)
4.S. Branderup (n= 6)
5.S.Corvallis (n = 7)

The remaining Serovars from positive laying flocks can be analytically retrieved by the Web Reporting System

Forty one (41) Salmonella positive flocks isolated, serotyped and reported by the National Reference Laboratory for Salmonellosis in Greece (NRLS, Located in Chalkida, Evia prefecture) under the national control programme for Laying hens during the year 2009. Distribution for the most 6 frequent Salmonella serovars in Layin hens – production stage is given below:

1. S.Enteritidis (n= 8)
2. S. Typhimurium (n= 3)
3. S.Corvalis (n = 4)
4. S.Newport (n=3)
5. S. Heidelberg (n= 2)
6. S.Branderup (n = 2)

Note: n = number of Salmonella positive flocks

Twenty eight (28) Salmonella positive flocks isolated, serotyped and reported by the National Reference Laboratory for Salmonellosis in Greece (NRLS, Located in Chalkida, Evia prefecture) under the national control programme for Broilers during the year 2010. Distribution for the most 5 frequent Salmonella serovars in Broilers – production perios is given below:

1.S. Hadar (n= 5)
2.S. Thompson (n=5)
3. S. Tennesse (n= 3)
4.S.Infantis (n= 2)
5.S. Bredeney (n=2)

DISEASE/AGENT: Salmonellosis/ Salmonella serovars
INFECTED SPECIES: In other poultry (or other birds) and other Animals (non poultry)

Surveillance system
No specific and systematic monitoring control program in place
Data are based on clinical samples submitted to the laboratories.

Method used
The methods ISO 6579 (2002) and ISO 6579 Amendment 1: Annex D (2007) were used for the detection and isolation of Salmonella serovars in other animals.
The Salmonella serotyping was performed by the Agglutination technique: Antigenic formulas of the Salmonella Serovars (9th edition- 2007- WHO Institute Pasteur)

In 2010, the reported Salmonella serovars derived from 92 tested sampling units (poultry and other animals) were: S. Typhimurium (n= 7) and Salmonella spp – unspecified (n= 6).

Recent actions taken to control the zoonoses

EU LEGISLATION FOR CONTROL SALMONELLA PROGRAMMES IN POYLTRY
ZOONOSES DIRECTIVE
HYGIENE PACKAGE

Additional information

DISEASE/AGENT: Salmonella/ Salmonella serovars
TARGET OF MONITORING: Contaminated Food

Surveillance system
Routine examination and selective official sampling at retail level, processing plan and slaughterhouse carried out based on National and Community legislation.

Method used
The ISO 6579 (2002) is used for the detection of Salmonella in food.
The Salmonella serotyping was performed by the Agglutination technique: Antigenic formulas of the Salmonella Serovars (9th edition- 2007- WHO Institute Pasteur)

Summary National Report (Reporting Year: 2011). Official and selective sampling – Routine monitoring

1. Broiler meat and products thereof (all categories)
Samples tested: 315
Samples positive: 8
Reported serovars : S. Enteritidis (n=1), S.Montevideo (n=1) , S. Hadar (n=4) and S. spp unspecified (n=1)

2. Pig meat and products thereof (all categories)
Samples tested: 356
Samples positive: 7
Reported serovars : S. Derby (n=2), S. Umbilo (n=5).

3. Bovine meat and products thereof (all categories)
Samples tested: 100
Samples positive: 0

4. Meat from other animals and products thereof (all categories)
Samples tested: 1
Samples positive: 0

5. Milk and milk products (all categories)
Samples tested: 418
Samples positive: 0

6. Eggs and egg products(all categories)
Samples tested: 10
Samples positive: 0

7. Fish and fish products (all categories)
Samples tested: 53
Samples positive: 0

8. Other Food (all categories)
Samples tested: 28
Samples positive: 0

2010 Overall Salmonella reported Food Prevalence (for all food categories) = 3,17 % (75/2367*100)

2.1.2 Salmonellosis in humans

A. Salmonellosis in humans

Relevance as zoonotic disease

DISEASE/AGENT: Salmonella
AFFECTED SPECIES: Humans

Surveillance system
Mandatory reporting of foodborne infections and intoxications with laboratory confirmation. Hospitalized cases are the main reporting source for further epidemiological investigation. Notification is required within 24 hours after the identification of a case.

Epidemiological history and evaluation

Results of the 2006 zoonoses monitoring period.
A total of 984 human Salmonellosis cases were reported to the competent authorities (incidence per 100.000 persons = 9). The reported cases were classified as autochone (n=749), Imported (n=131) and unknown (n=104) cases respectively. The 2006 annual incidence rate reported significantly lower compared to 2004 for Salmonellosis in humans.

History
In 2004 , 1493 (incidence: 13,70 per 100.000 inhabitants) cases of salmonella were reported including the species : S. enteritidis (309), S.typhimurium (20), S. Adaustua (2), S. Anatum (1), S.enteritica- arizonae (29), S. blockley (1), S. infantis (1), S. paratyphi (2), S.Typhi (6) and the remaining Salmonella spp. (1121).

Historically, the officially reported Salmonella cases in humans the reporting years 1998, 1999 and 2000 were 918 , 221 and 206 respectively. For the year 2001, 284 human cases were reported. Human Salmonellosis cases in 2004 caused by S. Enteritidis, S, Typhimurium and other Salmonella serotypes were 1493 in total compared to 837 (2003) and 460 (2002) in previous years. According to these data an increase of Salmonella cases has been observed during 2004 in man, but in order to epidemiologically evaluate the real trends of Salmonella incidence, we must have in mind the significant underreporting practice which leads to underestimate figures providing non representative salmonella statistics. Moreover it is important to emphasize that the factor underlined above (underestimation) is considered constant for each reporting year.

Results of monitoring
Human Salmonella Data are presented in the relevant tables of the EFSA web based electronic system for zoonoses monitoring.

Source of human infection
Mainly from the consumption of infected, contaminated and croos- contaminated food and poultry meat and products there of.

Additional information

In 2005, all Salmonella serovars derived from the Antimicrobial Resistance monitoring system are presented in the following summary list with the number of all Salmonella isolates that were serotyped.

List of isolates by serotype

Salmonella serovars	Number of isolates
Salmonella Enteritidis	732
Salmonella Typhimurium	120
Salmonella Oranienburg	24
Salmonella Blockley	17
Salmonella enterica ss. salamae	15
Salmonella Kottbus	13
Salmonella Bovismorbificans	9
Salmonella Typhi	9
Salmonella Bredeney	7
Salmonella Agona	5
Salmonella Muenchen	5
Salmonella Muenster	5
Salmonella Thompson	5
Salmonella Virchow	4
Salmonella Derby	3
Salmonella Infantis	3
Salmonella Kedougou	3
Salmonella Mbandaka	3
Salmonella Newport	3
Salmonella Paratyphi B	3
Salmonella enterica ss. diarizonae	2
Salmonella Hadar	2
Salmonella Anatum	1
Salmonella Bareilly	1
Salmonella Brandenburg	1
Salmonella Cerro	1
Salmonella enterica ss. houtenae	1
Salmonella Goldcoast	1
Salmonella Kentucky	1
Salmonella Litchfield	1
Salmonella Lomita	1
Salmonella Montevideo	1
Salmonella Paratyphi A	1
Salmonella Poona	1
Salmonella Rissen	1
Salmonella Tennessee	1
All	1006

2.1.3 Salmonella in foodstuffs

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	NRL-OTHER STATE VET LABS	Objective sampling	Official sampling	food sample		Single	25 gr	56	11	1	
Meat from broilers (Gallus gallus) - fresh - at processing plant - Surveillance	NRL-OTHER STATE VET LABS	Objective sampling	Official sampling	food sample		Single	25 gr	31	3		
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail - Surveillance	STATE VET LAB	Unspecified	Official sampling	food sample		Single		2	0		
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at processing plant - Surveillance	STATE VET LAB	Objective sampling	Official sampling	food sample		Single	25 gr	8	0		
Meat from broilers (Gallus gallus) - meat products - raw but intended to be eaten cooked - at processing plant - Surveillance	STATE VET LAB	Unspecified	Official sampling	food sample		Single	10 gr	1	0		
Meat from broilers (Gallus gallus) - meat products - raw but intended to be eaten cooked - at retail - Surveillance	STATE VET LAB	Objective sampling	Official sampling	food sample		Single	25 gr	130	0		
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - at processing plant - Surveillance	STATE VET LAB	Objective sampling	Official sampling	food sample		Single	25 gr	5	0		
Meat from poultry, unspecified (READY TO EAT)	STATE VET LAB	Unspecified	Not applicable	food sample		Unknown		1	0		
Meat from turkey - meat products - at processing plant (COOKED READY TO EAT)	STATE VET LAB	Objective sampling	Official sampling	food sample		Single	25 gr	7	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 turkey - minced meat - intended to be eaten cooked - at processing plant	STATE VET LAB	Objective sampling	Official sampling	food sample		Single	25 gr	5	0		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Agona	S. Haardt	S. Infantis	S. Livingstone	S. Paratyphi B
Meat from broilers (Gallus gallus) - carcase - at slaughterhouse - Surveillance		6	2				2
Meat from broilers (Gallus gallus) - fresh - at processing plant - Surveillance		2		1			
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail - Surveillance							
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at processing plant - Surveillance							
Meat from broilers (Gallus gallus) - meat products - raw but intended to be eaten cooked - at processing plant - Surveillance							
Meat from broilers (Gallus gallus) - meat products - raw but intended to be eaten cooked - at retail - Surveillance							
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - at processing plant - Surveillance							
Meat from poultry, unspecified (READY TO EAT)							

Table Salmonella in poultry meat and products thereof

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Agona	S. Haardt	S. Infantis	S. Livingstone	S. Paratyphi B
Meat from turkey - meat products - at processing plant (COOKED READY TO EAT)							
Meat from turkey - minced meat - intended to be eaten cooked - at processing plant							

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
Cheeses made from sheep's milk - fresh - made from raw or low heat-treated milk - at retail - Surveillance	NRL	Objective sampling	Official sampling	food sample		Single	25 gr	3	3		
Cheeses made from sheep's milk - soft and semi-soft - made from pasteurised milk - Surveillance	STATE VET LAB	Unspecified	Official sampling	food sample		Unknown		3	0		
Dairy products (excluding cheeses) - Surveillance (MILK POWDER AND WHEY POWDER)	STATE VET LAB	Unspecified	Official sampling	food sample		Unknown		1	0		
Milk, cows' - pasteurised milk - Surveillance	STATE VET LAB	Unspecified	Official sampling	food sample > milk		Unknown		1	0		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Montevideo
Cheeses made from sheep's milk - fresh - made from raw or low heat-treated milk - at retail - Surveillance		1	2
Cheeses made from sheep's milk - soft and semi-soft - made from pasteurised milk - Surveillance			
Dairy products (excluding cheeses) - Surveillance (MILK POWDER AND WHEY POWDER)			
Milk, cows' - pasteurised milk - Surveillance			

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 retail - Surveillance	STATE VET LAB	Unspecified	Official sampling	food sample		Unknown		5	0		
Egg products - at processing plant - Surveillance	STATE VET LAB	Unspecified	Official sampling	food sample		Unknown		3	0		
Dairy products, unspecified - Surveillance (yogurt dressing (tzatziki))	STATE VET LAB	Unspecified	Official sampling	food sample		Single	25 gr	1	0		
Dairy products, unspecified - Surveillance (yogurt dressing made from sheep milk)	STATE VET LAB	Unspecified	Official sampling	food sample		Single	25 gr	2	0		
Fishery products, unspecified - cooked - Surveillance	STATE VET LAB	Unspecified	Official sampling	food sample		Unknown		8	0		
Fishery products, unspecified - smoked - at processing plant (smoked salmon)	STATE VET LAB	Suspect sampling	Official sampling	food sample		Single	25 gr	75	0		
Live bivalve molluscs - unspecified - at processing plant - Surveillance	NRL-OTHER STATE VET LABS	Objective sampling	Official sampling	food sample		Single	25 gr	953	6		1
Molluscan shellfish - Surveillance	STATE VET LAB	Objective sampling	Official sampling	food sample		Unknown	25 gr	14	0		
Molluscan shellfish - cooked - Surveillance	STATE VET LAB	Objective sampling	Official sampling	food sample		Unknown	25 gr	3	0		
Other food - Surveillance (processed foodstuffs ontaining raw eggs)	STATE VET LAB	Objective sampling	Official sampling	food sample		Unknown		2	0		
Other food - Surveillance (sandwich)	STATE VET LAB	Unspecified	Official sampling	food sample		Single	25 gr	6	0		
Other food - at hospital or care home - Surveillance (dried infant formula intended for infants below 6 months)	STATE VET LAB	Objective sampling	Official sampling	food sample		Single	25 gr	16	0		
Snails - Surveillance (terrestrial snails)	STATE VET LAB	Objective sampling	Official sampling	food sample		Unknown	25 gr	5	0		

Table Salmonella in other food

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Abaetetuba	S. II 41:z10:1,2	S. Manhattan
Eggs - table eggs - at retail - Surveillance					
Egg products - at processing plant - Surveillance					
Dairy products, unspecified - Surveillance (yogurt dressing (tzatziki))					
Dairy products, unspecified - Surveillance (yogurt dressing made from sheep milk)					
Fishery products, unspecified - cooked - Surveillance					
Fishery products, unspecified - smoked - at processing plant (smoked salmon)					
Live bivalve molluscs - unspecified - at processing plant - Surveillance		2	1	1	1
Molluscan shellfish - Surveillance					
Molluscan shellfish - cooked - Surveillance					
Other food - Surveillance (processed foodstuffs ontaining raw eggs)					
Other food - Surveillance (sandwich)					
Other food - at hospital or care home - Surveillance (dried infant formula intended for infants below 6 months)					
Snails - Surveillance (terrestrial snails)					

Table Salmonella in other food

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 [1)]	STATE VET LAB	Objective sampling	Official sampling	food sample		Single	10 gr	15	0		
Meat from pig - minced meat - intended to be eaten raw - at processing plant - Surveillance	STATE VET LAB	Unspecified	Official sampling	food sample		Single	10 gr	1	0		
Meat from pig - minced meat - intended to be eaten cooked - at processing plant - Surveillance	STATE VET LAB	Objective sampling	Official sampling	food sample		Single	10 gr	7	0		
Meat from pig - meat preparation - intended to be eaten cooked - at processing plant - Surveillance	STATE VET LAB	Objective sampling	Official sampling	food sample		Single	10 gr	118	3		2
Meat from pig - meat products - raw but intended to be eaten cooked - at processing plant - Surveillance	NRL-OTHER STATE VET LABS	Objective sampling	Official sampling	food sample		Single	10 gr	53	0		
Meat from pig - meat products - cooked, ready-to-eat - at processing plant - Surveillance	STATE VET LAB	Objective sampling	Official sampling	food sample		Single	25 gr	85	0		
Meat from bovine animals - carcase - at slaughterhouse - Surveillance [2)]	STATE VET LAB	Objective sampling	Official sampling	food sample > carcase swabs		Single		20	0		
Meat from bovine animals - fresh - at processing plant - Surveillance	STATE VET LAB	Unspecified	Official sampling	food sample		Single	25 gr	5	0		
Meat from bovine animals - minced meat - intended to be eaten cooked - at processing plant - Surveillance	state vet lab	Objective sampling	Official sampling	food sample		Single	10 gr	30	0		
Meat from bovine animals - meat preparation - intended to be eaten cooked - at processing plant - Surveillance	STATE VET LAB	Objective sampling	Official sampling	food sample		Single	10 gr	1	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 but intended to be eaten cooked - at processing plant - Surveillance	NRL	Objective sampling	Official sampling	food sample		Single	10 gr	20	0		
Other products of animal origin - gelatin and collagen - at processing plant - Surveillance	STATE VET LAB	Unspecified	Official sampling	unknown		Unknown		1	0		
Meat from pig - fresh	STATE VET LAB	Unspecified	Official sampling	food sample		Single	25 gr	4	1		1
Meat from pig - meat products - cooked, ready-to-eat - at processing plant - Surveillance	STATE VET LAB	Objective sampling	Official sampling	food sample		Single	10 gr	16	0		
Meat from sheep - fresh - Surveillance	STATE VET LAB	Unspecified	Official sampling	food sample		Unknown		1	0		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Glostrup
Meat from pig - carcase - at slaughterhouse - Surveillance [1)]			
Meat from pig - minced meat - intended to be eaten raw - at processing plant - Surveillance			
Meat from pig - minced meat - intended to be eaten cooked - at processing plant - Surveillance			
Meat from pig - meat preparation - intended to be eaten cooked - at processing plant - Surveillance			1
Meat from pig - meat products - raw but intended to be eaten cooked - at processing plant - Surveillance			

Table Salmonella in red meat and products thereof

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Glostrup
Meat from pig - meat products - cooked, ready-to-eat - at processing plant - Surveillance			
Meat from bovine animals - carcase - at slaughterhouse - Surveillance [2)]			
Meat from bovine animals - fresh - at processing plant - Surveillance			
Meat from bovine animals - minced meat - intended to be eaten cooked - at processing plant - Surveillance			
Meat from bovine animals - meat preparation - intended to be eaten cooked - at processing plant - Surveillance			
Meat from bovine animals - meat products - raw but intended to be eaten cooked - at processing plant - Surveillance			
Other products of animal origin - gelatin and collagen - at processing plant - Surveillance			
Meat from pig - fresh			
Meat from pig - meat products - cooked, ready-to-eat - at processing plant - Surveillance			
Meat from sheep - fresh - Surveillance			

Comments:

[1)] ANIMAL SURFACE

[2)] ANIMAL SURFACE

Table Salmonella in red meat and products thereof

2.1.4 Salmonella in animals

A. Salmonella spp. in Gallus Gallus - breeding flocks

Measures in case of the positive findings or single cases

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

Measures in case of positive findings:
Slaughter of infected flocks, restrictions of placing hatching eggs to
the hatchery for as long as the disease exists and all the relevant control measures were taken based on EU Legislation and requirements in force.

