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 2008

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: **Greece**

Reporting Year:

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 2008 .

The information covers the occurrence of these diseases and agents in humans, animals, foodstuffs and in some cases also in feedingstuffs. In addition the report includes data on antimicrobial resistance in some zoonotic agents and commensal bacteria as well as information on epidemiological investigations of foodborne outbreaks. Complementary data on susceptible animal populations in the country is also given. The information given covers both zoonoses that are important for the public health in the whole European Community as well as zoonoses, which are relevant on the basis of the national epidemiological situation.

The report describes the monitoring systems in place and the prevention and control strategies applied in the country. For some zoonoses this monitoring is based on legal requirements laid down by the Community Legislation, while for the other zoonoses national approaches are applied.

The report presents the results of the examinations carried out in the reporting year. A national evaluation of the epidemiological situation, with special reference to trends and sources of zoonotic infections, is given. Whenever possible, the relevance of findings in foodstuffs and animals to zoonoses cases in humans is evaluated.

The information covered by this report is used in the annual Community Summary Report on zoonoses that is published each year by EFSA.

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

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1. ANIMAL POPULATIONS

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

A. Information on susceptible animal population

Sources of information:

2008 DEMOGRAPHIC DATA. GREECE

SUSCEPTIBLE POPULATION: (please advise the electronic reported tables on the EFSA Web based zoonoses system)

Source of information: Computerized Data Base from Animal Health Directorate of the Hellenic Ministry of Rural Development and Food (2008 update figures). These statistics and numerical values may vary from other national or E.U. official sources of animal population records.

Table Susceptible animal populations

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	**Category of animals**		**Year**		**Year**		**Year**		**Year**
Birds	**in total** [1]					27695		458	
	wild - Game birds	20				254110	2007	662	2007
Bison and buffalos	**in total**	46				2102			
Cats	**in total**					234234		68584	
Cattle (bovine animals)	**calves (under 1 year)**					71793			
	dairy cows and heifers	14957				228424			
	in total	29351		189819		768890			
	meat production animals	14394				468673			
Deer	**farmed - in total**	51				1081			
Dogs	**in total**					306025		81247	
Ducks	**in total**	2089		6550	2007	18596			
Gallus gallus (fowl)	**breeding flocks for egg production line - in total**	15				295215		14	
	breeding flocks for meat production line - in total [2]								
	breeding flocks, unspecified - in total [3]	47				161070		17	

Table Susceptible animal populations

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	**Category of animals**		**Year**		**Year**		**Year**		**Year**
Gallus gallus (fowl)	**broilers**	2530		121802825		24360565		1242	2007
	in total	4061				35646328		1834	
	laying hens	554		2496201	2007	6436382		370	
	mixed flocks/holdings	751	2007	7281667	2007	3310125	2007	139	2007
	parent breeding flocks for meat production line	163				1082971		52	
Geese	**in total**	1106		2686	2007	8880			
Goats	**animals under 1 year**			3340774	2007				
	in total	17866		3872278	2007	2715177			
	milk goats			531504	2007				
Ostriches	**in total**	365		2419	2007	30395			
Other animals	**in total**	8318		16100	2007	298589			
Pigs	**breeding animals**					115000			
	fattening pigs			1939178	2007	2051112			
	in total	5440				2166112			

Table Susceptible animal populations

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	**Category of animals**		**Year**		**Year**		**Year**		**Year**
Quails	**in total**	4	2007			6000	2007	4	2007
Rabbits	**in total**	12039		2412108	2007	372967			
Sheep	**animals under 1 year (lambs)**			5949639	2007				
	in total	59032		6849508	2007	5550390			
	milk ewes			899869	2007				
Sheep and goats	**in total** [4)]	51861				7130495			
Solipeds, domestic	**horses - in total**					44299		24881	
Turkeys	**in total**	106		474031	2007	343200			
	meat production flocks	95				330500		69	
	parent breeding flocks	11				12700		7	

Comments:

[1)] exotic birds
[2)] all the breeding flocks for meat production line are parent breders
[3)] mixed Breeders
[4)] mixed species farms

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: Feeding stuffs of animal origin, plant origin and Compound feedingstuffs

Surveillance system
The latest legal requirements (new zoonoses Directive and Regulation) have changed the existing monitoring situation and practices in the field of Salmonella surveillance. New strategies and schemes for monitoring Salmonella agents are in force in accordance with Community targets approved . Rapid adaptation and compliance on the new Salmonella control and eradication programmes are expected to be done the fore coming years in all the EU member states.

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

In 2008, few Salmonella (n=3) positive units from 373 samples tested reported by the National Reference Laboratory for Salmonella (NRLS) derived from feeding stuffs of animal origin (n=92), feeding stuffs of plant origin (n=1) and Compound feedingstuffs (n=280) respectively. The relevant Salmonella serovars detected from feed samples are : Salmonella unspecified (1), S.Agona (1) - poultry by products and S. Orianienberg (1) – poultry by products.

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

Surveillance system
There is not any specific monitoring program in force for 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 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

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).

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

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 Report (Reporting. year: 2008)

The 2008 reported Salmonella Serovars in Food (per category of interest) are presented as follows:

1. Broiler meat and products thereof (all categories)
Samples tested: 499
Samples positive: 53
Reported serovars : S. Enteritidis(n=17) , S, Blockley(n=6) , S. Hadar (n=18) , S. Minessota (n=3) , Salmonella unspecified spp. (n=9).