Notification system in place

DISEASE/AGENT: Salmonellosis, Salmonella Serovars
INFECTED SPECIES: Poultry breeding flocks- Callus gallus

Susceptible population
Parent breeding stock for egg and meat production line is estimated around 2.215.176 birds / 360 breeding flocks (2011 national zoonoses statistics) raised in 90 holdings.

Surveillance system
From the past (Historical data), according to the Annex III of the Dir. 92/117, a Salmonella control program has been carried out since 1998. In 2009, the Salmonella national control programme in breeding flocks of Gallus gallus has been implemented and approved (co- financed) by European Commission. The programme was supervised by the Hellenic central veterinary competent authorities and was in line with the uniform EU guidelines and rules approved by the Commission. The results were collected, analyzed and evaluated by the Commission, EFSA and Member States in accordance with the Community pre-defined targets towards the reduction of Salmonella prevalence in Breeding flocks of Gallus gallus (fowl).

Method used:
The methods ISO 6579 (2002) and ISO 6579 Amendment 1: Annex D (2007) were used for the detection and isolation of Salmonella serovars.

The Salmonella serotyping was conducted in the National Reference Veterinary Laboratory (NRVLS) for Salmonellosis in animals (located in Chalkida – Prefecture of Evia) by using the Agglutination technique: Antigenic formulas of the Salmonella Serovars (9th edition- 2007- WHO Institute Pasteur) .

Results of the investigation

Epidemiological and statistical report

The reported Salmonella Serovars from adult poultry breeders, isolated and identified during the year 2011 by the National Reference Laboratory were: S.Bispebjerg (n=1), S.Kentack (n=1), S.Havana (n=3), S.Muenster (n=1), S.Enterica (n=1), S.Infantis (n=2).

Note: n = number of positive flocks

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

Notification system in place

Surveillance system

In 2009, Salmonella control EU- programmes in Laying hens and broilers have been implemented in the country based on suspected and objective samples submitted into the laboratories under the official investigation in 2009.

Method used

The methods ISO 6579 (2002) and ISO 6579 Amendment 1: Annex D (2007) were used for the detection and isolation of Salmonella serovars in Laying hens and other poultry.
The Salmonella serotyping was performed by using the Agglutination technique: Antigenic formulas of the Salmonella Serovars (9th edition- 2007- WHO Institute Pasteur) .

Results of the investigation

Twenty three (23) Salmonella positive flocks isolated, serotyped and reported by the National Reference Laboratory for Salmonellosis in Greece (NRLS, Located in Chalkida, Evia prefecture) under the national control programme for Laying hens during the year 2011. Distribution for the Salmonella serovars in Layin hens – production stage is given below:
S.Muenster (n=1), S. Haardt (n=1), S. Bovismorbifigans (n=1), S.Virchow (n=1), S.Enteritidis (n=3), S. Thompson (n=3), S. Infantis (n=1), S. Umbilo (n=1), S.Havana (n=1), .S.Hadar (n=1), S.Muenchen (n=1), S.Carno (n=1), .S.Mbandaka (n=1), S.Enterika untypable (n=1), S.Newport (n=1), S.Bovismorbificans (n=1)
S.Glostrup (n=1), S.enterica salamae (n=2), S.Stanleyville (n=1)

Note: n = number of Salmonella positive flocks

Thirty two (32) Salmonella positive flocks isolated, serotyped and reported by the National Reference Laboratory for Salmonellosis in Greece (NRLS, Located in Chalkida, Evia prefecture) under the national control programme for Broilers during the year 2011. Distribution for the Salmonella serovars in Broilers – production perios is given bellow:
S.Typhymurium (n=2), S.Havana (n=1), S.Montevideo (n=1),S.Anatum (n=1)
S.Livingstone (n=4), S.enteritidis (n=10), S.Senftenberg (n=1)
S.Infantis (n=1), S.Thompson (n=2), S.Bredeney (n=1), S.Corvalis (n=1),S.Instanbul (n=1),S.Muenster (n=1),S.Tennessee (n=1),S.enterica subsp. salamae 4,12:i:- (untypable) (n=2)

Note: n = number of positive flocks

C. Salmonella spp. in bovine animals

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

Epidemiological history

In the year 2007 the reported salmonella serovars were associated with the results from an EU Pig baseline study. The study was carried out in order to identify the real and observed Salmonella prevalence in pigs in line with Community Legislation and relevant targets to reduce the prevalence over time. The majority of positive Salmonella strains were pig strains. The predominant reported serovars were: S. Typhimurium (n= 18), Salmonella spp – unspecified (n= 17), S. Derby (n=9) , , S. Enterica.sub.enterica (n= 7), S. Thomson (n=6) and S. Bredeney (n= 5) .

In a prospective study during 1985-1990, 1184 strains of Salmonella spp have been isolated from animals. The predominant serotype was S.Gallinarum. For 2002 and 2003 S. Typhimurium and S. Agona respectively had been exclusively reported based on the small sample frame tested. In the year 2004 the reported salmonella serovars were S. Typhimurium (Goats, rabbits and turtles), S. Dublin (cattle), S. Corvallis (Cattle), S. Litchfield (Turtles)and Salmmonella spp- non typed (Turtles).

Additional information

BOVINE ANIMALS AND OTHER ANIMALS (NON POULTRY)
DISEASE/AGENT: Salmonellosis/ Salmonella serovars
INFECTED SPECIES: Animals (non poultry)

Surveillance system

Not specific and systematic monitoring control program in force for the other (non poultry) animals.
Data are based on the samples incidentally submitted to the laboratories.

Method used

The methods ISO 6579 (2002) and ISO 6579 Amendment 1: Annex D (2007) were used for the detection and isolation of Salmonella serovars in other animals.
The Salmonella serotyping was performed by the Agglutination technique: Antigenic formulas of the Salmonella Serovars (9th edition- 2007- WHO Institute Pasteur)

In 2009, the reported Salmonella serovars derived from 256 tested units (animals) were: Salmonella spp – unspecified (n= 2) and S. Dublin (n= 1).

In 2008, the reported Salmonella serovars were: S. Bredeney (n= 2), Salmonella spp – unspecified (n= 2),
S. Enterica.subsp.enterica (n= 1).

Note: n = number of positive flocks

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	265	PVD	Census	Official and industry sampling	animal sample > faeces		yes	Flock	256	13	1
Gallus gallus (fowl) - parent breeding flocks for egg production line - day-old chicks - Control and eradication programmes	8	PVD	Census	Industry sampling	animal sample		yes	Flock	8	0	
Gallus gallus (fowl) - parent breeding flocks for egg production line - during rearing period - Control and eradication programmes	7	PVD	Census	Industry sampling	animal sample > faeces		yes	Flock	7	0	
Gallus gallus (fowl) - parent breeding flocks for egg production line - adult - Control and eradication programmes	24	PVD	Census	Official and industry sampling	animal sample > faeces		yes	Flock	24	2	1
Gallus gallus (fowl) - parent breeding flocks for broiler production line - day-old chicks - Control and eradication programmes	156	PVD	Census	Industry sampling	animal sample		yes	Flock	151	0	
Gallus gallus (fowl) - parent breeding flocks for broiler production line - during rearing period - Control and eradication programmes	151	PVD	Census	Industry sampling	animal sample > faeces		yes	Flock	141	1	
Gallus gallus (fowl) - parent breeding flocks for broiler production line - adult - Control and eradication programmes	241	PVD	Census	Official and industry sampling	animal sample > faeces		yes	Flock	234	10	1

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	S. Havana	S. Livingstone	S. Oranienburg	S. Poona
Gallus gallus (fowl) - breeding flocks, unspecified - adult - Control and eradication programmes	1	0	1	0			4	4	2	1
Gallus gallus (fowl) - parent breeding flocks for egg production line - day-old chicks - Control and eradication programmes										
Gallus gallus (fowl) - parent breeding flocks for egg production line - during rearing period - Control and eradication programmes										
Gallus gallus (fowl) - parent breeding flocks for egg production line - adult - Control and eradication programmes								1		
Gallus gallus (fowl) - parent breeding flocks for broiler production line - day-old chicks - Control and eradication programmes										
Gallus gallus (fowl) - parent breeding flocks for broiler production line - during rearing period - Control and eradication programmes						1				
Gallus gallus (fowl) - parent breeding flocks for broiler production line - adult - Control and eradication programmes			1				4	2	2	1

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:-
Birds - pet animals (CANARINES) [1)]	PVD-STATE VET LAB	Unspecified	Official sampling	animal sample > organ/tissue		Animal	5	5			

	Salmonella spp., unspecified
Birds - pet animals (CANARINES) [1)]	5

Comments:

[1)] CLINICAL CASES

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:-
Cattle (bovine animals) - calves (under 1 year) - at farm - Monitoring	PVD-STATE VET LABS	Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	26	0			
Cattle (bovine animals) - adult cattle over 2 years - at farm - Monitoring [1)]	PVD-STATE VET LABS	Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	11	0			
Sheep - at farm - Monitoring [2)]	PVD-STATE VET LABS	Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	41	0			
Goats - at farm - Monitoring [3)]	PVD-STATE VET LABS	Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	30	0			
Pigs - fattening pigs - at farm - Monitoring [4)]	PVD-STATE VET LABS	Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	2	0			
Solipeds, domestic - horses - at farm - Monitoring [5)]	PVD-STATE VET LABS	Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	1	0			
Mice - wild	PVD-STATE VET LAB	Unspecified	Official sampling	animal sample > organ/tissue		Animal	3	0			
Other animals - Monitoring (RAT)	NRL FOR MARINE BIOTOXINS	Unspecified	Official sampling	animal sample > organ/tissue		Animal	3	0			

	Salmonella spp., unspecified
Cattle (bovine animals) - calves (under 1 year) - at farm - Monitoring	

Table Salmonella in other animals

	Salmonella spp., unspecified
Cattle (bovine animals) - adult cattle over 2 years - at farm - Monitoring [1)]	
Sheep - at farm - Monitoring [2)]	
Goats - at farm - Monitoring [3)]	
Pigs - fattening pigs - at farm - Monitoring [4)]	
Solipeds, domestic - horses - at farm - Monitoring [5)]	
Mice - wild	
Other animals - Monitoring (RAT)	

Comments:

[1)] CLINICAL CASES

[2)] CLINICAL CASES

[3)] CLINICAL CASES

[4)] CLINICAL CASES

[5)] CLINICAL CASES

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 - day-old chicks - Control and eradication programmes	107	PVD	Census	Industry sampling	animal sample		yes	Flock	58	0	
Gallus gallus (fowl) - laying hens - during rearing period - Control and eradication programmes	148	PVD	Census	Industry sampling	animal sample > faeces		yes	Flock	89	1	1
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	618	PVD	Census	Official and industry sampling	animal sample > faeces		yes	Flock	454	26	4
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	6578	PVD	Census	Official and industry sampling	animal sample > faeces		yes	Flock	6485	22	
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	6578	PVD	Census	Industry sampling	animal sample > faeces		yes	Flock	6433	37	
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	6578	PVD	Census	Official and industry sampling	animal sample > faeces		yes	Flock	131	22	
Turkeys - breeding flocks, unspecified - day-old chicks - at farm - Control and eradication programmes	0	PVD	Census	Official and industry sampling	animal sample > fleece		yes	Flock	0	0	
Turkeys - breeding flocks, unspecified - during rearing period - at farm - Control and eradication programmes	0	PVD	Census	Official and industry sampling	animal sample > faeces			Flock	0	0	
Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes	5	PVD	Census	Official and industry sampling	animal sample > fleece		yes	Flock	5	0	
Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes [1)]	58	PVD	Census	Industry sampling	animal sample > faeces		yes	Flock	46	0	

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
Other poultry - at farm - Control and eradication programmes (Turkeys -fattening flocks-before slaughter-at farm)	58	PVD	Census	Official sampling	animal sample > faeces		yes	Flock	7	1	

	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	Other serovars	S. Braenderup	S. Bredeney	S. Cerro	S. Corvallis	S. Haardt	S. Hadar	S. Havana
Gallus gallus (fowl) - laying hens - day-old chicks - Control and eradication programmes											
Gallus gallus (fowl) - laying hens - during rearing period - Control and eradication programmes											
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	1		1		1	1	1	1		1	
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes				6		2			3	2	1
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes			37								
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes				6		2			3	2	1
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											

Table Salmonella in other poultry

	S. Typhimurium	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	Other serovars	S. Braenderup	S. Bredeney	S. Cerro	S. Corvallis	S. Haardt	S. Hadar	S. Havana
Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes											
Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes [1)]											
Other poultry - at farm - Control and eradication programmes (Turkeys -fattening flocks-before slaughter-at farm)											

	S. Hermannswerder	S. Infantis	S. Kedougou	S. Kottbus	S. Macclesfield	S. Mishmarhaemek	S. Montevideo	S. Muenchen	S. Szentes	S. Tennessee	S. Thompson
Gallus gallus (fowl) - laying hens - day-old chicks - Control and eradication programmes											
Gallus gallus (fowl) - laying hens - during rearing period - Control and eradication programmes											
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes		2		1		1	3	3	1	1	2
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	1		1		1		1			6	
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes											
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	1		1		1		1			6	

Table Salmonella in other poultry

	S. Hermannswerder	S. Infantis	S. Kedougou	S. Kottbus	S. Macclesfield	S. Mishmarhaemek	S. Montevideo	S. Muenchen	S. Szentes	S. Tennessee	S. Thompson
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											
Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes											
Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes [1)]											
Other poultry - at farm - Control and eradication programmes (Turkeys -fattening flocks-before slaughter-at farm)				1							

	S. Umbilo
Gallus gallus (fowl) - laying hens - day-old chicks - Control and eradication programmes	
Gallus gallus (fowl) - laying hens - during rearing period - Control and eradication programmes	
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes	1
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	

Table Salmonella in other poultry

	S. Umbilo
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes	
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	
Turkeys - breeding flocks, unspecified - adult - at farm - Control and eradication programmes	
Turkeys - fattening flocks - before slaughter - at farm - Control and eradication programmes [1)]	
Other poultry - at farm - Control and eradication programmes (Turkeys -fattening flocks-before slaughter-at farm)	

Comments:

[1)] 4 flocks were put in the house at the end of 2012 thats why they were not tested

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 poultry - broilers - final product - at feed mill - Surveillance	NRL GREECE	Census	Official sampling	feed sample		Single	25 gr	1	0		
Compound feedingstuffs, not specified - at feed mill - Monitoring (Dog snacks (pigs ears, chewing bones))	STATE VET LAB	Census	Official sampling	feed sample		Single	25 gr	50	0		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified
Compound feedingstuffs for poultry - broilers - final product - at feed mill - Surveillance		
Compound feedingstuffs, not specified - at feed mill - Monitoring (Dog snacks (pigs ears, chewing bones))		

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 - meat meal - at feed mill - Surveillance	NRL -OTHER STATE VET LABS	Census	Official sampling	feed sample		Batch	25 gr	5	0		
Feed material of land animal origin - meat and bone meal - at feed mill - Surveillance	NRL- OTHER STATE VET LABS	Census	Official sampling	feed sample		Batch	25 gr	30	0		
Feed material of marine animal origin - fish meal - at feed mill - Surveillance	NRL-GREECE	Census	Official sampling	feed sample		Batch	25 gr	235	11		
Feed material of marine animal origin - fish oil - at feed mill - Surveillance	STATE VET LABS	Census	Official sampling	feed sample				45	0		
Feed material of land animal origin - at feed mill (Animal by-products and derived products not intented for human consumption)	NRL-GREECE	Census	Official sampling	feed sample		Batch	25 gr	40	5		

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Montevideo	S. Muenster	S. Senftenberg	S. Sundsvall
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						
Feed material of marine animal origin - fish meal - at feed mill - Surveillance			2	3	2	4
Feed material of marine animal origin - fish oil - at feed mill - Surveillance						

Table Salmonella in feed material of animal origin

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Montevideo	S. Muenster	S. Senftenberg	S. Sundsvall
Feed material of land animal origin - at feed mill (Animal by-products and derived products not intented for human consumption)					5	

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 - wheat derived - at feed mill - Surveillance	PRIVATE LABS	Census	Industry sampling	feed sample		Batch	25 gr	7	1	1	
Feed material of cereal grain origin - maize derived - at feed mill - Surveillance		Unspecified	Not applicable	feed sample		Batch	25 gr	4	0		
Feed material of oil seed or fruit origin - soya (bean) derived - at feed mill - Surveillance	NRL-GREECE	Census	Official sampling	feed sample		Batch	25 gr	5	0		
Feed material of oil seed or fruit origin - soya (bean) derived - at feed mill - Surveillance [1)]	PRIVATE LABS	Census	Industry sampling	feed sample		Batch	25 gr	2	2		
Other feed material - other plants - at border control - Surveillance (Cocoa) [2)]	HELLENIC AGRICULTURAL ORGANISATION	Census	Official sampling	feed sample	Imported from outside EU	Batch	25 GR	2	2		
Other feed material - other plants - at border control - Surveillance (Coconut) [3)]	Hellenic Agricultural organisation	Census	Official sampling	feed sample	Imported from outside EU	Batch	25 gr	3	2	2	
Other feed material - other plants - at border control - Surveillance (Roasted chick peas) [4)]	Hellenic Agricultural Organisation	Census	Official sampling	feed sample	Imported from outside EU	Batch	25 gr	1	1		
Other feed material - other plants - at border control - Surveillance (Seasame) [5)]	Hellenic Agricultural Organisatioon	Census	Official sampling	feed sample	Imported from outside EU	Batch	25 gr	4	4		
Other feed material - other plants - at feed mill - Surveillance (Corn)	NRL - GREECE	Census	Official sampling	feed sample		Batch	25 gr	5	0		

Table Salmonella in other feed matter

	S. 1,4,[5],12:i:-	Salmonella spp., unspecified	S. Agona	S. Haardt	S. Kuessel	S. Mbandaka	S. Senftenberg	S. Wien
Feed material of cereal grain origin - wheat 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 - soya (bean) derived - at feed mill - Surveillance								
Feed material of oil seed or fruit origin - soya (bean) derived - at feed mill - Surveillance [1)]							2	
Other feed material - other plants - at border control - Surveillance (Cocoa) [2)]					1			1
Other feed material - other plants - at border control - Surveillance (Coconut) [3)]							1	
Other feed material - other plants - at border control - Surveillance (Roasted chick peas) [4)]		1						
Other feed material - other plants - at border control - Surveillance (Seasame) [5)]		1	2				1	
Other feed material - other plants - at feed mill - Surveillance (Corn)								

Comments:

[1)] number of tested units is not known

[2)] number of tested units is not known

[3)] number of tested units is not known

[4)] number of tested units is not known

Table Salmonella in other feed matter

Comments:

[5)] number of tested units not known

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									110		6		
Number of isolates serotyped									119		6	0	
Number of isolates per serovar													
S. 4,12:-:1,2											1		
S. 4,12:b:-									2				
S. 6,7:-:-									1				
S. 6,7:z10:-									1				
S. Braenderup									7				
S. Bredeney									3				

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									110		6		
Number of isolates serotyped									119		6	0	
Number of isolates per serovar													
S. Cerro									1				
S. Corvallis									1				
S. Enteritidis									31		1		
S. Gallinarum											1		
S. Haardt									5				
S. Hadar									6		1		
S. Havana									8				
S. Hermannswerder									1				
S. Infantis									3				
S. Kedougou									1				
S. Kottbus									3				

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									110		6		
Number of isolates serotyped									119		6	0	
Number of isolates per serovar													
S. Livingstone									3				
S. Macclesfield									1				
S. Mbandaka									1				
S. Mishmarhaemek									1				
S. Montevideo									6				
S. Muenchen									6				
S. Muenster											1		
S. Oranienburg									2				
S. Poona									1				
S. Senftenberg									1				
S. Stanleyville									1				

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									110		6		
Number of isolates serotyped									119		6	0	
Number of isolates per serovar													
S. Szentes									2				
S. Tennessee									7				
S. Thompson									4				
S. Typhimurium									8		1		
S. Umbilo									1				

Serovar / Sources of isolates	Other poultry			Other animals - Clinical investigations (onine/caprine animals)			
	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory						3	
Number of isolates serotyped						3	
Number of isolates per serovar							
S. 4,12:-:1,2							

Table Salmonella serovars in animals

Serovar / Sources of isolates	Other poultry			Other animals - Clinical investigations (onine/caprine animals)			
	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory						3	
Number of isolates serotyped						3	
Number of isolates per serovar							
S. 4,12:b:-							
S. 6,7:-:-							
S. 6,7:z10:-							
S. Braenderup							
S. Bredeney							
S. Cerro							
S. Corvallis							
S. Enteritidis							
S. Gallinarum							
S. Haardt							
S. Hadar							

Table Salmonella serovars in animals

Serovar / Sources of isolates	Other poultry			Other animals - Clinical investigations (onine/caprine animals)			
	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory						3	
Number of isolates serotyped						3	
Number of isolates per serovar							
S. Havana							
S. Hermannswerder							
S. Infantis							
S. Kedougou							
S. Kottbus							
S. Livingstone							
S. Macclesfield							
S. Mbandaka							
S. Mishmarhaemek							
S. Montevideo						3	
S. Muenchen							

Table Salmonella serovars in animals

Serovar / Sources of isolates	Other poultry			Other animals - Clinical investigations (onine/caprine animals)			
	Monitoring	Clinical	Surveillance	Control program	Monitoring	Clinical	Surveillance
Number of isolates in the laboratory						3	
Number of isolates serotyped						3	
Number of isolates per serovar							
S. Muenster							
S. Oranienburg							
S. Poona							
S. Senftenberg							
S. Stanleyville							
S. Szentes							
S. Tennessee							
S. Thompson							
S. Typhimurium							
S. Umbilo							

Footnote:

S. Montevideo6

Table Salmonella serovars in animals

S. Braenderup7
S. Corvallis1
S. Enteritidis31
S. Hadar6
S. Hermannswerder1
S. Infantis3
S. enterica subsp. salamae 4,12:b:-22
S. Livingstone3
S. Macclesfield1
S. Muenchen6
S. Senftenberg1
S. Szentes2
S. Tennessee7
S. Typhimurium8
S. Bredeney3
S. Haardt5
S. Kedougou1
S. Kottbus2
S. Mbandaka1
S. Thompson4
S. Muenster1
S. enterica subsp. enterica 4,12:-:1,20
S. Gallinarum0
S. Cerro1
S. Havana8
S. enterica subsp. enterica 6,7:-:-1
S. enterica subsp. enterica 6,7:z10:-1
S. Mishmarhaemek 1
S. Oranienburg 2
S. Stanleyville 1
S. Umbilo 1
S. Kottbus 1
S. Poona 1

Table Salmonella serovars in food

Serovar	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Meat from other poultry species		Other products of animal origin		Live bivalve molluscs - Monitoring		Live bivalve molluscs - Monitoring (ovine meat)
Sources of isolates	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring
Number of isolates in the laboratory	1		4		19								2
Number of isolates serotyped	1		4		18								2
Number of isolates per serovar													
S. 4,12:i:-			1										
S. 4,5,12:i:-					1								
S. 6,8:-:-					5								
S. Abaetetuba													1
S. Agona					2								
S. Enteritidis					1								
S. Glostrup	1												
S. Haardt					2								
S. Infantis					5								

Table Salmonella serovars in food

Serovar	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Meat from other poultry species		Other products of animal origin		Live bivalve molluscs - Monitoring		Live bivalve molluscs - Monitoring (ovine meat)
Sources of isolates	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring	Surveillance	Monitoring
Number of isolates in the laboratory	1		4		19								2
Number of isolates serotyped	1		4		18								2
Number of isolates per serovar													
S. Livingstone					1								
S. Paratyphi B					1								
S. Reading			1										
S. Typhimurium			2										1

Table Salmonella serovars in food

Serovar	Live bivalve molluscs - Monitoring (ovine meat)	Meat from sheep - Monitoring	
Sources of isolates	Surveillance	Monitoring	Surveillance
Number of isolates in the laboratory		1	
Number of isolates serotyped		1	
Number of isolates per serovar			
S. 4,12:i:-		1	
S. 4,5,12:i:-			
S. 6,8:-:-			
S. Abaetetuba			
S. Agona			
S. Enteritidis			
S. Glostrup			
S. Haardt			
S. Infantis			
S. Livingstone			

Table Salmonella serovars in food

Serovar	Live bivalve molluscs - Monitoring (ovine meat)	Meat from sheep - Monitoring	
Sources of isolates	Surveillance	Monitoring	Surveillance
Number of isolates in the laboratory		1	
Number of isolates serotyped		1	
Number of isolates per serovar			
S. Paratyphi B			
S. Reading			
S. Typhimurium			

2.1.7 Antimicrobial resistance in Salmonella isolates

A. Antimicrobial resistance in Salmonella in poultry

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

ANTIMICROBIAL RESISTANCE

No official national program is in force. Efforts commenced to develop a systematic reporting system of antimicrobial resistance in various animal species. The results are limited and the only available information is mainly provided from the National Reference Laboratory for Salmonella. Relevant reports for Antimicrobial susceptibility testing in Animals (for both quantative and qualitative data) have been increased year per year at national level, especially for Salmonella agents.

Additional information

The overall monitoring of antimicrobial resistance , especially for the Salmonella isolates in Poultry was carried out using two laboratory methods.
1. Performance Standards for Antmicrobial Disk Susceptibility Tests-Ninth Edition; Approved Standard January 2006 CLSI (M2-A9,Vol.26.No1 and Eighteenth Information Supplement CLSI (M100-S18, Vol.28 No 1)
2. Broth Microdilution Method (MIC)- Methods for Dilution Antimicrobial Susceptibility Tests for Bacteria that grow Aerobically; Approved Standard January 2009 CLSI (M07-A8, Vol. 29 No2) and Standard for breakpoint from EFSA suggestions.

Table Antimicrobial susceptibility testing of Other serovars in All feedingstuffs - quantitative data [Diffusion method]

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

Other serovars	All feedingstuffs																								
Isolates out of a monitoring program (yes/no)	no																								
Number of isolates available in the laboratory	3																								
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	3	0																	1	1		1			
Aminoglycosides - Streptomycin	11	3	0											2										1		
Amphenicols - Chloramphenicol	12	3	0																						3	
Cephalosporins - 3rd generation cephalosporins	22	3	0																						1	
Cephalosporins - Cefotaxime	27	3	0																							
Fluoroquinolones - Ciprofloxacin	29	3	1																			1				
Penicillins - Ampicillin	13	3	0																					3		
Quinolones - Nalidixic acid	13	3	1							1									1		1					
Sulfonamides	10	3	0																			1				1
Tetracyclines - Tetracycline	11	3	0											1								1	1			
Trimethoprim	10	2	0																						1	

Other serovars	All feedingstuffs								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	3								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of Other serovars in All feedingstuffs - quantitative data [Diffusion method]

Other serovars	All feedingstuffs								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	3								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins	1	1							
Cephalosporins - Cefotaxime	1				1	1			
Fluoroquinolones - Ciprofloxacin			1	1					
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides		1							
Tetracyclines - Tetracycline									
Trimethoprim	1								

Table Antimicrobial susceptibility testing of S. Enteritidis in Feed material of cereal grain origin - wheat derived - HACCP and own checks - quantitative data [Diffusion method]

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

S. Enteritidis	Feed material of cereal grain origin - wheat derived																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	1																									
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	1	0																		1					
Aminoglycosides - Streptomycin	11	1	1							1																
Amphenicols - Chloramphenicol	12	1	0																							
Cephalosporins - 3rd generation cephalosporins	22	1	0																							
Cephalosporins - Cefotaxime	27	1	0																							
Fluoroquinolones - Ciprofloxacin	29	1	0																							
Penicillins - Ampicillin	13	1	0																					1		
Quinolones - Nalidixic acid	13	1	0																				1			
Sulfonamides	10	1	0																					1		
Tetracyclines - Tetracycline	11	1	0																							1
Trimethoprim	10	1	0																					1		

S. Enteritidis	Feed material of cereal grain origin - wheat derived								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	1								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of S. Enteritidis in Feed material of cereal grain origin - wheat derived - HACCP and own checks - quantitative data [Diffusion method]

S. Enteritidis	Feed material of cereal grain origin - wheat derived								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	1								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol		1							
Cephalosporins - 3rd generation cephalosporins		1							
Cephalosporins - Cefotaxime			1						
Fluoroquinolones - Ciprofloxacin					1				
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides									
Tetracyclines - Tetracycline									
Trimethoprim									

Table Antimicrobial susceptibility testing of S. Infantis in Meat from broilers (Gallus gallus) - fresh - chilled - quantitative data [Diffusion method]

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

S. Infantis	Meat from broilers (Gallus gallus) - fresh - chilled																								
Isolates out of a monitoring program (yes/no)	no																								
Number of isolates available in the laboratory	3																								
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	3	0																		2			1		
Aminoglycosides - Streptomycin	11	2	1			1								1												
Amphenicols - Chloramphenicol	12	3	1		1																		1		1	
Cephalosporins - 3rd generation cephalosporins	22	3	0																						2	1
Cephalosporins - Cefotaxime	27	3	0																							
Fluoroquinolones - Ciprofloxacin	29	3	2																			1	1			
Penicillins - Ampicillin	13	3	1		1															1		1				
Quinolones - Nalidixic acid	13	3	2		2															1						
Sulfonamides	10	3	2		2																	1				
Tetracyclines - Tetracycline	11	3	1		1														1					1		
Trimethoprim	10	3	1		1																		1		1	

S. Infantis	Meat from broilers (Gallus gallus) - fresh - chilled								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	3								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of S. Infantis in Meat from broilers (Gallus gallus) - fresh - chilled - quantitative data [Diffusion method]

S. Infantis	Meat from broilers (Gallus gallus) - fresh - chilled								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	3								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins									
Cephalosporins - Cefotaxime	1	1	1						
Fluoroquinolones - Ciprofloxacin			1						
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides									
Tetracyclines - Tetracycline									
Trimethoprim									

Table Antimicrobial susceptibility testing of S. Agona in Meat from broilers (Gallus gallus) - carcase - chilled - quantitative data [Diffusion method]

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

S. Agona	Meat from broilers (Gallus gallus) - carcase - chilled																								
Isolates out of a monitoring program (yes/no)	no																								
Number of isolates available in the laboratory	1																								
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	1	0																			1				
Aminoglycosides - Streptomycin	11	1	0											1												
Amphenicols - Chloramphenicol	12	1	0																			1				
Cephalosporins - 3rd generation cephalosporins	22	1	0																				1			
Cephalosporins - Cefotaxime	27	1	0																							
Fluoroquinolones - Ciprofloxacin	29	1	0																							
Penicillins - Ampicillin	13	1	0																	1						
Quinolones - Nalidixic acid	13	1	0																		1					
Sulfonamides	10	1	0																		1					
Tetracyclines - Tetracycline	11	1	0															1								
Trimethoprim	10	1	0																		1					

S. Agona	Meat from broilers (Gallus gallus) - carcase - chilled								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	1								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of S. Agona in Meat from broilers (Gallus gallus) - carcase - chilled - quantitative data [Diffusion method]

S. Agona	Meat from broilers (Gallus gallus) - carcase - chilled								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	1								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins									
Cephalosporins - Cefotaxime	1								
Fluoroquinolones - Ciprofloxacin					1				
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides									
Tetracyclines - Tetracycline									
Trimethoprim									