2. Turkey meat and products thereof (all categories)
Samples tested: 36
Samples positive: 0

3. Pig meat and products thereof (all categories)
Samples tested: 337
Samples positive: 6
Reported serovars : S. Enteritidis (n=5) S. Typhimurium (n=1)

4. Bovine meat and products thereof (all categories)
Samples tested: 338
Samples positive: 6
Reported serovars : S. Enteritidis (n=4), Salmonella unspecified (n=2)

5.Meat from other animals and products thereof (all categories)
Samples tested: 62
Samples positive: 0

6. Milk and milk products (all categories)
Samples tested: 1388
Samples positive: 0

7. Eggs and egg products(all categories)
Samples tested: 211
Samples positive: 0

8. Fish and fish products (all categories)
Samples tested: 520
Samples positive: 1
Reported serovars : S. Typhimurium (n=1)

9. Other Food (all categories)

Samples tested: 130
Samples positive: 0

Overall Salmonella reported Food Prevalence (for all categories) = 1,87 % (66/3521*100)
Overall Salmonella reported Food Prevalence at retail level (for all categories) = 0,75 %
Note: n = number of positive single units

History: Reporting Year 2007:
Summary Report (Ref. year: 2007)
The 2007 reported Salmonella Serovars in Food (per category of interest) are presented as follows:
1. Broiler meat and products thereof (all categories)
Samples tested: 156
Samples positive: 41
Reported serovars : S. Enteritidis(n=22) , S.Livingstone (n=5), S. Thompson (n =5) , S, Blockley(n=2) , S. Hadar (n=1) , S. Wentworth (n=1) and S. Virchow (n =5).
2. Turkey meat and products thereof (all categories)
Samples tested: 26
3. Pig meat and products thereof (all categories)
Samples tested: 151
Samples positive: 1
Reported serovars : S. Typhimurium (n=1)
4. Bovine meat and products thereof (all categories)
Samples tested: 86
Samples positive: 1
Reported serovars : S. Typhimurium (n=1)
5.Meat from other animals and products thereof (all categories)
Samples tested: 307
6. Milk and milk products (all categories)
Samples tested: 130
Samples positive:1
Reported serovars : S. Enteritidis(n=1)
7. Eggs and egg products(all categories)
Samples tested: 278
8. Fish and fish products (all categories)
Samples tested: 149
Samples positive: 1
Reported serovars :
Other Food (all categories)
Samples tested: 201

Samples positive: 1
Reported serovars : S. Enteritidis(n=1)
Overall Salmonella reported Food Prevalence (for all categories) = 2,40 % (46/1914*100)
Overall Salmonella reported Food Prevalence at retail level (for all categories) = 0,78 % (13/1673*100)

Additional information

History. Salmonella in Food
Summary epidemiological report for the year 2006
The 2006 Salmonella Serovars in Food reported by the National Reference Laboratory (NRL) for
Salmonellosis in Greece are presented below:
I. Salmonella spp. in poultry meat and products thereof & Salmonella in red meat and products thereof :
From 2.034 food sample units tested under the specified category, 31 were found positive in Salmonella. The reported salmonella serovars from positive samples in food were : S. Blockley (n=8) , S. Enteritidis (n=4) , S. Typhimurium (n=4), S. Thompson (n=4), S. Indiana (n=3), S. Infantis (n=3), S. Bredeney (n=3), S. Anatum (n=1), S.Virchow (n=1).
The annual (2006) Salmonella prevalence rate for the category I (% positive samples) was 1,52 %.
II. Salmonella spp. in milk , dairy products and other food
From 1.916 food sample units tested under the specified category, 4 were found positive in Salmonella. The reported salmonella serovars from positive samples in food were : S. Kottbus (n=2) , S. Enteritidis (n=1) and S. Infantis (n=1)
The annual (2006) Salmonella prevalence rate for the category II (% positive samples) was 0,20 %.
The 2006 reported overall national Salmonella prevalence rate in food (categories I and II) based on food units tested was 0,89 %.

Summary evaluation for the year 2005
The 2005 Serovars in Food reported by the National Reference Laboratory (NRL) for Salmonellosis in Greece (Located in Chalkida, Evia prefecture) are presented below:
S Enteritidis, S, Blockley, S. Typhimurium, S. kottbus, S. Adamstua, S.Infantis S. Kentucky, S.
Salamae, S. Schwarzengrum, S. Indiana, S. S.Livingstone, S. Heidelberg, S. Bredeney, S. Derby, S. Enterica, S.Meleagridis, S. virchow and Salmonella spp.

Epidemiological report analysis from previous years:
The reporting rate in 2005 remained almost stable with no significant variations compared to
2004 and 2003 respectively. The total food units (samples) tested under a targeted sampling
procedure from meat , dairy , egg , fishery and other food products were 7.064. The Salmonella
positive food sample units found out of the total number, were 81 (isolates). Based on 2005
results , the three most frequent and predominant Salmonella reported serovars in food were:
S.enteritidis, S. Livingstone and S. Blockley.

The 2004 Serovars in Food reported by the National Reference Laboratory (NRL) for Salmonellosis in Greece are: S Enteritidis, S. Amootive, S, Diarizonae, S, Blockley, S. Typhimurium, S. Indiana, S. Hadar, S. S.Livingstone, S.Meleagridis, S. virchow, S. Muenchey, S. Schwein, and S. Anatum.