Table Antimicrobial susceptibility testing of Other serovars in Meat from broilers (Gallus gallus) - carcase - chilled - quantitative data [Diffusion method]

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

Other serovars	Meat from broilers (Gallus gallus) - carcase - chilled																								
Isolates out of a monitoring program (yes/no)	no																								
Number of isolates available in the laboratory	4																								
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	4	0																	3		1				
Aminoglycosides - Streptomycin	11	3	0												2									1		
Amphenicols - Chloramphenicol	12	4	0																		1	2		1		
Cephalosporins - 3rd generation cephalosporins	22	4	0																						1	1
Cephalosporins - Cefotaxime	27	4	0																							
Fluoroquinolones - Ciprofloxacin	29	4	1																			1				
Penicillins - Ampicillin	13	4	1		1																1	1	1			
Quinolones - Nalidixic acid	13	4	1									1							1	1	1					
Sulfonamides	10	4	0																					2		1
Tetracyclines - Tetracycline	11	4	1		1																1			2		
Trimethoprim	10	4	0																					1	2	1

Other serovars	Meat from broilers (Gallus gallus) - carcase - chilled								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	4								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of Other serovars in Meat from broilers (Gallus gallus) - carcase - chilled - quantitative data [Diffusion method]

Other serovars	Meat from broilers (Gallus gallus) - carcase - chilled								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	4								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins		2							
Cephalosporins - Cefotaxime		1	1	1		1			
Fluoroquinolones - Ciprofloxacin			2	1					
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides	1								
Tetracyclines - Tetracycline									
Trimethoprim									

Table Antimicrobial susceptibility testing of Other serovars in Meat from pig - meat preparation - intended to be eaten cooked - chilled - quantitative data [Diffusion method]

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

Other serovars	Meat from pig - meat preparation - intended to be eaten cooked - chilled																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	2																									
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	2	0																1	1						
Aminoglycosides - Streptomycin	11	1	0													1										
Amphenicols - Chloramphenicol	12	2	0																							1
Cephalosporins - 3rd generation cephalosporins	22	2	0																					1	1	
Cephalosporins - Cefotaxime	27	2	0																							
Fluoroquinolones - Ciprofloxacin	29	2	0																							
Penicillins - Ampicillin	13	2	1		1																		1			
Quinolones - Nalidixic acid	13	2	0																		2					
Sulfonamides	10	2	1		1																1					
Tetracyclines - Tetracycline	11	2	1		1																1					
Trimethoprim	10	2	1		1																				1	

Other serovars	Meat from pig - meat preparation - intended to be eaten cooked - chilled								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	2								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of Other serovars in Meat from pig - meat preparation - intended to be eaten cooked - chilled - quantitative data [Diffusion method]

Other serovars	Meat from pig - meat preparation - intended to be eaten cooked - chilled								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	2								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol	1								
Cephalosporins - 3rd generation cephalosporins									
Cephalosporins - Cefotaxime		1	1						
Fluoroquinolones - Ciprofloxacin					1	1			
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides									
Tetracyclines - Tetracycline									
Trimethoprim									

Table Antimicrobial susceptibility testing of S. Typhimurium in Meat from pig - meat preparation - intended to be eaten cooked - chilled - quantitative data [Diffusion method]

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

S. Typhimurium	Meat from pig - meat preparation - intended to be eaten cooked - chilled																									
Isolates out of a monitoring program (yes/no)	no																									
Number of isolates available in the laboratory	1																									
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	1	0																		1					
Amphenicols - Chloramphenicol	12	1	0																			1				
Cephalosporins - 3rd generation cephalosporins	22	1	0																					1		
Cephalosporins - Cefotaxime	27	1	0																							
Fluoroquinolones - Ciprofloxacin	29	1	0																							
Penicillins - Ampicillin	13	1	1		1																					
Quinolones - Nalidixic acid	13	1	0																		1					
Sulfonamides	10	1	0																				1			
Tetracyclines - Tetracycline	11	1	0																		1					
Trimethoprim	10	1	0																					1		

S. Typhimurium	Meat from pig - meat preparation - intended to be eaten cooked - chilled								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	1								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins									

Table Antimicrobial susceptibility testing of S. Typhimurium in Meat from pig - meat preparation - intended to be eaten cooked - chilled - quantitative data [Diffusion method]

S. Typhimurium	Meat from pig - meat preparation - intended to be eaten cooked - chilled								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	1								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Cephalosporins - Cefotaxime	1								
Fluoroquinolones - Ciprofloxacin					1				
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides									
Tetracyclines - Tetracycline									
Trimethoprim									

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Meat from pig - fresh - frozen - quantitative data [Diffusion method]

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

S. Typhimurium, monophasic	Meat from pig - fresh - frozen																								
Isolates out of a monitoring program (yes/no)	no																								
Number of isolates available in the laboratory	1																								
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	1	0																1							
Amphenicols - Chloramphenicol	12	1	0																					1		
Cephalosporins - 3rd generation cephalosporins	22	1	0																						1	
Cephalosporins - Cefotaxime	27	1	0																							
Fluoroquinolones - Ciprofloxacin	29	1	0																							
Penicillins - Ampicillin	13	1	1		1																					
Quinolones - Nalidixic acid	13	1	0																	1						
Sulfonamides	10	1	1		1																					
Tetracyclines - Tetracycline	11	1	1		1																					
Trimethoprim	10	1	1		1																					

S. Typhimurium, monophasic	Meat from pig - fresh - frozen								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	1								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins									

Table Antimicrobial susceptibility testing of S. Typhimurium, monophasic in Meat from pig - fresh - frozen - quantitative data [Diffusion method]

S. Typhimurium, monophasic	Meat from pig - fresh - frozen								
Isolates out of a monitoring program (yes/no)	no								
Number of isolates available in the laboratory	1								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Cephalosporins - Cefotaxime			1						
Fluoroquinolones - Ciprofloxacin			1						
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides									
Tetracyclines - Tetracycline									
Trimethoprim									

Table Antimicrobial susceptibility testing of S. Hadar in Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring - Unspecified - Official sampling - environmental sample - boot swabs - quantitative data [Diffusion method]

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

S. Hadar	Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	1																								
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
Amphenicols - Chloramphenicol	12	1	0																						1	
Cephalosporins - 3rd generation cephalosporins	22	1	0																							1
Cephalosporins - Cefotaxime	27	1	0																							
Fluoroquinolones - Ciprofloxacin	29	1	0																							
Penicillins - Ampicillin	13	1	0																			1				
Quinolones - Nalidixic acid	13	1	0																	1						
Sulfonamides	12	1	0																				1			
Tetracyclines - Tetracycline	11	1	0																	1						
Trimethoprim	10	1	0																						1	

S. Hadar	Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	1								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins									
Cephalosporins - Cefotaxime			1						
Fluoroquinolones - Ciprofloxacin			1						

Table Antimicrobial susceptibility testing of S. Hadar in Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring - Unspecified - Official sampling - environmental sample - boot swabs - quantitative data [Diffusion method]

S. Hadar	Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	1								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides									
Tetracyclines - Tetracycline									
Trimethoprim									

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring - active - Unspecified - Official sampling - environmental sample - boot swabs - quantitative data [Diffusion method]

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

S. Enteritidis	Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring - active																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	3																								
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	3	0																		1	2				
Aminoglycosides - Streptomycin	11	3	0														3									
Amphenicols - Chloramphenicol	12	3	0																					1	2	
Cephalosporins - 3rd generation cephalosporins	22	3	0																							
Cephalosporins - Cefotaxime	27	3	0																							
Fluoroquinolones - Ciprofloxacin	29	3	0																							
Penicillins - Ampicillin	13	3	0																			2	1			
Quinolones - Nalidixic acid	13	3	0																			2	1			
Sulfonamides	12	3	0																							
Tetracyclines - Tetracycline	11	3	0																		1	1		1		
Trimethoprim	10	3	0																							

S. Enteritidis	Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	3								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring - active - Unspecified - Official sampling - environmental sample - boot swabs - quantitative data [Diffusion method]

S. Enteritidis	Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	3								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins	1	2							
Cephalosporins - Cefotaxime				1	1	1			
Fluoroquinolones - Ciprofloxacin			1		2				
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides			2	1					
Tetracyclines - Tetracycline									
Trimethoprim			3						

Table Antimicrobial susceptibility testing of S. Typhimurium in Gallus gallus (fowl) - breeding flocks, unspecified - at farm - Monitoring - active - Unspecified - Official sampling - environmental sample - boot swabs - quantitative data [Diffusion method]

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

S. Typhimurium	Gallus gallus (fowl) - breeding flocks, unspecified - at farm - Monitoring - active																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	1																								
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	1	0																	1						
Aminoglycosides - Streptomycin	11	1	0											1												
Amphenicols - Chloramphenicol	12	1	0																				1			
Cephalosporins - 3rd generation cephalosporins	22	1	0																							1
Cephalosporins - Cefotaxime	27	1	0																							
Fluoroquinolones - Ciprofloxacin	29	1	0																							
Penicillins - Ampicillin	13	1	0																				1			
Quinolones - Nalidixic acid	13	1	0																1							
Sulfonamides	12	1	0																		1					
Tetracyclines - Tetracycline	11	1	0																	1						
Trimethoprim	10	1	0																			1				

S. Typhimurium	Gallus gallus (fowl) - breeding flocks, unspecified - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	1								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of S. Typhimurium in Gallus gallus (fowl) - breeding flocks, unspecified - at farm - Monitoring - active - Unspecified - Official sampling - environmental sample - boot swabs - quantitative data [Diffusion method]

S. Typhimurium	Gallus gallus (fowl) - breeding flocks, unspecified - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	1								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins									
Cephalosporins - Cefotaxime			1						
Fluoroquinolones - Ciprofloxacin								1	
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides									
Tetracyclines - Tetracycline									
Trimethoprim									

Table Antimicrobial susceptibility testing of S. Infantis in Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active - Unspecified - environmental sample - boot swabs and dust - quantitative data [Diffusion method]

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

S. Infantis	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	2																								
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	2	0																	1		1				
Aminoglycosides - Streptomycin	11	2	0											2												
Amphenicols - Chloramphenicol	12	2	0																			1	1			
Cephalosporins - 3rd generation cephalosporins	22	2	0																				1	1		
Cephalosporins - Cefotaxime	27	2	0																							
Fluoroquinolones - Ciprofloxacin	29	2	0																							
Penicillins - Ampicillin	13	2	0																				2			
Quinolones - Nalidixic acid	13	2	0																			2				
Sulfonamides	12	2	0																			1		1		
Tetracyclines - Tetracycline	11	2	0																1	1						
Trimethoprim	10	2	0																							1

S. Infantis	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	2								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of S. Infantis in Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active - Unspecified - environmental sample - boot swabs and dust - quantitative data [Diffusion method]

S. Infantis	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	2								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins									
Cephalosporins - Cefotaxime		2							
Fluoroquinolones - Ciprofloxacin			1		1				
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides									
Tetracyclines - Tetracycline									
Trimethoprim	1								

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active - Unspecified - Official sampling - environmental sample - boot swabs and dust - quantitative data [Diffusion method]

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

S. Enteritidis	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	8																								
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	8	0																1	3	3	1				
Aminoglycosides - Streptomycin	11	8	0												1	3	4									
Amphenicols - Chloramphenicol	12	8	0																		1		2	4	1	
Cephalosporins - 3rd generation cephalosporins	22	8	0																						2	4
Cephalosporins - Cefotaxime	27	8	0																							
Fluoroquinolones - Ciprofloxacin	29	8	0																							
Penicillins - Ampicillin	13	8	0																			5	1	1		
Quinolones - Nalidixic acid	13	8	0															2	2	2	1			1		
Sulfonamides	12	8	0																2		1	1		2	1	
Tetracyclines - Tetracycline	11	8	0											1					1		1	4	1			
Trimethoprim	10	8	0																						4	2

S. Enteritidis	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	8								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active - Unspecified - Official sampling - environmental sample - boot swabs and dust - quantitative data [Diffusion method]

S. Enteritidis	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	8								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins	2								
Cephalosporins - Cefotaxime	1		3	2	1	1			
Fluoroquinolones - Ciprofloxacin			6	1	1				
Penicillins - Ampicillin	1								
Quinolones - Nalidixic acid									
Sulfonamides		1							
Tetracyclines - Tetracycline									
Trimethoprim	1		1						

Table Antimicrobial susceptibility testing of S. Typhimurium in Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active - Unspecified - Official sampling - animal sample - faeces - quantitative data [Diffusion method]

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

S. Typhimurium	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	2																								
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	2	0																1		1					
Aminoglycosides - Streptomycin	11	2	0									1		1												
Amphenicols - Chloramphenicol	12	2	0																			1	1			
Cephalosporins - 3rd generation cephalosporins	22	2	0																					1	1	
Cephalosporins - Cefotaxime	27	2	0																							
Fluoroquinolones - Ciprofloxacin	29	2	0																							
Penicillins - Ampicillin	13	2	0																	1		1				
Quinolones - Nalidixic acid	13	2	0																1		1					
Sulfonamides	12	2	0																				1	1		
Tetracyclines - Tetracycline	11	2	0																	1	1					
Trimethoprim	10	2	0																					1	1	

S. Typhimurium	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	2								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of S. Typhimurium in Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active - Unspecified - Official sampling - animal sample - faeces - quantitative data [Diffusion method]

S. Typhimurium	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	2								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins									
Cephalosporins - Cefotaxime		2							
Fluoroquinolones - Ciprofloxacin			1		1				
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides									
Tetracyclines - Tetracycline									
Trimethoprim									

Table Antimicrobial susceptibility testing of S. Hadar in Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active - Unspecified - Official sampling - animal sample - faeces - quantitative data [Diffusion method]

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

S. Hadar	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active																									
Isolates out of a monitoring program (yes/no)	yes																									
Number of isolates available in the laboratory	20																									
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	2	0																	1	1					
Aminoglycosides - Streptomycin	11	2	2		2																					
Amphenicols - Chloramphenicol	12	2	0																						1	
Cephalosporins - 3rd generation cephalosporins	22	2	0																					1		1
Cephalosporins - Cefotaxime	27	2	0																							
Fluoroquinolones - Ciprofloxacin	29	2	2																						1	
Penicillins - Ampicillin	13	2	1		1																			1		
Quinolones - Nalidixic acid	13	2	2		2																					
Sulfonamides	12	2	0																				1	1		
Tetracyclines - Tetracycline	11	2	2		2																					
Trimethoprim	10	2	0																							

S. Hadar	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	20								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of S. Hadar in Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active - Unspecified - Official sampling - animal sample - faeces - quantitative data [Diffusion method]

S. Hadar	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	20								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol	1								
Cephalosporins - 3rd generation cephalosporins									
Cephalosporins - Cefotaxime			1	1					
Fluoroquinolones - Ciprofloxacin		1							
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides									
Tetracyclines - Tetracycline									
Trimethoprim	2								

Table Antimicrobial susceptibility testing of Other serovars in Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active - Unspecified - Official sampling - animal sample - faeces - quantitative data [Diffusion method]

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

Other serovars	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	20																								
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	20	0															1	6	6	6		1			
Aminoglycosides - Streptomycin	11	20	1		1								2	11	4	1	1									
Amphenicols - Chloramphenicol	12	20	0																		3	2	2	9	1	3
Cephalosporins - 3rd generation cephalosporins	22	20	0																					5	5	4
Cephalosporins - Cefotaxime	27	20	0																							
Fluoroquinolones - Ciprofloxacin	29	20	1																						1	
Penicillins - Ampicillin	13	20	1		1																1	7	8	2	1	
Quinolones - Nalidixic acid	13	20	1		1													3	7	2	3	3	1			
Sulfonamides	12	20	0															1	1	1	3	6	2	3		2
Tetracyclines - Tetracycline	11	20	0															1	5	4	9			1		
Trimethoprim	10	20	0																				1	5	2	5

Other serovars	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	20								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of Other serovars in Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active - Unspecified - Official sampling - animal sample - faeces - quantitative data [Diffusion method]

Other serovars	Gallus gallus (fowl) - laying hens - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	20								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins	4	1		1					
Cephalosporins - Cefotaxime	2	6	2	7	2	1			
Fluoroquinolones - Ciprofloxacin			7	5	2	4		1	
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides		1							
Tetracyclines - Tetracycline									
Trimethoprim	5	2							

Table Antimicrobial susceptibility testing of Other serovars in Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring - active - Unspecified - Official sampling - quantitative data [Diffusion method]