In 2003, an increased trend of reporting samples from food products was observed. More than a 2-fold increase (7.192 units) occurred in samples tested in 2003 for Salmonella compared to 2001 report (3.064). A total number of 125 Salmonella serovars were isolated during 2003 compared to 101 in 2002. The predominant serovars in 2003, 2002 and 2001 were S. Enteritidis (61 Isolates), S. Enteritidis (38 isolates) and 2001 S. Livingstone (34 isolates) respectively. In the year 2004 the predominant Salmonella serovar originated from breeding poultry (Gallus gallus) was S. Blockley.

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 unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Blockley	S. Enteritidis	S. Hadar	S. Minnesota	S. Typhimurium	Salmonella spp., unspecified
Meat from broilers (Gallus gallus) - fresh - at processing plant - Monitoring - official sampling	RVD, NRLS,	single	25 gr	77	12	1	6	5			
Meat from broilers (Gallus gallus) - fresh - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	64	10		2	2			6
Meat from broilers (Gallus gallus) - fresh - at slaughterhouse - Monitoring - official sampling	RVD, NRLS,	single	25 gr	76	5		2				3
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at processing plant - Monitoring - official sampling	RVD, NRLS,	single	25 gr	15	0						
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	25	0						
Meat from broilers (Gallus gallus) - meat products - raw but intended to be eaten cooked - at processing plant - Monitoring - official sampling	RVD, NRLS,	single	25 gr	186	20	5	7	8			
Meat from broilers (Gallus gallus) - meat products - raw but intended to be eaten cooked - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	41	6			3	3		
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - at processing plant - Monitoring - official sampling	RVD, NRLS,	single	25 gr	10	0						
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	5	0						
Meat from turkey - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	31	0						

Table Salmonella in poultry meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Blockley	S. Enteritidis	S. Hadar	S. Minnesota	S. Typhimurium	Salmonella spp., unspecified
Meat from turkey - meat products - raw but intended to be eaten cooked - at retail - Monitoring - industry sampling	RVD, NRLS,	single	25 gr	5	0						

Table Salmonella in milk and dairy products

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Cheeses made from cows' milk - hard - made from pasteurised milk - at retail - Monitoring - official sampling	State	single	25 gr	10	0			
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk - at retail - Monitoring - official sampling	State	single	25 gr	55	0			
Cheeses made from sheep's milk - soft and semi -soft - made from pasteurised milk - at retail - Monitoring - official sampling	State	single	25 gr	594	0			
Cheeses, made from unspecified milk or other animal milk - at retail - Monitoring - official sampling	State	single	25 gr	84	0			
Dairy products (excluding cheeses) - butter - made from raw or low heat-treated milk - at retail - Monitoring - official sampling	State	single	25 gr	35	0			
Dairy products (excluding cheeses) - dairy products, not specified - at retail - Monitoring - official sampling	State	single	25 gr	172	0			
Dairy products (excluding cheeses) - ice-cream - at retail - Monitoring - official sampling	State	single	25 gr	223	0			
Dairy products (excluding cheeses) - milk powder and whey powder - at retail - Monitoring - official sampling	State	single	25 gr	57	0			
Dairy products (excluding cheeses) - yoghurt - at retail - Monitoring - official sampling	State	single	25 gr	50	0			
Milk, cows' - pasteurised milk - at retail - Monitoring - official sampling	State	single	25 gr	108	0			

Table Salmonella in red meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Meat from bovine animals - fresh - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	45	0			
Meat from bovine animals - fresh - at slaughterhouse - Monitoring - official sampling	RVD, NRLS,	single	25 gr	6	0			
Meat from bovine animals - meat products - cooked, ready-to-eat - at processing plant - Monitoring - official sampling	RVD, NRLS,	single	25 gr	10	0			
Meat from bovine animals - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	31	0			
Meat from bovine animals - meat products - raw but intended to be eaten cooked - at processing plant - Monitoring - official sampling	RVD, NRLS,	single	25 gr	46	2			2
Meat from bovine animals - meat products - raw but intended to be eaten cooked - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	10	0			
Meat from bovine animals - mechanically separated meat (MSM) - at processing plant - Monitoring - official sampling	RVD, NRLS,	single	25 gr	130	4	4		
Meat from bovine animals - mechanically separated meat (MSM) - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	60	0			
Meat from other animal species or not specified - meat products - raw but intended to be eaten cooked - at processing plant - Monitoring - official sampling	RVD, NRLS,	single	25 gr	10	0			
Meat from other animal species or not specified - meat products - raw but intended to be eaten cooked - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	20	0			
Meat from other animal species or not specified - mechanically separated meat (MSM) - at processing plant - Monitoring - official sampling	RVD, NRLS,	single	25 gr	10	0			

Table Salmonella in red meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Meat from other animal species or not specified - mechanically separated meat (MSM) - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	22	0			
Meat from pig - fresh - at slaughterhouse - Monitoring - official sampling	RVD, NRLS,	single	25 gr	9	0			
Meat from pig - meat products - cooked, ready-to -eat - at processing plant - Monitoring - official sampling	RVD, NRLS,	single	25 gr	236	0			
Meat from pig - meat products - cooked, ready-to -eat - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	15	0			
Meat from pig - meat products - raw but intended to be eaten cooked - at processing plant - Monitoring - official sampling	RVD, NRLS,	single	25 gr	31	1		1	
Meat from pig - meat products - raw but intended to be eaten cooked - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	26	0			
Meat from pig - minced meat - intended to be eaten cooked - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	20	5	5		

Table Salmonella in other food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Bakery products - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	5	0			
Crustaceans - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	131	0			
Eggs - table eggs - at packing centre - Monitoring - official sampling	RVD, NRLS,	single	25 gr	26	0			
Eggs - table eggs - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	178	0			
Fishery products, unspecified - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	145	0			
Live bivalve molluscs - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	115	1		1	
Molluscan shellfish - raw - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	121	0			
Other processed food products and prepared dishes - sandwiches - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	95	0			
Ready-to-eat salads - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	23	0			
Sauce and dressings - Mayonnaise - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	7	0			
Snails - at retail - Monitoring - official sampling	RVD, NRLS,	single	25 gr	7	0			

2.1.4 Salmonella in animals

A. Salmonella spp. in Gallus Gallus - breeding flocks

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 1.539.6256 birds (2008 national zoonoses statistics).

Surveillance system
A control program, according to the Annex III of the Dir. 92/117, has been carried out since 1998. Moreover, it is important to mention the implementation of the approved by EU control programme in breeding flocks of Gallus gallus supervised by the Hellenic central competent veterinary authorities which was in line with the uniform EU guidelines and rules approved by the Commission. The results were evaluated by the Commission and Member States in accordance with the Community pre- defined targets towards the reduction of Salmonella prevalence in Breeders at flock level.

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 performed by 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 , prohibition of placing hatching eggs to
the hatchery for as long as the disease exists and all the relevant measures foreseen by the EU- control programme based on EU and National Legislation in force.

Epidemiological and statistical report

The only reported Salmonella Serovars isolated and identified during the year 2008 by the National Reference Laboratory (NRL-Located in Chalkida, Evia prefecture) were S. Senftenberg (n=1, Control programme) and S. Typhimurium (n=1, Routine monitoring scheme)

Note: n = number of positive flocks

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

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

DISEASE/AGENT: Salmonellsis / Salmonella serovars
INFECTED SPECIES: Commercial and non –commercial Poultry other than breeding flocks

Surveillance system
Salmonella control EU- programme in Laying hens and several monitoring activities have been implemented in the country based on suspected and targeted samples submitted into the laboratories for official investigation in 2008.

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 the Agglutination technique: Antigenic formulas of the Salmonella Serovars (9th edition- 2007- WHO Institute Pasteur)

Eleven (11) different Salmonella serovars isolated, serotyped and reported by the National Reference Laboratory for Salmonellosis in Greece (NRLS, Located in Chalkida, Evia prefecture) under the national control programme in Laying hens during the year 2008. Serovar distribution in Layin hens – production stage is given below:

S.Enteritidis (n= 16)
S. Enterica subsp. Salamae (n= 2)
S.Regent (n= 1)
S.Virchow (n = 2)
S.Carno (n = 1)
S.Bredeney(n = 1)
S.Corvallis (n = 5)
S. Thomson (n = 2)
S.Agbeni (n = 1)
S.Hadar (n = 1)
S.infantis (n = 3)

Note: n = number of positive flocks

Two (2) Salmonella serovars were reported under the routing monitoring in non breeding poultry flocks Gallus gallus as follows:

S.Typhimurium (n= 3)

S.Enteritidis (n= 10)

Note: n = number of positive flocks

Table Salmonella in breeding flocks of Gallus gallus

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Hadar	S. Infantis	S. Senftenberg	S. Typhimurium	S. Virchow
Gallus gallus (fowl) - breeding flocks for meat production line - during production period - at farm - Monitoring - official sampling		RVD, NRLS,	flock	37	0						
Gallus gallus (fowl) - breeding flocks, unspecified - during rearing period - at farm - Monitoring - official sampling		RVD, NRLS,	flock	6	0						
Gallus gallus (fowl) - parent breeding flocks for egg production line - day-old chicks - at farm - Monitoring - official sampling		RVD, NRLS,	flock	7	1					1	
Gallus gallus (fowl) - parent breeding flocks for egg production line - during production period - at farm - Control and eradication programmes - official sampling	16	RVD, NRLS,	flock	16	0						
Gallus gallus (fowl) - parent breeding flocks for meat production line - day-old chicks - at farm - Monitoring - official sampling		RVD, NRLS,	flock	47	0						
Gallus gallus (fowl) - parent breeding flocks for meat production line - during production period - at farm - Control and eradication programmes - official sampling	163	RVD, NRLS,	flock	43	0						
Gallus gallus (fowl) - parent breeding flocks for meat production line - during rearing period - at farm - Monitoring - official sampling		RVD, NRLS,	flock	1	0						
Gallus gallus (fowl) - parent breeding flocks, unspecified - during production period - at farm - Control and eradication programmes - official sampling [1)]	13	RVD, NRLS,	flock	13	1				1		
Gallus gallus (fowl) - parent breeding flocks, unspecified - during rearing period - at farm - Control and eradication programmes - official sampling [2)]	34	RVD, NRLS,	flock	30	0						