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

Other serovars	Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring - active																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	7																								
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	7	0																1	3	1	1	1			
Aminoglycosides - Streptomycin	11	7	0											3	1	3										
Amphenicols - Chloramphenicol	12	7	0																	1	2	1	3			
Cephalosporins - 3rd generation cephalosporins	22	7	0																						2	3
Cephalosporins - Cefotaxime	27	7	0																							
Fluoroquinolones - Ciprofloxacin	29	7	1																					1		
Penicillins - Ampicillin	13	7	0																	1	2	1	1	2		
Quinolones - Nalidixic acid	13	7	1		1														1		3	2				
Sulfonamides	12	7	0																1	2			2			1
Tetracyclines - Tetracycline	11	7	0																2	1		2		1	1	
Trimethoprim	10	7	0																1					2		4

Other serovars	Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	7								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of Other serovars in Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring - active - Unspecified - Official sampling - quantitative data [Diffusion method]

Other serovars	Gallus gallus (fowl) - breeding flocks, unspecified - adult - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	7								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins	1	1							
Cephalosporins - Cefotaxime		2	4					1	
Fluoroquinolones - Ciprofloxacin			2	1	1			2	
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides			1						
Tetracyclines - Tetracycline									
Trimethoprim									

Table Antimicrobial susceptibility testing of Other serovars in Gallus gallus (fowl) - broilers - before slaughter - at farm - Monitoring - active - Unspecified - Official sampling - environmental sample - boot swabs - quantitative data [Diffusion method]

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

Other serovars	Gallus gallus (fowl) - broilers - before slaughter - at farm - Monitoring - active																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	24																								
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	24	0															1	5	11	4	2	1			
Aminoglycosides - Streptomycin	11	23	1		1						2	4	2	3	8	3										
Amphenicols - Chloramphenicol	12	24	0													1	2	4	2		1	3	4	5	2	
Cephalosporins - 3rd generation cephalosporins	22	24	1							1												1	2	7	7	4
Cephalosporins - Cefotaxime	27	24	1												1											
Fluoroquinolones - Ciprofloxacin	29	24	8																			2	2			1
Penicillins - Ampicillin	13	24	1		1													1	5	2	4	6	3	2		
Quinolones - Nalidixic acid	13	24	4		4											3		4	1	4	7	1				
Sulfonamides	12	24	1		1											1			2	1	3	5	2	4	2	1
Tetracyclines - Tetracycline	11	24	2		2									5		2	1	1	1	5	2	2	1	2		
Trimethoprim	10	24	0																	1	2	2	3	5	2	8

Other serovars	Gallus gallus (fowl) - broilers - before slaughter - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	24								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of Other serovars in Gallus gallus (fowl) - broilers - before slaughter - at farm - Monitoring - active - Unspecified - Official sampling - environmental sample - boot swabs - quantitative data [Diffusion method]

Other serovars	Gallus gallus (fowl) - broilers - before slaughter - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	24								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins		1	1						
Cephalosporins - Cefotaxime	11	3	5		1	1	1	1	
Fluoroquinolones - Ciprofloxacin	1	2	11	2	1	1		1	
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides		1	1						
Tetracyclines - Tetracycline									
Trimethoprim	1								

Table Antimicrobial susceptibility testing of S. Hadar in Gallus gallus (fowl) - broilers - before slaughter - at farm - Monitoring - active - Unspecified - Official sampling - environmental sample - boot swabs - quantitative data [Diffusion method]

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

S. Hadar	Gallus gallus (fowl) - broilers - before slaughter - at farm - Monitoring - active																								
Isolates out of a monitoring program (yes/no)	yes																								
Number of isolates available in the laboratory	2																								
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	2	0																2							
Aminoglycosides - Streptomycin	11	2	2		2																					
Amphenicols - Chloramphenicol	12	2	0																					1		1
Cephalosporins - 3rd generation cephalosporins	22	2	0																			1			1	
Cephalosporins - Cefotaxime	27	2	0																							
Fluoroquinolones - Ciprofloxacin	29	2	2																				1			
Penicillins - Ampicillin	13	2	1		1																	1				
Quinolones - Nalidixic acid	13	2	2		2																					
Sulfonamides	12	2	0																	1				1		
Tetracyclines - Tetracycline	11	2	2		2																					
Trimethoprim	10	2	0																					1		1

S. Hadar	Gallus gallus (fowl) - broilers - before slaughter - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	2								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Aminoglycosides - Gentamicin									
Aminoglycosides - Streptomycin									

Table Antimicrobial susceptibility testing of S. Hadar in Gallus gallus (fowl) - broilers - before slaughter - at farm - Monitoring - active - Unspecified - Official sampling - environmental sample - boot swabs - quantitative data [Diffusion method]

S. Hadar	Gallus gallus (fowl) - broilers - before slaughter - at farm - Monitoring - active								
Isolates out of a monitoring program (yes/no)	yes								
Number of isolates available in the laboratory	2								
Antimicrobials:	28	29	30	31	32	33	34	35	>=36
Amphenicols - Chloramphenicol									
Cephalosporins - 3rd generation cephalosporins									
Cephalosporins - Cefotaxime	2								
Fluoroquinolones - Ciprofloxacin	1								
Penicillins - Ampicillin									
Quinolones - Nalidixic acid									
Sulfonamides									
Tetracyclines - Tetracycline									
Trimethoprim									

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

Test Method Used	Standard methods used for testing
Disc diffusion	NCCLS/CLSI

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin	NON-EFSA		12
	Streptomycin	NON-EFSA		11
Amphenicols	Chloramphenicol	NON-EFSA		12
Cephalosporins	3rd generation cephalosporins			22
	Cefotaxime	NON-EFSA		27
Fluoroquinolones	Ciprofloxacin	NON-EFSA		29
Penicillins	Ampicillin	NON-EFSA		13
Quinolones	Nalidixic acid	NON-EFSA		13
Sulfonamides	Sulfonamides	NON-EFSA		12
Tetracyclines	Tetracycline	NON-EFSA		11
Trimethoprim	Trimethoprim	NON-EFSA		10

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

Test Method Used
Disc diffusion

Standard methods used for testing
NCCLS/CLSI

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin	NON-EFSA		12
	Streptomycin	NON-EFSA		11
Amphenicols	Chloramphenicol	NON-EFSA		12
Cephalosporins	3rd generation cephalosporins			22
	Cefotaxime	NON-EFSA		27
Fluoroquinolones	Ciprofloxacin	NON-EFSA		29
Penicillins	Ampicillin	NON-EFSA		13
Quinolones	Nalidixic acid	NON-EFSA		13
Sulfonamides	Sulfonamides	NON-EFSA		10
Tetracyclines	Tetracycline	NON-EFSA		11
Trimethoprim	Trimethoprim	NON-EFSA		10

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

Test Method Used	Standard methods used for testing
Disc diffusion	NCCLS/CLSI

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Gentamicin	NON-EFSA		12
	Streptomycin	NON-EFSA		11
Amphenicols	Chloramphenicol	NON-EFSA		12
Cephalosporins	3rd generation cephalosporins			22
	Cefotaxime	NON-EFSA		27
Fluoroquinolones	Ciprofloxacin	NON-EFSA		29
Penicillins	Ampicillin	NON-EFSA		13
Quinolones	Nalidixic acid	NON-EFSA		13
Sulfonamides	Sulfonamides	NON-EFSA		10
Tetracyclines	Tetracycline	NON-EFSA		11
Trimethoprim	Trimethoprim	NON-EFSA		10

2.2 CAMPYLOBACTERIOSIS

2.2.1 General evaluation of the national situation

A. Thermophilic Campylobacter general evaluation

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

DISEASE/AGENT: Thermophilic Campylobacter
TARGETS : Animals / Contaminated Food

Surveillance system- History
There is not yet in force an official systematic national Campylobacter control program for animals and food. Sporadic selective samples are collected and examined, especially from sheep (aborted fetus in the field) and broilers (at slaughterhouse).

Results of 2009 zoonoses monitoring

Animals: Cattle (n=20), Sheep (n=56) , Goats, Pigs, Horses (n=1) were officially tested and 11 animals (sheep) were found positive to Campylobacter fetus (animal sample: aborted fetus / stomach content).
Food : Targeted official sampling of fresh broiler meat at processing plant level revealed 33 positive samples out of 47 tested (Campylobacter spp- unspecified)

Data are presented in the relevant tables of EFSA web based electronic system for zoonoses monitoring.

2.2.2 Campylobacteriosis in humans

A. Thermophilic Campylobacter in humans

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

DISEASE/AGENT: Cambylobacteriosis
AFFECTED SPECIES: Human

Results of the investigations in the year 2006

In 2006 , 286 cases (incidence: 2,61 per 100.000 inhabitants) of campylobacteriosis in humans were reported . From the total number of Campylobacter cases, 23 human cases were identified as C. jejuni (223 Unknown).

2.2.3 Campylobacter in animals

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
Sheep - at farm - Monitoring	pvd-state vet labs		Official sampling	animal sample		Animal	3	0			
Goats - at farm - Monitoring	pvd-state vet labs		Official sampling	animal sample		Animal	2	0			

	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Sheep - at farm - Monitoring		
Goats - at farm - Monitoring		

2.3 LISTERIOSIS

2.3.1 General evaluation of the national situation

A. Listeriosis general evaluation

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

DISEASE/AGENT: Listeriosis
AFFECTED SPECIES: Animals and Food

Surveillance system
Routine and targeted official sampling performed by the national veterinary public health authorities and the Hellenic Food Safety Authority (EFET) respecting the microbiological criteria foreseen by Community Legislation and Hygiene Package.

Method used
The laboratory methods used for Listeria detection and enumeration were : ISO 11290.01 Part 1 (1997), ISO 11290.01/A1 Amendment 1 (2005) and ISO 11290.02 /A1 Part 2 and Amendment 1 (2005) respectively.

Summary selected statistical results of 2011 zoonoses monitoring

Sample CategoriesPercentage % of positive samples among tested units for Listeria monocytogenes
Animals (sheep and Goats) 2,78
Other products0
Pig Meat 1,66%
Pig meat products cooked ready to eat 75%
Milk and dairy products0,34%

Data analysis are presented in the relevant tables of EFSA web based electronic system for zoonoses monitoring.

Summary Statistical Results

The overall 2011 reported and calculated percentage of Listeria positive findings (units) in all tested samples was 2,37% (19/800*100) for all food categories examined. This rate is slightly higher compared to the related percentage of positive samples for Listeria in 2010 (1,06 % (5/468*100), which was significantly lower compared to the related percertage of positive samples tested in 2009 and was attributed to Pig meat and products thereof contaminated with Listeria monocytogenes.

The overall 2009 reported and calculated percentage of Listeria positive findings (units) in all tested samples was 5,87 % (84/1432*100) for all food categories examined. This rate is significantly higher from the related percertage of positive samples tested in 2008 and was attributed to Pig meat and products thereof contaminated with Listeria monocytogenes.

The overall 2008 reported and calculated percentage of Listeria positive findings (units) in all tested samples was 1,53 %
(28/1826*100) for all food categories examined.

2.3.2 Listeriosis in humans

A. Listeriosis in humans

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

DISEASE/AGENT: Listeriosis
AFFECTED SPECIES: Humans

Surveillance system
Mandatory Notification of the disease within week (reporting time period following diagnosis)

Results of the monitoring in the year 2006
Seven (7) human cases (3 males and 4 females) were reported in 2006.

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
Milk, cows' - pasteurised milk - at retail - Surveillance	state vet lab	Unspecified	Not applicable	food sample > milk		Unknown	25 ml	1	0	1	0
Cheeses made from goats' milk - soft and semi-soft - made from pasteurised milk - at retail - Surveillance	state vet lab	Unspecified	Not applicable	food sample		Single	25 gr	3	0	3	0
Cheeses made from sheep's milk - soft and semi-soft - made from pasteurised milk - at processing plant - Surveillance	state vet labs	Census	Official sampling	food sample		Single	25 gr	10	0	10	0
Cheeses made from cows' milk - at retail - Surveillance	state vet lab	Unspecified	Not applicable	food sample		Single	25 gr	2	0	2	0
Dairy products, unspecified - at processing plant - Surveillance (dairy product after fermentation)	state vet lab	Census	Official sampling	food sample		Single	25 gr	5	0	5	0
Dairy products, unspecified - at processing plant - Surveillance (yogourt)	state vet lab	Census	Official sampling	food sample		Single	25 gr	5	0	5	0
Milk from other animal species or unspecified - pasteurised milk - at processing plant - Surveillance (hard cheese from sheep and goat milk)	state vet lab	Census	Official sampling	food sample		Single	25 gr	65	0	65	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
Milk, cows' - pasteurised milk - at retail - Surveillance	0	0	0
Cheeses made from goats' milk - soft and semi-soft - made from pasteurised milk - at retail - Surveillance			
Cheeses made from sheep's milk - soft and semi-soft - made from pasteurised milk - at processing plant - Surveillance			
Cheeses made from cows' milk - at retail - Surveillance	0	0	0
Dairy products, unspecified - at processing plant - Surveillance (dairy product after fermentation)			
Dairy products, unspecified - at processing plant - Surveillance (yogourt)			
Milk from other animal species or unspecified - pasteurised milk - at processing plant - Surveillance (hard cheese from sheep and goat milk)			

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	state vet lab	Unspecified	Not applicable	food sample		Single	25 gr	1	0	1	0
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at processing plant - Surveillance	state vet lab	Unspecified	Not applicable	food sample		Single	25 gr	4	0	4	0
Meat from pig - meat products - cooked, ready-to-eat - at processing plant - Surveillance	state vet lab	Census	Official sampling	food sample		Single	25 gr	79	30	79	30
Meat from bovine animals - fresh - at processing plant - Surveillance	state vet lab	Unspecified	Not applicable	food sample		Single	25 gr	3	0	3	0
Crustaceans - unspecified - cooked - at processing plant - Surveillance	state vet lab	Unspecified	Not applicable	food sample		Single	25 gr	4	0	4	0
Molluscan shellfish - cooked - at processing plant - Surveillance	state vet lab	Unspecified	Not applicable	food sample		Single	25 gr	4	0	4	0
All foodstuffs - Surveillance (terrestrial snails) [1)]	state vet lab	Census	Official sampling	food sample		Single	25 gr	5	0	5	0
Infant formula - at hospital or care home - Surveillance	state vet lab	Census	Official sampling	food sample		Single	25 gr	16	0	16	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			

Table Listeria monocytogenes in other foods

	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at processing plant - Surveillance			
Meat from pig - meat products - cooked, ready-to-eat - at processing plant - Surveillance			
Meat from bovine animals - fresh - at processing plant - Surveillance			
Crustaceans - unspecified - cooked - at processing plant - Surveillance			
Molluscan shellfish - cooked - at processing plant - Surveillance			
All foodstuffs - Surveillance (terrestrial snails) [1)]			
Infant formula - at hospital or care home - Surveillance			

Comments:

[1)] smpling stage is BIPS

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 [1)]	PVD-NVL	Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	1	0		
Sheep - at farm - Monitoring [2)]	PVD-NVL	Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	19	4		4
Goats - at farm - Monitoring [3)]	PVD-NVL	Suspect sampling	Official sampling	animal sample > organ/tissue		Animal	18	12	11	1

Comments:

[1)] clinical cases

[2)] clinical cases

[3)] clinical cases

2.4 E. COLI INFECTIONS

2.4.1 General evaluation of the national situation

A. Verotoxigenic Escherichia coli infections general evaluation

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

DISEASE/AGENT: Verocytotoxic E.coli
AFFECTED SPECIES: Animals / Food

Surveillance system
There is no official National monitoring program in force for detecting VTEC serovars in animals and food.

Results of investigations in the year 2011
Only severar animal and food samples were tested for E.coli spp in 2011

2.4.2 E. coli infections in humans

A. Verotoxigenic Escherichia coli infections in humans

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

DISEASE/AGENT: Verocytotoxic E.Coli
AFFECTED SPECIES: Human

Surveillance system
Mandatory Notification of the disease within 24 hours (reporting time period following diagnosis)

Results of zoonoses monitoring
No cases of VTEC in humans were reported for the year 2006

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
Cheeses made from cows' milk - Surveillance	state vet lab	Census	Official sampling	food sample			Single		5	1	
Cheeses made from sheep's milk - unspecified - made from pasteurised milk - Surveillance	state vet lab	Census	Official sampling	food sample			Single		7	2	
Dairy products, unspecified - Surveillance (ice cream from cow milk)	state vet lab	Census	Official sampling	food sample			Single		3	1	
Dairy products, unspecified - Surveillance (yogourt dressing (tzatziki))	state vet lab	Census	Official sampling	food sample			Single		1	0	
Dairy products, unspecified - Surveillance (yogurt made from cow milk)	state vet lab	Census	Official sampling	food sample			Single		5	0	
Live bivalve molluscs - Surveillance	state vet lab	Census	Official sampling	food sample			Single		709	69	
Meat from bovine animals - Surveillance (slaughterhouse bench surface)	state vet lab	Census	Official sampling	food sample			Single		10	0	
Meat from bovine animals - fresh - Surveillance	state vet lab	Census	Official sampling	food sample			Single		1	0	
Meat from bovine animals - minced meat - intended to be eaten cooked - Surveillance	state vet lab	Census	Official sampling	food sample			Single		1	0	
Meat from broilers (Gallus gallus) - fresh - Surveillance	state vet lab	Census	Official sampling	food sample			Single		1	0	
Meat from broilers (Gallus gallus) - meat products - raw and intended to be eaten raw - Surveillance	state vet lab	Census	Official sampling	food sample			Single		2	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 - Surveillance (slaughterhouse bench surface)	state vet lab	Census	Official sampling	food sample			Single		5	0	
Meat from pig - fresh - Surveillance	state vet lab	Census	Official sampling	food sample			Single		3	0	
Meat from pig - meat products - Surveillance (raw but intented to be eaten cooked)	state vet lab	Census	Official sampling	food sample			Single		19	2	
Meat from pig - meat products - cooked, ready-to-eat - Surveillance	state vet lab	Census	Official sampling	food sample			Single		11	1	
Meat from pig - minced meat - intended to be eaten raw - Surveillance	state vet lab	Census	Official sampling	food sample			Single		1	0	
Meat from turkey - meat products - cooked, ready-to -eat - Surveillance	state vet lab	Census	Official sampling	food sample			Single		2	0	
Milk, cows' - raw milk - intended for direct human consumption - Surveillance	state vet lab	Census	Official sampling	food sample			Single		4	0	
Other food - Surveillance (mayonesse dressing)	state vet lab	Census	Official sampling	food sample			Single		2	0	
Other food - Surveillance (sandwiches with cheese and meat products)	state vet lab	Census	Official sampling	food sample			Single		6	0	
Snails - Surveillance	state vet lab	Census	Official sampling	food sample			Single		1	0	

	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Cheeses made from cows' milk - Surveillance		1

Table VT E. coli in food

	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Cheeses made from sheep's milk - unspecified - made from pasteurised milk - Surveillance		2
Dairy products, unspecified - Surveillance (ice cream from cow milk)		1
Dairy products, unspecified - Surveillance (yogourt dressing (tzatziki))		
Dairy products, unspecified - Surveillance (yogurt made from cow milk)		
Live bivalve molluscs - Surveillance		69
Meat from bovine animals - Surveillance (slaughterhouse bench surface)		
Meat from bovine animals - fresh - Surveillance		
Meat from bovine animals - minced meat - intended to be eaten cooked - Surveillance		
Meat from broilers (Gallus gallus) - fresh - Surveillance		
Meat from broilers (Gallus gallus) - meat products - raw and intended to be eaten raw - Surveillance		
Meat from pig - Surveillance (slaughterhouse bench surface)		
Meat from pig - fresh - Surveillance		
Meat from pig - meat products - Surveillance (raw but intented to be eaten cooked)		2

Table VT E. coli in food

	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
Meat from pig - meat products - cooked, ready-to-eat - Surveillance		1
Meat from pig - minced meat - intended to be eaten raw - Surveillance		
Meat from turkey - meat products - cooked, ready-to -eat - Surveillance		
Milk, cows' - raw milk - intended for direct human consumption - Surveillance		
Other food - Surveillance (mayonesse dressing)		
Other food - Surveillance (sandwiches with cheese and meat products)		
Snails - Surveillance		

Footnote:

Testing for E. Coli in bivalve moluscs was performed according to ISO 16649-3
Testing for E. coli in other food categories was done according to ISO 16649-1

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

Susceptible population (overall Bovine population size estimate)
730175 animals raised in 40376 holdings.

Surveillance system
National Eradication program for bovine tuberculosis.

Method used
Registration and identification of all bovines.
Tuberculin testing of all bovines over the age of 6 weeks.

Case definition
Infected animal: Animal positive to tuberculin testing.
Infected herd: Herd with one or more animals positive to tuberculin testing

Vaccination policy
Vaccination is not permitted.

Measures in case of positive findings
Slaughter of positive animals.
Ban of animal movement from and within the infected herd
Re-examination of the herd and re-establishment of the “tuberculosis free” health status.

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

Epidemiological overview, history and technical evaluation
Variations have been recorded on the evolution of bovine Tuberculosis compared to the previous year (2010) as the herd prevalence increased from to 2.70 % (2010) to 3,45 this year (2011). The herd incidence rate similarly increased from 0,84 % (2009) to 1.05% (2010) and to 1,12 (2011). The 2011 animal reported prevalence (1,07%) was lower compared to the previous year 2010 (1.27%). In general, the epidemiological indicators are influenced by the number of herds and animals tested in areas with high infection rates.

Concerning the overall infection status in the framework of the eradication programme, 176 positive herds with 2.289 animals were reported at the end of the reporting year 2011. However, following epidemiological data analysis at country level, 14.295 herds reported officially free, 4.767 herds reported with suspended health status and 3938 herds reported as herds of unknown health status.

The significant number of herds with unknown health status is mainly due to the livestock structure of nomos of Etoloakarnania. This area has a significant number of bovine herds with semi-wild animals of no tuberculosis history that were previously categorized as officially free and from the year 2003 were

characterized as herds of unknown health status due to the difficult access in applying animal health programmes at local level.

In general, the epidemiological impact of M. bovis situation in 2011 remained steady in endemic areas with observed variations in prevalence and incidence rates in comparison with previous years epidemiological figures. In general, Bovine Tuberculosis infection remains a significant animal health problem in several areas of Greece with endemic characteristics, especially in previous infected herds with adult animals. In addition Control and eradication measures for old and new infected herds should be a major continuous task for the veterinary services at regional and local level. In conclusion, further attempts and actions for investigating the epidemiology of the disease, identifying the source of infection, control the animal movements, tracing the infected farms after identifying TB lesions at slaughterhouse and properly implementing the program respecting the appropriate timetable between the checks will be followed in order to meet the eradication targets of Bovine Tuberculosis for the coming implementation years.

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

Relevance as zoonotic disease:
In general, bovine Tuberculosis infection remains a significant animal health problem in several areas of Greece.

Additional information

Summary results of the zoonoses monitoring for the year 2011

- Number of herds under the programme (official controls): 24.204
- Number of animals under the programme (official controls): 653.550
- Number of herds tested by tuberculin test: 5.098
- Number of herds positive: 176
- Number of new herds positive : 57
- Number of animals tested by tuberculin test: 181.003
- Number of animals as positive TB reactors: 2.289
- Total number of animals slaughtered under the programme: 3.058

2.5.2 Tuberculosis, mycobacterial diseases in humans

A. Tuberculosis due to Mycobacterium bovis in humans

Additional information

DISEASE/AGENT: Tuberculosis (Mycobacterium tuberculosis)
SUSCEPTIBLE SPECIES: Humans

Susceptible population
10.934.097 (National Census, 2001)

Surveillance system
Mandatory reporting and notification policy
Epidemiological surveillance

Methods used
Clinical symptoms, X -ray diagnosis and microbiological confirmation.

Epidemiological history and evaluation
The prevalent causal agent of Human Tuberculosis in Greece is M.Tuberculosis. A decreasing trend of reported cases has been observed during the year 2000 (93) compared to 1999 (186) and 1998 (990) respectively. In 2001 the number of TB reported cases (576 cases) significantly increased compared to the cases of 2000 (93 cases). No human cases of Bovine Tuberculosis (M. bovis) have been reported to the public Health services during 2004 in Greece. In the year 2004, the year of Olympic games in Greece, a significant increase of Human Tuberculosis cases (713 cases due to M. Tuberculosis) was recorded via the national epidemiological surveillance system which was rapid, well â€“ functioned end effective in detecting new cases. Immigration is considered an important risk factor for the TB re-emerge. During the year 2005 , an incidence rate of 1,62 per 100.000 inhabitants was reported . In addition, reactivation of previous TB cases was observed in 2005 (71 cases).

Results for the year 2006
Epidemiologic and Statistical TB Human Data for the year 2006 are available in central and regional public health authorities supervised by the Hellenic Disease Center for Control and Prevention under the Ministry of Health.

Results of the investigations in the year 2005
Based on reports from the Ministry of Health (Source: Hellenic center of infectious diseases and control) , 748 cases of Human tuberculosis were recorded for the year 20045 Relative information and Data are shown in relevant Tables of EFSA zoonoses monitoring electronic system.

Source of human infection
Human contact.

Relevance as zoonotic disease
Human Tuberculosis is a disease of high public concern and significance. The Continuous evaluation of the TB trends in Humans and animals will improve the disease management and intervention at national level. Inter- sector collaboration between Veterinary and Health services should be encouraged in the

field of disease epidemiology for each reported TB case in Humans and animals.

2.5.3 Mycobacterium in animals

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
Ελλαδα	40376	23957	4956	166	55	4	2.41	20.69	3.35	1.11
Total : [1)]	40376	23957	4956	166	55	4	2.41	20.69	3.35	1.11
Total - 1	30835	24204	5098	176	57	7	3.98	21.06	3.45	1.12

Comments:

[1)] N.A.

Footnote:

The Bovine Tuberculosis eradication programme has not been co-financed for 2012. Data collection and presesentation since many years ago follows the Community format and layout because the programme implementation respects the EU rules and requirements. The past TB programmes were co- financed by the EU.

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
Ελλαδα	730175	647983	191893	156871	2436	2431	2528	29.61	1.27
Total : [1)]	730175	647983	191893	156871	2436	2431	2528	29.61	1.27
Total - 1	706696	653550	214158	181003	2289	2247		32.77	1.07

Comments:

[1)] N.A.

Footnote:

The Bovine Tuberculosis eradication programme has not been co-financed for 2012. Data collection and presesentation since many years ago follows the Community format and layout because the programme implementation respects the EU rules and requirements. The past TB programmes were co- financed by the EU.

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
Ελλαδα	23957	672290	5640	175101	126	9835	461	16479	6074	156889			11656	313986
Total : [1)]	23957	672290	5640	175101	126	9835	461	16479	6074	156889	0	0	11656	313986
Total - 1	24204	653550	3938	100878	136	12813	1068	23529	4767	98361			14295	

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

DISEASE: Bovine Brucellosis
AFFECTED SPECIES: Animals, Bovines

Susceptible population
726.221 animals raised in 38.486 holdings

Surveillance system
National Eradication program for bovine brucellosis.

Method used
Registration and identification of all bovines
Serological tests (Rose Bengal and Complement Fixation Test according the Dir. 64/432 as well as Elisa in milk and serum and Serum Agglutination Test) of all bovines over the age of 12 months.
Laboratory examination of reported abortions.

Case definition
Infected animal: Animal positive to serological tests.
Infected herd: Herd with one or more animals positive to serological tests.

Vaccination policy
Vaccination is not permitted.

Measures in case of positive findings
Slaughter of positive animals.
Ban of animal movement from and into the infected herd.
Reexamination of the herd and restoration of the “brucellosis free” health status.

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

Data analysis
Tables on data for herds and animals investigated during the year 2011 were reported to Commission and EFSA web- based data system alongside the tabulated values of the herd health status according to the epidemiological situation at the end of the year 2011 in the whole country.

From 19.786 reported herds at central level under the program, 5.260 herds were tested and 264 herds were found infected (period herd prevalence: 5,02%). From the positive herds, 85 were new cases (incidence: 1,62%). Among 386.867 animals under the program, 220.170 were tested (73.667 tested individually) and 1.885 disease-positive reactors were recorded.

Concerning the epidemiological situation at the end of the year, 182 herds were classified as infected

herds, 4.459 herds have never been investigated and remained in the unknown health status, 490 herds tested negative and 11.892 herds were reported as officially free. Additionally, in 2.638 herds the health status has been suspended, mainly because the routine serology testing in Blood serum or bulk milk has not been performed during the required by the programme intervals.

Further epidemiological investigation of positive herds is necessary to be done as reactors originated from officially free herds based on Reports from Regional and local veterinary authorities.

Technical evaluation.
Observed variations have been recorded on the evolution of bovine Brucellosis for the year 2011. The 2011 period prevalence rate reported slighter higher (5,02%) compared to the previous year 2010 ((4,62%)). The estimated herd incidence rate decreased from 2% (2010) to 1,62% (2011). The 2011 animal prevalence (0,86%) reported lower in comparison with the previous year 2010 (1,28%). In general, the epidemiological indicators are influenced by the number of herds and animals tested in areas of high infection rate of Bovine Brucellosis.

Although the epidemiological situation in 2011 has not significantly improved compared to 2010, Bovine Brucellosis infection still remains a significant animal health problem in several areas of Greece with endemic characteristics, especially in previous infected herds or herds not periodically tested according to the programme requirements. In addition, strict Control and eradication measures for old and new infected herds should be a major task and priority for the veterinary services at regional and local level. In conclusion, further attempts and actions for investigating the epidemiology of the disease, identifying the source of infection and properly implementing the national program shall be urgently undertaken in order to meet the disease eradication targets for the next years.

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

Relevance as zoonotic disease
In general, bovine Brucellosis infection remains a significant animal health problem in several areas of Greece. The systematic implementation of bovine brucellosis eradication program is associated with the public health relevance of this zoonotic disease.

Recent actions taken to control the zoonoses

RB-51 Vaccination programme in Thessaloniki prefecture
As an additional preventive measure in order to rapidly reduce the prevalence of Bovine Brucellosis, a vaccination policy using the RB-51 vaccine (Brucella abortus strain) was implemented in the specific high risk area (Thessaloniki) in order to facilitate the progress of the existing Brucellosis eradication programme in Bovine Herds (dairy herds) which is in force and works concurrently with the vaccination strategy. During 2011, 126 Bovine herds (12.231 animals) reported vaccinated.

Suggestions to the European Union for the actions to be taken

Source of human infection- Causal association.
The presence of B. abortus in animals compared to Brucella melitensis in small ruminants, has a lesser public health impact in Humans based on the epidemiology and official records from public health services.

Additional information

Summary Epidemiological and Statistical Data on the evolution of 2011 Bovine Brucellosis Programme are presented in the Reporting Tables of EFSA web-based zoonoses system.

Summary results of the zoonoses monitoring in the year 2011

- Number of herds under the programme (official control): 19.786
- Number of animals under the programme (official control): 386.867
- Number of herds tested: 5.260
- Number of herds positive: 264
- Number of new herds positive: 85
- Number of animals tested: 220.170
- Number of animals tested individually: 73.667
- Number of animals positive: 1.885
- Total number of animals slaughtered: 7.104

2.6.2 Brucellosis in humans

A. Brucellosis in humans

Results of the investigation

Results of the 2006 zoonoses monitoring period.
A total of 284 human Brucellosis cases were reported to the competent authorities (incidence per 100.000 persons = 2,59). The reported cases were classified as autochone (n=186), Imported (n=33) and unknown (n=65) cases respectively. The 2006 annual incidence rate reported lower compared to 2005 for Brucellosis in humans.

Results of the 2005 zoonoses monitoring period.

A total of 331 human Brucellosis cases were reported to the competent authorities (incidence per 100.000 persons = 3,02). All the reported cases were classified as autochone cases. Among the overall Brucella prevalence, 7 human cases were B. abortus , 16 B. melitensis, and 172 occupational respectively. The remaining Brucella spp cases , although have not been confirmed and typed, are considered to be B . melitensis due to epidemiological outcome and history of the disease occurrence.

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

DISEASE/AGENT: Brucellosis
SUSCEPTIBLE SPECIES: Humans

Susceptible population
10.934.097 (National Census ,2001)

Surveillance system
Mandatory reporting and notification policy
Epidemiological surveillance

Methods used
Clinical symptoms, serology,culture and microbiological confirmation.

Epidemiological history and evaluation
The continuous implementation of the control and eradication programmes in animals, especially in sheep and goats appears to have a successful impact on decreasing Human Brucellosis cases in Greece over time. In addition the widespread pasteurization, obligatory by law of milk and milk products has scientifically reduced the Human Brucellosis incidence.

For the year 1996 the reported cases were 451, slightly increased compared to those of 1998 (419 cases). For the years 1999 â€“ 2003 the reported human cases were 451, 334, 379 , 327 and 255 respectively.