Table Salmonella in breeding flocks of Gallus gallus

	Salmonella spp., unspecified
Gallus gallus (fowl) - breeding flocks for meat production line - during production period - at farm - Monitoring - official sampling	
Gallus gallus (fowl) - breeding flocks, unspecified - during rearing period - at farm - Monitoring - official sampling	
Gallus gallus (fowl) - parent breeding flocks for egg production line - day-old chicks - at farm - Monitoring - official sampling	
Gallus gallus (fowl) - parent breeding flocks for egg production line - during production period - at farm - Control and eradication programmes - official sampling	
Gallus gallus (fowl) - parent breeding flocks for meat production line - day-old chicks - at farm - Monitoring - official sampling	
Gallus gallus (fowl) - parent breeding flocks for meat production line - during production period - at farm - Control and eradication programmes - official sampling	
Gallus gallus (fowl) - parent breeding flocks for meat production line - during rearing period - at farm - Monitoring - official sampling	
Gallus gallus (fowl) - parent breeding flocks, unspecified - during production period - at farm - Control and eradication programmes - official sampling [1)]	
Gallus gallus (fowl) - parent breeding flocks, unspecified - during rearing period - at farm - Control and eradication programmes - official sampling [2)]	

Comments:

[1)] mixed line

Table Salmonella in breeding flocks of Gallus gallus

[2)] mixed line

Footnote:

RVD : Regional Veterinary Directorates (Prefectures)
NRLS : National Reference Laboratory for Salmonella
SVL: State Veterinary Laboratories

Table Salmonella in other poultry

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Agbeni	S. Bredeney	S. Carno	S. Corvallis	S. Enteritidis	S. Hadar
Ducks - meat production flocks - at farm - Monitoring - official sampling		RVD, NRLS,	flock	6	2						
Gallus gallus (fowl) - broilers - day-old chicks - at farm - Monitoring - official sampling		RVD, NRLS,	flock	15	0						
Gallus gallus (fowl) - broilers - during rearing period - at farm - Monitoring - official sampling		RVD, NRLS,	flock	16	0						
Gallus gallus (fowl) - laying hens - at farm - Monitoring - official sampling		RVD, NRLS,	flock	17	6					6	
Gallus gallus (fowl) - laying hens - day-old chicks - at farm - Monitoring - official sampling		RVD, NRLS,	flock	3	0						
Gallus gallus (fowl) - laying hens - during production period - at farm - Control and eradication programmes - official sampling (objective and suspect sampling)	554	RVD, NRLS,	flock	112	35	1	1	1	5	16	1
Gallus gallus (fowl) - laying hens - during rearing period - at farm - Monitoring - official sampling		RVD, NRLS,	flock	4	1					1	
Turkeys - meat production flocks - at farm - Monitoring - official sampling	95	RVD, NRLS,	flock	53	3					3	

	S. Infantis	S. Regent	S. Thompson	S. Typhimurium	S. Virchow	Salmonella spp., unspecified	S. enterica subsp. salamae
Ducks - meat production flocks - at farm - Monitoring - official sampling				2			
Gallus gallus (fowl) - broilers - day-old chicks - at farm - Monitoring - official sampling							
Gallus gallus (fowl) - broilers - during rearing period - at farm - Monitoring - official sampling							

Table Salmonella in other poultry

	S. Infantis	S. Regent	S. Thompson	S. Typhimurium	S. Virchow	Salmonella spp., unspecified	S. enterica subsp. salamae
Gallus gallus (fowl) - laying hens - at farm - Monitoring - official sampling							
Gallus gallus (fowl) - laying hens - day-old chicks - at farm - Monitoring - official sampling							
Gallus gallus (fowl) - laying hens - during production period - at farm - Control and eradication programmes - official sampling (objective and suspect sampling)	3	1	2		2		2
Gallus gallus (fowl) - laying hens - during rearing period - at farm - Monitoring - official sampling							
Turkeys - meat production flocks - at farm - Monitoring - official sampling							

Table Salmonella in other birds

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Canary - Monitoring	RVD, NRLS,	animal	1	1		1	
Parrots - Monitoring	RVD, NRLS,	animal	8	0			
Partridges - at farm - Monitoring	RVD, NRLS,	animal	6	0			
Pheasants - at farm - Monitoring	RVD, NRLS,	animal	3	0			
Pigeons - at farm - Monitoring	RVD, NRLS,	animal	11	0			
Quails - at farm - Monitoring	RVD, NRLS,	animal	1	0			
Swans - Monitoring	RVD, NRLS,	animal	1	0			

Table Salmonella in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Bredeney	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	S. enterica subsp. salamae
Cattle (bovine animals) - adult cattle over 2 years - at farm - Monitoring - official sampling	tional	animal	23	1				1	
Cattle (bovine animals) - calves (under 1 year) - at farm - Monitoring - official sampling	National	animal	14	1				1	
Goats - at farm - Monitoring - official sampling	tional	animal	15	0					
Pigs - fattening pigs - at farm - Monitoring - official sampling	tional	animal	5	0					
Rabbits - at farm - Monitoring - official sampling	tional	animal	5	0					
Sheep - at farm - Monitoring - official sampling	tional	animal	93	3	2				1

2.1.5 Salmonella in feedingstuffs

Table Salmonella in feed material of animal origin

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Agona	S. Enteritidis	S. Oranienburg	S. Typhimurium	Salmonella spp., unspecified
Feed material of land animal origin - dairy products - at farm - Monitoring - official sampling	National	single		5	0					
Feed material of land animal origin - poultry offal meal - at slaughterhouse - Monitoring - official sampling	National	single		15	3	1		1		1
Feed material of marine animal origin - fish meal - at processing plant - Monitoring - official sampling	National	single		62	0					
Feed material of marine animal origin - fish oil - at processing plant - Monitoring - official sampling	National	single		10	0					