Relevance as zoonotic disease

Relevance as zoonotic disease

The relevance and public health significance of B. melitensis as the main causative zoonotic agent remains very high in humans.

Source of human infection

Animal contact and consumption of dairy un- pasteurized products are mainly the source of human infection.

2.6.3 Brucella in animals

A. Brucella abortus in bovine animals

Vaccination policy

RB-51 Vaccination programme in Thessaloniki prefecture
As an additional preventive measure in order to rapidly reduce the Bovine Brucellosis Prevalence, a vaccination policy using the RB-51 vaccine (Brucella abortus strain) was implemented in the specific high risk area (Thessalonika) in order to facilitate the progress of the existing Brucellosis eradication programme in Bovine Herds (dairy herds) which is in force and works simultaneously with the vaccination strategy.
The evolution of the 2005 vaccination programme is presented in the table below :
TABLE 1

HERDS UNDER THE PROGRAM800
ANIMALS UNDER THE PROGRAM42.445
VACCINATED HERDS 141
ANIMALS IN VACCINATED HERDS10.295
VACCINATED ANIMALS8.203
CUMULATIVE HERD COVERAGE AT THE END OF THE YEAR 200542%
ANIMAL COVERAGE IN VACCINATED HERDS80 %
CUMULATIVE ANIMAL VACCINATION COVERAGE AT THE END OF THE YEAR 200545%

B. Brucella melitensis in sheep

Status as officially free of ovine brucellosis during the reporting year

The entire country free

Non officially free Country

Additional information

Total Susceptible population (Data 2011 / Directorate of Animal Health , MRDF)
15947917 sheep and Goats raised in 125.599 Flocks.

Surveillance system
The control program for ovine and caprine brucellosis is in force in the mainland (includes mass vaccination policy in young and adult sheep and goat population) and Brucellosis eradication program runs in islands.

Method used
Registration and identification systems applied in animals.
Serological test (test and slaughter policy) in animals raising in the islands.
Animal mass vaccination in the mainland.

Case definition
Infected animal: Animal positive to serological tests.
Infected Flock: Flock with one or more animals positive .

Vaccination policy
Vaccination according to the control program.

Measures in case of positive findings (according to the eradication program)
Slaughter of positive animals.
Ban of animal movement from and to the infected herd.
Re-examination of the herd and re establishment of the “brucellosis free” health status.

Vaccination policy

SEMI-WILD BOVINE VACCINATION WITH REV 1 VACCINE

As an additional preventive measure under the existing control and eradication brucellosis programme for sheep and goats, the free-ranged (semi-wild) bovines that are sharing common pastures with small ruminants, were vaccinated with REV-1 vaccine in order to reduce the spread of Brucella infection in the field.

Number of Bovine herds vaccinated with REV-1 vaccine: 777
Number of Bovine animals vaccinated with REV-1 : 9.363

Control program/mechanisms

The control program/strategies in place

EPIDEMIOLOGICAL SITUATION IN THE ISLANDS – DATA ANALYSIS

In the islands (eradication zone), except Evia, Lesvos and Leros, the 2011 flock incidence and prevalence rates among tested sheep and goats flocks were reported 0,58 % and 5,38 % respectively. The animal prevalence reported 0,31 % in 2011 . The islands of Lesvos and Leros have been excluded from the eradication policy and belong to the mainland vaccination programme status.

The 2011 Brucella Melitensis flock prevalence and incidence rates within eradication zone are mainly influenced (not representative from all the regions of the eradication zone with low herd coverage and no positive results) by the positive reactors reported from the regions Lasithi , Rethymno, Hraklio and Dodekanissa where the programme is carried out.

Summary results of the zoonoses monitoring in the year 2011 from the eradication zone

•Number of flocks under the programme (official control): 25.922
•Number of animals under the programme (official control): 4.208.986
•Number of flocks tested: 1209
•Number of flocks positive: 65
•Number of new flocks positive: 7
•Number of animals tested individually: 113.494
•Number of animals positive: 382
•Total number of animals slaughtered: 612

Notification system in place

Mandatory notification status.

Results of the investigation

EPIDEMIOLOGICAL SITUATION IN THE MAINLAND – DATA ANALYSIS

Summary results of the official mass vaccination 2011 programme in sheep and goats:

Mass vaccination carried out in the Mainland. During 2011, based on vaccination records and reports from the Regional Veterinary Directorates (at Prefecture level) , 912.790 sheep and goats from 23.080 flocks were vaccinated with the vaccine REV 1 . Further analysis and detailed statistics (flock and animal vaccination data, follow –up and up to date vaccination activities) are available through the central data base files of the Department of Zoonoses (Animal Health Directorate).

Number of flocks vaccinated: 23.080
Number of animals vaccinated : 912.790

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

Epidemiological and Technical evaluation

The Ovine and Caprine Brucellosis control and eradication programme has been implemented in the mainland and islands of Greece in 2011. The 2011 B.melitensis programme was carried out with co-financing status by the E.U based on the Commission Decision 2008/897/EC. Greek Farmers obtained

compensation for positive-infected sheep and goats based on the requirements and provisions of the National Ministerial Decision 713/2009. The Country is divided in 13 prefectures - Peripheries. For the implementation of brucellosis control and eradication programme, Greece is divided in two programme zones in which different policies and measures are applied, the control strategy in the mainland (mass vaccination of young and adult female small ruminants) and the eradication policy in the islands which is based on test and slaughter of positive reactors receptively.

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

Relevance as zoonotic disease

The relevance of the disease has a significant impact at Public Health level for the Community and consumers.

Source of human infection

Mainly from animal contact and consumption of dairy products (especially consumption of dairy products derived from non heated and pasteurized milk or immature types of sheep and goat cheese). In addition, it should be acknowledged the possible risk of obtaining the disease, if various home- made dairy products of unknown origin and hygiene quality are eaten by the consumers.

Additional information

Epidemiological history

Ovine and caprine brucellosis due to B. melitensis is a significant disease for both public health and animal production in Greece. During the last years a control and eradication program is running by the veterinary services of the Ministry of Rural Development and Food. The aim of the program is to control the incidence and prevalence of the disease in areas of the country where these estimates are reported high, by vaccination of lambs and kids. At the same time, in the remaining parts of the country, where the prevalence of the disease is reported low among sheep and goat flocks, an eradication program is implemented by test and slaughter policy.

Source of human infection

Mainly from animal contact and consumption of dairy products of unknown origin and hygiene quality. (Especially, consumption of dairy products prepared from non pasteurized milk or immature types of sheep and goat cheese).

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
Ελλαδα [1)]	40376	19260	3392	391	111	12	3.07	17.61	11.53	3.27
Total : [2)]	40376	19260	3392	391	111	12	3.07	17.61	11.53	3.27
Total - 1	30835	19786	5260	264	85	8	3.03	26.58	5.02	1.62

Comments:

[1)] In the total number of herds included all the registered herds many of them are innactivated

[2)] N.A.

Footnote:

Footnote
The Bovine Brucellosis eradication programme has not been co-financed for 2012. Data collection and presesentation since many years ago follows the Community format and layout because the programme implementation respects the EU rules and requirements. The past B.B programmes were co- financed by the EU.

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
Ελλαδα	28246	28155	382	33	1	4	12.12	1.36	8.64	.26
Total : [1)]	28246	28155	382	33	1	4	12.12	1.36	8.64	.26
Total - 1	26494	26117	1209	64	7	4	6.25	4.63	5.29	.58

Comments:

[1)] N.A.

Footnote:

The ovine and caprine B, Melitansis eradication programme covers only the islands of Greece. For The remaining country regions , the mainland, a mass vaccination programme was carried out in 2012 with co-financing by the EU. Programme implementation, Data collection and presentation are in acordance with all the EU requirements.

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
Ελλαδα	730175	417239	127399	59576	1587	1534	8601	30.53	1.25
Total : [1)]	730175	417239	127399	59576	1587	1534	8601	30.53	1.25
Total - 1	706696	38867	220170	73667	1885	1706	7104	566.47	.86

Comments:

[1)] N.A.

Footnote:

Footnote
The Bovine Brucellosis eradication programme has not been co-financed for 2012. Data collection and presesentation since many years ago follows the Community format and layout because the programme implementation respects the EU rules and requirements. The past B.B programmes were co- financed by the EU.

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
Ελλαδα	4306136	4306136	30026	30026	387	329	335	.7	1.29
Total : [1)]	4306136	4306136	30026	30026	387	329	335	.7	1.29
Total - 1	4221861	4179156	121574	113494	382	371	612	2.91	.31

Comments:

[1)] N.A.

Footnote:

The ovine and caprine B, Melitansis eradication programme covers only the islands of Greece. For The remaining country regions , the mainland, a mass vaccination programme was carried out in 2012 with co-financing by the EU. Data collection and presentation are in acordance with all the EU requirements.

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
Ελλαδα	19260	417239	4816	94219	178	12747	207	4018	4509	91976	29	3708	9521	210571
Total : [1)]	19260	417239	4816	94219	178	12747	207	4018	4509	91976	29	3708	9521	210571
Total - 1	19786	386867	4459	50229	182	13701	490	11315	2638	40458	126	12231	11892	259034

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
Ελλαδα	28155	4306136	19231	3603942	44	16887	1968	181065	6692	460016			220	44226
Total : [1)]	28155	4306136	19231	3603942	44	16887	1968	181065	6692	460016	0	0	220	44226

Comments:

[1)] N.A.

2.7 YERSINIOSIS

2.7.1 General evaluation of the national situation

A. Yersinia enterocolitica general evaluation

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

DISEASE/AGENT: Yersiniosis
AFFECTED SPECIES: Animals and Food

No Data were available at central authority level for animal and Food in 2011

2.7.2 Yersiniosis in humans

A. Yersinosis in humans

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

Twenty two (22) cases of Human Yersiniosis were reported in total. The predominant causal agent was Y. enterocolitica (21 cases).

Humans: Data 2006
Y. enterocolitica : 22 cases (incidence: 0,2 per 100.000 inhabitants), Unknown : 1 case

2.8 TRICHINELLOSIS

2.8.1 General evaluation of the national situation

A. Trichinellosis general evaluation

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

DISEASE/AGENT: Trichinellosis , Trichinella spp.
AFFECTED SPECIES: Animals

Susceptible population
All domestic farmed and wild swine eligible for slaughter.

Surveillance system
Compulsory examination for detection of Trichinellosis at Slaughterhouse level.

Method used
Two main diagnostic methods for Trichinella spp in fresh pork meat are used. The first comprises the digestion in artificial gastric juice of muscle tissues from Trichinella pre- determined sites, followed by the microscopic examination of parasitic larvae. The second commonly used in the past covers the examination of tissues from diaphragm in the trichinoscope. New Community legislation (Commission Regulation 2075/2005) which has been adopted by the EU describes diagnostics techniques and sampling methods for target species (swine) expected to be fully implemented on mandatory basis by the national monitoring Trichinella systems in all Member- States.

Epidemiological history

13 positive findings (Trichinella spp. Unspecified) were reported at slaughterhouse level under the meat inspections activities in 2011. The positive samples derived from meat of wild farmed boars raised in Northern Greece. The positive units were sent to Community Reference Laboratory for further diagnostics and parasitic identification.
During the reporting year 2011, 1.217.530 pigs were tested for trichinella spp at slaughterhouse level. The targeted animals were examined by the new official reference method of Trichinella detection as forseen and described in the Annex 1 of the Commission Regulation 2075/2005 (Magnetic stirrer method for pooled sample digestion).

Results of monitoring
13 positive wild farmed boars were found in the framework of zoonosis monitoring. The causative agent was Trichinella spp- unspecified.

Data are presented in the relevant table of EFSA web based electronic system for zoonoses monitoring.

2.8.2 Trichinellosis in humans

A. Trichinellosis in humans

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

DISEASE/AGENT: Trichinellosis
AFFECTED SPECIES: Human

Results of the investigations in the year 2006
No cases of human trichinellosis were reported during the year 2006.

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
Pigs - fattening pigs - raised under controlled housing conditions - at slaughterhouse - Surveillance	slaugterhouse	Census	Official sampling	animal sample > organ/tissue		Animal	1163843	0	0	0
Pigs - fattening pigs - not raised under controlled housing conditions - at slaughterhouse - Surveillance	slaugterhouse	Census	Official sampling	animal sample > organ/tissue		Animal	4850	0	0	0
Pigs - breeding animals	slaughterhouse	Census	Official sampling	animal sample > organ/tissue		Animal	23406	0	0	0
Pigs - breeding animals - raised under controlled housing conditions - sows and boars - at slaughterhouse - Surveillance	slaughterhouse	Census	Official sampling	animal sample > organ/tissue		Animal	23406	0	0	0
Solipeds, domestic - horses - at slaughterhouse - Surveillance	slaughterhouse	Census	Official sampling	animal sample > organ/tissue		Animal	1	0	0	0
Wild boars - wild - Surveillance	slaughterhouse	Census	Official sampling	animal sample > organ/tissue		Animal	19	0	0	0
Pigs - fattening pigs - not raised under controlled housing conditions - at slaughterhouse - Surveillance (free ranging pigs)	slaughterhouse	Census	Official sampling	animal sample > organ/tissue		Animal	2283	16	0	16

Footnote:

All Trichinella isolates were Trichionella britovi

2.9 ECHINOCOCCOSIS

2.9.1 General evaluation of the national situation

A. Echinococcus spp. general evaluation

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

DISEASE/AGENT: Echinococcosis
AFFECTED SPECIES: Susceptible Animals: Cattle, sheep, Goats, Pigs.

Susceptible population
All animals eligible for slaughter at country level.

Surveillance system
Inspection of all carcasses at slaughterhouse level.
Preventive treatment of all domestic and farm dogs with antiparasitic tablets.

Method used
For farmed animals , meat inspection of carcasses at slaughterhouses. For dogs the arecolin test applied in the past.

Epidemiological history
The infection among the owned dogs has been almost disappeared due to systematic preventive treatment of animals with antiparasitic medication. The infection rate in stray dogs is difficult to be estimated. The overall infection in farmed animals remained stable compared to previous reporting years.

Results of 2011 zoonoses monitoring

Animal species Prevelance (%) at slaughterhouse level
Sheep1,23%
Goats0,39%
Bovine0,71%
Pigs 0%
Results of 2009 zoonoses monitoring

Animal species Prevelance (%) at slaughterhouse level
Sheep1,85
Goats0,46
Bovines1.01
Pigs 0,00

Data analysis are presented in the relevant tables of EFSA web based electronic system for zoonoses monitoring.

Source of human infection
Mainly through the consumption of contaminated raw foodstuffs (i.e vegetables).

2.9.2 Echinococcosis in humans

A. Echinococcus spp. in humans

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

DISEASE/AGENT: Echinococcosis
AFFECTED SPECIES: Human

Surveillance system
Clinical cases referred to the competent authority.
Mandatory Notification of the disease within week (reporting time period following diagnosis).

Method used
X-ray, echo and serological tests.

Epidemiological history
A slight decrease in the number of clinical cases for the year 1999 comparing to the year 1998 was noticed. 99 autochthon cases and 6 imported were notified for the year 1999. For the 2000 ,2001, 2002, 2003 and 2004 years, 20,37,5,17 and 17 human cases were reported respectively.

Results of the investigations in the year 2006
Six (6) human cases (1 male and 6 females) were reported to the competent authorities of the Ministry of Health for the year 2006.

Source of human infection
Mainly consumption of infected food (i.e vegetables) and animal contact in conjunction with poor sanitary and hygiene conditions in rural areas.

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	at slaughterhouse	Census	Official sampling	animal sample	Domestic	Animal	Ελλαδα	93352	1647		
Sheep - at slaughterhouse - Surveillance	at slaughterhouse	Census	Official sampling	animal sample	Domestic	Animal	Ελλαδα	1253752	13518		
Goats - at slaughterhouse - Surveillance	at slaughterhouse	Census	Official sampling	animal sample	Domestic	Animal	Ελλαδα	351326	1239		
Pigs - at slaughterhouse - Surveillance	at slaughterhouse	Census	Official sampling	animal sample	Domestic	Animal	Ελλαδα	627819	51		
Other animals - at slaughterhouse - Surveillance (WILD BOARS)	at slaughterhouse	Census	Official sampling	animal sample	Domestic	Animal	Ελλαδα	629	0		

	Echinococcus spp., unspecified
Cattle (bovine animals) - at slaughterhouse - Surveillance	1647
Sheep - at slaughterhouse - Surveillance	13518
Goats - at slaughterhouse - Surveillance	1239
Pigs - at slaughterhouse - Surveillance	51

Table Echinococcus in animals

	Echinococcus spp., unspecified
Other animals - at slaughterhouse - Surveillance (WILD BOARS)	

2.10 TOXOPLASMOSIS

2.10.1 General evaluation of the national situation

A. Toxoplasmosis general evaluation

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

DISEASE/AGENT: Toxoplasmosis
AFFECTED SPECIES: Animals
In 2011, 363 blood sera samples were sent to the appropriate laboratory (181 goats and 182 sheep) in the frame of investigating abortions. The tests were not performed due to lack of reagents and therefore only suspected toxoplasmosis can be based on the clinical picture.

Toxoplasma gondii is detected in Sheep and Goats tested under national Surveys. The laboratory methods used for 2011 was the IFAT (Indirect Immunofluorescence Antibody test) for detecting Toxoplasma antibodies in blood sera and microscopic examination of the brain of aborted fetuses. The sampling schemes were not random or representative, originated from sheep and goats flocks with reported abortions under clinical investigation practices.
Results of 2011 monitoring
Data are available in the relevant tables of EFSA web based electronic system for zoonoses monitoring.
There are no available data on toxoplasmosis for 2011.

2.10.2 Toxoplasmosis in humans

A. Toxoplasmosis in humans

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

DISEASE/AGENT: Toxoplasmosis
AFFECTED SPECIES: Human

No human cases of Congenital toxoplasmosis were reported in 2006.

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

Since 1987 Greece is free from rabbies. A monitoring programme was is place according to Directive 2003/99.
This programme included testing of the brain of dead wild and domestic animals. Since beginning of 2012 the above mentioned programme was intensified because of current epidemiological situation of rabbies in neigbouring Balkanian countries.Since 19 October 2012 Greece is not a free rabbies country because at that date isolated the first (since 1987) positive rabbies result in a red fox in the area of Kozani.
Since then and until now 21 positive cases have been detected (2 sepherd dogs, 1 cat and 18 red foxes).

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

DISEASE/AGENT: Rabies
AFFECTED SPECIES: Animals

Surveillance system
Monitoring activities covering the whole country are in force.

Vaccination policy
Dog vaccination is highly recommended and applied at National level.

Epidemiological history
No cases of human or animal rabies were reported. Greece is a Rabies- free country.
The disease in humans is notifiable through mandatory system.. Last case in humans was recorded in 1970. In animals 2 cases (a fox/1974 and a domestic dog /1987) were additionally reported. Rabies vaccine included into the standard vaccination protocols for dogs and cats respectively. However, the disease is present in neighbouring countries. Although rabies is a very rare disease in the EU, a risk of re-emerge does exist, especially through the cross- border movements of potentially rabid animals.

The disease is notifiable following a clinical suspicion in all-animal species. In the framework of National sporadic surveys, samples, especially brain from dead targeted animals and wildlife species are submitted to the National Reference laboratory (Athens – Greece) for further rabies diagnostic examinations.

Results of 2010 zoonoses monitoring
Data are presented in the relevant tables of EFSA web based electronic system for zoonoses monitoring.

2.11.2 Lyssavirus (rabies) in animals

A. Rabies in dogs

Vaccination policy

All dogs over three months of age are mandatory vaccinated against rabies.

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
Sheep	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	7	0	0	0
Bats - wild - Monitoring	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	2	0	0	0
Foxes - wild - Monitoring	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	140	7	7	7
Wolves - wild - Monitoring	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	9	0	0	0
Cats - Surveillance	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	2	0	0	0
Dogs - Surveillance	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	38	2	2	2
Jackals - wild - Surveillance	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	3	0	0	0
Marten - Surveillance	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	16	0	0	0
Minks - Surveillance	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	4	0	0	0
Other animals - Surveillance (roedeer)	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	1	0	0	0
Otter - wild - Surveillance	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	1	0	0	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
Rats - wild - Surveillance	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	1	0	0	0
Squirrels - wild - Surveillance	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	2	0	0	0
Weasel - Surveillance	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	2	0	0	0
Wild boars - Surveillance	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	7	0	0	0
Wild cat (Felis silvestris) - wild - Surveillance	NRL	Selective sampling	Official sampling	animal sample > brain	Domestic	Animal	Βορεια Ελλαδα	2	0	0	0

	EBLV-2	Lyssavirus (unspecified virus)
Sheep	0	0
Bats - wild - Monitoring	0	0
Foxes - wild - Monitoring	0	0
Wolves - wild - Monitoring	0	0
Cats - Surveillance	0	0
Dogs - Surveillance	0	0
Jackals - wild - Surveillance	0	0

Table Rabies in animals

	EBLV-2	Lyssavirus (unspecified virus)
Marten - Surveillance	0	0
Minks - Surveillance	0	0
Other animals - Surveillance (roedeer)	0	0
Otter - wild - Surveillance	0	0
Rats - wild - Surveillance	0	0
Squirrels - wild - Surveillance	0	0
Weasel - Surveillance	0	0
Wild boars - Surveillance	0	0
Wild cat (Felis silvestris) - wild - Surveillance	0	0

2.12 STAPHYLOCOCCUS INFECTION

2.12.1 General evaluation of the national situation

2.13 Q-FEVER

2.13.1 General evaluation of the national situation

A. Coxiella burnetii (Q-fever) general evaluation

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

DISEASE/AGENT: Coxiella burnetii (Q fever) in animals
AFFECTED SPECIES: Animals/ sheep and goats mainly

Surveillance system
There is no official National monitoring program in place. Sporadic blood (sera) samples are officially collected and examined following notification of abortion at farm level, especially from sheep and goats.

Results of monitoring

In 2010 , 306 sampling units (animals : Cattle n= 11, sheep n =181, goats n=114) were tested for Coxiella burnetii and 56 found positive.
Data are presented in the relevant table of EFSA web based electronic system for 2010 zoonoses monitoring

In 2009 , 66 units (animals) were tested for Coxiella burnetii and 13 found positive.
Data are presented in the relevant table of EFSA web based electronic system for 2009 zoonoses monitoring

Epidemiological history
During the period 2001-2006 Coxiella burnettii was detected in 68 small ruminant flocks and 1 bovine herd (Table 1). Animal infection rate in affected flocks ranged from 2.1 % to 31.5%. Findings, along with previously conducted studies indicate the existence of the disease in animals. However, no data for animals or foods exist on a systematic basis.

Table 1.: Q fever in small ruminants, 2000-2006.

Year	2001	2002	2003	2004	2005	2006
Number of infected flocks	28	17	1	8	7	7

Source: MRDF

2.13.2 Coxiella (Q-fever) in animals

A. C. burnetii in animal - Sheep and goats - at farm - Clinical investigations - suspect sampling

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

DISEASE/AGENT: Coxiella burnetii (Q fever) in animals
AFFECTED SPECIES: Animals/ sheep and goats mainly

Surveillance system
There is no official / National program in place. Sporadic blood (sera) samples are collected and examined following notification of abortion at farm level , especially from sheep and goats.

Results of monitoring
Data are presented in the relevant table of 2008 EFSA web based electronic system for zoonoses monitoring

Epidemiological history
During the period 2001-2006 Coxiella burnettii was detected in 68 small ruminant flocks and 1 bovine herd (Table 1). Animal infection rate in affected flocks ranged from 2.1 % to 31.5%. Findings, along with previously conducted studies (7), indicate the existence of the disease in animals. However, no data for animals or foods exist on a systematic basis.

Table 1. Q fever in small ruminants, 2000-2006.
Number of infected flocks:
Year200120022003200420052006
28171877
Source: MRDF (Hellenic Ministry of Rural Development and Food)

2.14 WEST NILE VIRUS INFECTIONS

2.14.1 General evaluation of the national situation

2.14.2 West Nile Virus in animals

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 [1)]	PVD-Virology Lab Athens Center of Veterinary Institutes	Census	Official sampling	animal sample > blood		no	ELISA	Animal	Ελλαδα	1640	16

Comments:

[1)] In analytical methods except from Elisa Real Time PCR is used.Sampling can be also mase by private vets

Footnote:

As of 2010 a surveillance programme is in place in Greece for WNF involving regular testing of sentinel horses , dispersed throughout the country, testing of all clinically suspect equidae, and examination of samples from wild birds. For 2012 the programme involved the examination of a total number of 750 sentinel (non vacccinated) horses placed in 36 differrent Regional Units throughout Greece , each animal subject to 3 samplings within the period 15 May -30 Sep, During the same year (July-Sep 2012) a total number of 14 outbreaks were reported in solipeds (except for 1 single case in a donkey all other affected animals were horses). Clinical signs were reported in only 3 of these outbreaks (all in horses). Testing of serum / blood samples is carried out using ELISA [IDVET SCREEN COMPETITION for initial screening and then testing of positives with POURQUIER IgM or ID VET IgM CAPTURE to detect recent (IgM), antibodies and eventually confirm a recent infection (= outbreak)]. The majority of the IgM-positive samples were also tested for virus detection using Real-time RT PCR, with negative results. Greece

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

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

Additional information

Results of investigations in the year 2010
Only targeted food samples (n= 148) were tested for E.coli spp- non pathogenic in 2010 with negative results.

3.2 ENTEROCOCCUS, NON-PATHOGENIC

3.2.1 General evaluation of the national situation

4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS

4.1 ENTEROBACTER SAKAZAKII

4.1.1 General evaluation of the national situation

4.2 HISTAMINE

4.2.1 General evaluation of the national situation

A. Histamine General evaluation

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

DISEASE/AGENT: Histamine in Food
Surveillance system
There is no official monitoring program or systematic scheme applied for Histamine in food. Sporadic samples from fish and fishery products are examined in the designated national veterinary laboratory in Thessalonica- Grrece. Targeted fish species for testing and detecting Histamine are: Scrombridae, Clupeidae, Engraulidae, Coryfenidae, Pomatomidae and Scrombresosidae. Related Legislation: Community Regulation (EC): 1141/2007.

Results of monitoring
Data are presented in the relevant table of EFSA web based electronic system for 2009 zoonoses monitoring.

4.3 STAPHYLOCOCCAL ENTEROTOXINS

4.3.1 General evaluation of the national situation

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

Foodborne outbreaks are included in the Mandatory Notification System of the Hellenic Centre for Diseases Control and Prevention (HCDCP).
Once a food-borne outbreak is notified, the public health professionals conduct an epidemiological investigation in order to estimate the extent of the outbreak, identify the source and take control measures. Furthermore, the Public Health Directorate of the competent Prefecture, the National Food Agency as well as the Ministry of Rural Development and Food are informed and conduct the environmental investigation, whenever it is needed.

Description of the types of outbreaks covered by the reporting:

Any type of outbreak, either general or household, is reported through Mandatory Notification System.

National evaluation of the reported outbreaks in the country:

Trends in numbers of outbreaks and numbers of human cases involved

The number of reported food-borne outbreaks has been quite stable since 2004. This finding should be interpreted with caution due to the probable under-reporting.

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

Salmonella spp. was the predominant causative agent of the reported food-borne outbreaks. This is a finding consistent with previous years.

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

Twenty three (67.7%) of the outbreaks were domestic (only one household involved).

Evaluation of the severity and clinical picture of the human cases

With regard to the severity of illness, 91 (7.2%) out of the 1257 outbreak-related cases, were hospitalized. Finally, no outbreak-related deaths were reported in 2012.

Additional information

It should be mentioned that the reporting date was used for the analysis of data.

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	0	0	0	0	0
Salmonella - S. Enteritidis	3	40	15	0	0	3
Salmonella - Other serovars	17	52	31	0	0	17
Campylobacter	0	0	0	0	0	0
Listeria - Listeria monocytogenes	0	0	0	0	0	0
Listeria - Other Listeria	0	0	0	0	0	0
Yersinia	0	0	0	0	0	0
Escherichia coli, pathogenic - Verotoxigenic E. coli (VTEC)	0	0	0	0	0	0
Bacillus - B. cereus	0	0	0	0	0	0
Bacillus - Other Bacillus	0	0	0	0	0	0
Staphylococcal enterotoxins	0	0	0	0	0	0
Clostridium - Cl. botulinum	0	0	0	0	0	0
Clostridium - Cl. perfringens	0	0	0	0	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	0	0	0	0	0
Other Bacterial agents - Brucella	4	14	11	0	0	4
Other Bacterial agents - Shigella	0	0	0	0	0	0
Other Bacterial agents - Other Bacterial agents	0	0	0	0	0	0
Parasites - Trichinella	0	0	0	0	0	0
Parasites - Giardia	0	0	0	0	0	0
Parasites - Cryptosporidium	0	0	0	0	0	0
Parasites - Anisakis	0	0	0	0	0	0
Parasites - Other Parasites	0	0	0	0	0	0
Viruses - Norovirus	0	0	0	0	1	1
Viruses - Hepatitis viruses	0	0	0	0	0	0
Viruses - Other Viruses	1	23	17	0	1	2
Other agents - Histamine	0	0	0	0	0	0
Other agents - Marine biotoxins	0	0	0	0	0	0
Other agents - Other Agents	0	0	0	0	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	4	37	11	0	1	5

Table Foodborne Outbreaks: detailed data for Unknown agent

Please use CTRL for multiple selection fields

Unknown

	Value
FBO Code	
Number of outbreaks	1
Number of human cases	19
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Pig meat and products thereof
More food vehicle information	A dish of pork was the implicated foodstuff of this outbreak.
Nature of evidence	Analytical epidemiological evidence
Outbreak type	General
Setting	Canteen or workplace catering
Place of origin of problem	Unknown
Origin of food vehicle	Unknown
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	
Additional information	This was a common source outbreak of gastroenteritis. The pathogen could not been detected in clinical samples. A retrospective cohort study indicated a dish of pork that was consumed at a business lunch in an institution as the vehicle of this outbreak (RR=4.76 95% CI. 0.82-27.6, p=0.0001). A sample of the pork was positive for S. Aureus coagulase (+). The environmental investigation didn’t reveal in which stage of the food chain the contamination might have been.

Table Foodborne Outbreaks: detailed data for Viruses

Please use CTRL for multiple selection fields

Rotavirus

	Value
FBO Code	
Number of outbreaks	1
Number of human cases	552
Number of hospitalisations	2
Number of deaths	0
Food vehicle	Tap water, including well water
More food vehicle information	Treated tap water of a rural area's water supply system in was the implicated foodstuff of this outbreak.
Nature of evidence	Analytical epidemiological evidence
Outbreak type	General
Setting	Household / domestic kitchen
Place of origin of problem	Water distribution system
Origin of food vehicle	Domestic
Contributory factors	Water treatment failure
Mixed Outbreaks (Other Agent)	
Additional information	In March 2012, a gastroenteritis outbreak was notified in a district with 37. 264 inhabitants in central Greece. Consumption of tap water was a risk factor for acquiring infection [odds ratio (OR) 2.18, 95% (CI) 1.11–4.28. Descriptive data, low gastroenteritis incidence in adjacent areas with different water supply systems, and water-quality data further supported the hypothesis of a waterborne outbreak. Thirty-eight stool samples were positive for rotavirus. Bacterial indicators of recent faecal contamination were detected in samples from the water source and ice cubes from a local production enterprise. Molecular epidemiology of rotavirus strains, apart from the common strain, G3[P8], identified the unusual G/P combination G2P[8]. A paper regarding this outbreak investigation can be found in http://www.ncbi.nlm.nih.gov/pubmed/23632123

Calicivirus - norovirus (Norwalk-like virus)

	Value
FBO Code	
Number of outbreaks	1
Number of human cases	79
Number of hospitalisations	0
Number of deaths	0
Food vehicle	Tap water, including well water
More food vehicle information	tap water in an elementary school
Nature of evidence	Analytical epidemiological evidence
Outbreak type	General
Setting	School, kindergarten
Place of origin of problem	Water distribution system
Origin of food vehicle	Domestic
Contributory factors	Unknown
Mixed Outbreaks (Other Agent)	Adenovirus
Additional information	Two parallel gastroenteritis outbreaks occurred in an elementary school and a neighboring kindergarten in a town in Northern Greece in 2012. Two retrospective cohort studies were conducted. According to the multivariate analysis, consumption of tap water in primary school was statistically associated with gastroenteritis (RR = 2.34, 95% C.I.: 1.55-3.53). For kindergarten, no statistically significant risk factor was identified, and the epidemic curve supported a person-to-person transmission. Norovirus GI and GII and human Adenovirus were detected by RT-PCR in stool samples from seven children of elementary school, but stool samples were not collected by children of the kindergarten. The tap water sample from the kindergarten was positive for human AdV. A paper regarding this outbreak investigation is available on: http://www.biomedcentral.com/1471-2458/13/241