Table Salmonella in other feed matter

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Feed material of cereal grain origin - maize - at farm - Monitoring - official sampling	Reference	single		1	0			

Table Salmonella in compound feedingstuffs

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Compound feedingstuffs for fish - at processing plant - Monitoring - official sampling	National	single		5	0			
Pet food - dog snacks (pig ears, chewing bones) - at retail - domestic production - Monitoring - official sampling	National	single		275	0			

2.1.6 Salmonella serovars and phagetype distribution

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

Table Salmonella serovars in animals

Serovars	Pigs		Cattle (bovine animals)		Gallus gallus (fowl)		Other poultry	
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**
Number of isolates in the laboratory					**49**	**7**	**2**	**4**
Number of isolates serotyped	**0**	**0**	**0**	**0**	**54**	**7**	**2**	**4**
Number of isolates per serovar								
S. Agbeni					1			
S. Bredeney					1			
S. Carno					1			
S. Corvallis					5			
S. Enteritidis					29	6	2	1
S. Hadar					1			
S. Infantis					5			

Table Salmonella serovars in animals

Serovars	Pigs		Cattle (bovine animals)		Gallus gallus (fowl)		Other poultry	
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**
Number of isolates in the laboratory					**49**	**7**	**2**	**4**
Number of isolates serotyped	**0**	**0**	**0**	**0**	**54**	**7**	**2**	**4**
Number of isolates per serovar								
S. Regent					1			
S. Senftenberg					1			
S. Thompson					2			
S. Typhimurium					3	1		3
S. Virchow					2			
S. enterica subsp. salamae					2			

Table Salmonella serovars in food

Serovars	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Other poultry		Other products of animal origin	
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**
Number of isolates in the laboratory					**47**				**1**	
Number of isolates serotyped	**0**	**0**	**0**	**0**	**48**	**0**	**0**	**0**	**1**	**0**
Number of isolates per serovar										
S. Blockley					7					
S. Enteritidis					15					
S. Hadar					21					
S. Meleagridis					1					
S. Minnesota					3					
S. Typhimurium									1	
S. enterica subsp. enterica					1					

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.

Table Antimicrobial susceptibility testing of S. Agbeni in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - quantitative data [Diffusion method]

S. Agbeni		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	1	0																				1			
	Kanamycin		0	0																							
	Neomycin	12	0	0																							
	Streptomycin	11	1	0											1												
Amphenicols	Chloramphenicol	12	1	0																							1
	Florfenicol	14	1	0																					1		
Cephalosporins	3rd generation cephalosporins	13	1	0																							
Fluoroquinolones	Ciprofloxacin	15	1	0																							
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	13	1	0																			1				
Quinolones	Nalidixic acid	13	1	0																				1			
Sulfonamides	Sulfonamide	12	1	0																							
Tetracyclines	Tetracyclin	19	1	0																1							
Trimethoprim	Trimethoprim	10	1	0																							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																							

Table Antimicrobial susceptibility testing of S. Agbeni in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - quantitative data [Diffusion method]

S. Agbeni		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes						
Isolates out of a monitoring program (yes/no)		no						
Number of isolates available in the laboratory		1						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	3rd generation cephalosporins					1		
Fluoroquinolones	Ciprofloxacin	1						
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide		1					
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim			1				
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Antimicrobial susceptibility testing of S. Bredeney in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Bredeney		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	0	0																						
	Kanamycin		0	0																						
	Neomycin	12	0	0																						
	Streptomycin	11	2	1	1																	1				
Amphenicols	Chloramphenicol	12	1	0																					1	
	Florfenicol	14	1	0																						1
Cephalosporins	3rd generation cephalosporins	13	1	0																						
Fluoroquinolones	Ciprofloxacin	15	1	0																						
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	13	1	0																				1		
Quinolones	Nalidixic acid	13	1	0																	1					
Sulfonamides	Sulfonamide	12	1	1	1																					
Tetracyclines	Tetracyclin	19	1	1	1																					
Trimethoprim	Trimethoprim	10	0	0																						
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																						

Table Antimicrobial susceptibility testing of S. Bredeney in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Bredeney		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling						
Isolates out of a monitoring program (yes/no)		no						
Number of isolates available in the laboratory		1						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	3rd generation cephalosporins					1		
Fluoroquinolones	Ciprofloxacin							1
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Antimicrobial susceptibility testing of S. Carno in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Carno		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	1	0																		1					
	Kanamycin		0	0																							
	Neomycin	12	0	0																							
	Streptomycin	11	1	0										1													
Amphenicols	Chloramphenicol	12	1	0																				1			
	Florfenicol	14	1	0																				1			
Cephalosporins	3rd generation cephalosporins	13	1	0																						1	
Fluoroquinolones	Ciprofloxacin	15	1	0																							1
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	13	1	0																			1				
Quinolones	Nalidixic acid	13	1	0																		1					
Sulfonamides	Sulfonamide	12	1	0																			1				
Tetracyclines	Tetracyclin	19	1	0																1							
Trimethoprim	Trimethoprim	10	1	0																					1		
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																							

Table Antimicrobial susceptibility testing of S. Carno in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Carno		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling						
Isolates out of a monitoring program (yes/no)		no						
Number of isolates available in the laboratory		1						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	3rd generation cephalosporins							
Fluoroquinolones	Ciprofloxacin							
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Antimicrobial susceptibility testing of S. Corvallis in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Corvallis		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		4																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	3	0																		1	1	1			
	Kanamycin		0	0																							
	Neomycin	12	0	0																							
	Streptomycin	11	3	0												1	2										
Amphenicols	Chloramphenicol	12	3	0																				1	1	1	
	Florfenicol	14	2	0																				1	1		
Cephalosporins	3rd generation cephalosporins	13	3	0																							
Fluoroquinolones	Ciprofloxacin	15	3	0																							
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	13	2	0																1		1					
Quinolones	Nalidixic acid	13	2	0																	1	1					
Sulfonamides	Sulfonamide	12	3	0																		1	1			1	
Tetracyclines	Tetracyclin	19	3	0															2		1						
Trimethoprim	Trimethoprim	10	2	0																			1				1
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																							

Table Antimicrobial susceptibility testing of S. Corvallis in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Corvallis		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling						
Isolates out of a monitoring program (yes/no)		no						
Number of isolates available in the laboratory		4						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	3rd generation cephalosporins	1		1	1			
Fluoroquinolones	Ciprofloxacin		1			1		1
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Enteritidis		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		30																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	20	0																	3	7	1	5	1	1	1
	Kanamycin		0	0																							
	Neomycin	12	0	0																							
	Streptomycin	11	21	0										1	1	4	7	5	1	1	1						
Amphenicols	Chloramphenicol	12	21	0																		1	4	4	2	3	6
	Florfenicol	14	18	0																	1	2	3	4	3	2	2
Cephalosporins	3rd generation cephalosporins	13	21	0																	1						
Fluoroquinolones	Ciprofloxacin	15	21	0																		1		1	1		1
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	13	20	1								1					1			1	3	2	9	1	1	1	
Quinolones	Nalidixic acid	13	16	0															2	1	2	5	5	1			
Sulfonamides	Sulfonamide	12	19	0																2	1	1	1	1	1	2	2
Tetracyclines	Tetracyclin	19	21	1	1														1	2	3	7	5	2			
Trimethoprim	Trimethoprim	10	21	0																				1	3	4	6
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																							

Table Antimicrobial susceptibility testing of S. Enteritidis in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Enteritidis		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling						
Isolates out of a monitoring program (yes/no)		no						
Number of isolates available in the laboratory		30						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin	1						
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol	1						
	Florfenicol	1						
Cephalosporins	3rd generation cephalosporins		3	1	2	8	1	5
Fluoroquinolones	Ciprofloxacin	1	1	3	1	4	1	6
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide	2	4	1		1		
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim	3	4					
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Antimicrobial susceptibility testing of S.Enteritidis in animals

S. Enteritidis		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)										yes			
Number of isolates available in the laboratory										30			
Antimicrobials:		N	n	N	n	N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin									20	0		
	Streptomycin									21	0		
Amphenicols	Chloramphenicol									21	0		
Cephalosporins	3rd generation cephalosporins									21	0		
Fluoroquinolones	Ciprofloxacin									21	0		
Fully sensitive	Fully sensitive									21	15		
Penicillins	Ampicillin									20	0		
Quinolones	Nalidixic acid									21	5		
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial									21	5		
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials									21	1		
Sulfonamides	Sulfonamide									20	0		
Tetracyclines	Tetracyclin									21	1		
Trimethoprim	Trimethoprim									21	0		

Table Antimicrobial susceptibility testing of S. Hadar in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Hadar		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling																								
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	1	0																	1						
	Kanamycin		0	0																							
	Neomycin	12	0	0																							
	Streptomycin	11	1	1	1																						
Amphenicols	Chloramphenicol	12	1	0																					1		
	Florfenicol	14	1	0																						1	
Cephalosporins	3rd generation cephalosporins	13	1	0																							
Fluoroquinolones	Ciprofloxacin	15	1	0																							
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	13	1	0																				1			
Quinolones	Nalidixic acid	13	1	1	1																						
Sulfonamides	Sulfonamide	12	1	0																			1				
Tetracyclines	Tetracyclin	19	1	1	1																						
Trimethoprim	Trimethoprim	10	1	0																							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																							

Table Antimicrobial susceptibility testing of S. Hadar in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Hadar		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling						
Isolates out of a monitoring program (yes/no)								
Number of isolates available in the laboratory		1						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	3rd generation cephalosporins		1					
Fluoroquinolones	Ciprofloxacin		1					
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim		1					
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Antimicrobial susceptibility testing of S. Infantis in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Infantis		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		4																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	3	0																		1	2				
	Kanamycin		0	0																							
	Neomycin	12	0	0																							
	Streptomycin	11	3	0									1	2													
Amphenicols	Chloramphenicol	12	3	0																				1	1	1	
	Florfenicol	14	3	0																		1			2		
Cephalosporins	3rd generation cephalosporins	13	3	0																							
Fluoroquinolones	Ciprofloxacin	15	3	0																							
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	13	3	0																		1	2				
Quinolones	Nalidixic acid	13	3	0																	2	1					
Sulfonamides	Sulfonamide	12	3	0																1					1		
Tetracyclines	Tetracyclin	19	3	1													1		1	1							
Trimethoprim	Trimethoprim	10	0	0																							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																							

Table Antimicrobial susceptibility testing of S. Infantis in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Infantis		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling						
Isolates out of a monitoring program (yes/no)		no						
Number of isolates available in the laboratory		4						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	3rd generation cephalosporins				2	1		
Fluoroquinolones	Ciprofloxacin							3
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide	1						
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Antimicrobial susceptibility testing of S. Regent in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Regent		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling																									
Isolates out of a monitoring program (yes/no)		no																									
Number of isolates available in the laboratory		1																									
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	1	0																			1				
	Kanamycin		0	0																							
	Neomycin	12	0	0																							
	Streptomycin	11	1	0												1											
Amphenicols	Chloramphenicol	12	1	0																						1	
	Florfenicol	14	1	0																				1			
Cephalosporins	3rd generation cephalosporins	13	1	0																							
Fluoroquinolones	Ciprofloxacin	15	1	0																							
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	13	1	0																		1					
Quinolones	Nalidixic acid	13	1	0																1							
Sulfonamides	Sulfonamide	12	1	0															1								
Tetracyclines	Tetracyclin	19	1	0															1								
Trimethoprim	Trimethoprim	10	1	0																							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																							

Table Antimicrobial susceptibility testing of S. Regent in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Regent		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling						
Isolates out of a monitoring program (yes/no)		no						
Number of isolates available in the laboratory		1						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	3rd generation cephalosporins			1				
Fluoroquinolones	Ciprofloxacin							1
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim	1						
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Antimicrobial susceptibility testing of S. Senftenberg in breeding flocks, unspecified - Gallus gallus (fowl) - during production period - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Senftenberg		Gallus gallus (fowl) - breeding flocks, unspecified - during production period - Control and eradication programmes - official sampling																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	1	0																	1						
	Kanamycin		0	0																							
	Neomycin	12	0	0																							
	Streptomycin	11	1	0										1													
Amphenicols	Chloramphenicol	12	1	0																					1		
	Florfenicol	14	1	0																					1		
Cephalosporins	3rd generation cephalosporins	13	0	0																							
Fluoroquinolones	Ciprofloxacin	15	1	0																							
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	13	1	0																				1			
Quinolones	Nalidixic acid	13	1	0																	1						
Sulfonamides	Sulfonamide	12	1	0																					1		
Tetracyclines	Tetracyclin	*0*	1	0														1									
Trimethoprim	Trimethoprim	10	1	0																						1	
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																							

Table Antimicrobial susceptibility testing of S. Senftenberg in breeding flocks, unspecified - Gallus gallus (fowl) - during production period - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Senftenberg		Gallus gallus (fowl) - breeding flocks, unspecified - during production period - Control and eradication programmes - official sampling						
Isolates out of a monitoring program (yes/no)		no						
Number of isolates available in the laboratory		1						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	3rd generation cephalosporins							
Fluoroquinolones	Ciprofloxacin							1
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Footnote:

breeders mixed type (egg and meat production line) under the control programme framework

Table Antimicrobial susceptibility testing of S. Thompson in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Thompson		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		2																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	2	0																	1				1		
	Kanamycin		0	0																							
	Neomycin	12	0	0																							
	Streptomycin	11	2	0										1	1												
Amphenicols	Chloramphenicol	12	2	0																				1			
	Florfenicol	14	2	0																					1	1	
Cephalosporins	3rd generation cephalosporins	13	2	0																							
Fluoroquinolones	Ciprofloxacin	15	2	0																							1
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	13	1	0																			1				
Quinolones	Nalidixic acid	13	2	0																	1	1					
Sulfonamides	Sulfonamide	12	1	0																					1		
Tetracyclines	Tetracyclin	19	2	0															1	1							
Trimethoprim	Trimethoprim	10	2	0																						1	1
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																							

Table Antimicrobial susceptibility testing of S. Thompson in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Thompson		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling						
Isolates out of a monitoring program (yes/no)		no						
Number of isolates available in the laboratory		2						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							1
	Florfenicol							
Cephalosporins	3rd generation cephalosporins				1		1	
Fluoroquinolones	Ciprofloxacin				1			
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Antimicrobial susceptibility testing of S. Typhimurium in Other poultry - at farm - Monitoring - quantitative data [Diffusion method]

S. Typhimurium		Other poultry - at farm - Monitoring																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		3																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	3	0																				1	2		
	Kanamycin		0	0																							
	Neomycin	12	0	0																							
	Streptomycin	11	3	0										3													
Amphenicols	Chloramphenicol	12	3	0																							
	Florfenicol	14	3	0																							
Cephalosporins	3rd generation cephalosporins	13	3	0																							
Fluoroquinolones	Ciprofloxacin	15	0	0																							
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	13	3	0																				1	1	1	
Quinolones	Nalidixic acid	13	3	0															1	1	1						
Sulfonamides	Sulfonamide	12	3	0																							
Tetracyclines	Tetracyclin	19	3	0																		1	2				
Trimethoprim	Trimethoprim	10	3	0																							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																							

Table Antimicrobial susceptibility testing of S. Typhimurium in Other poultry - at farm - Monitoring - quantitative data [Diffusion method]

S. Typhimurium		Other poultry - at farm - Monitoring						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		3						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol	1	2					
	Florfenicol		3					
Cephalosporins	3rd generation cephalosporins							3
Fluoroquinolones	Ciprofloxacin							
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide					2		1
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim				1	1		1
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Antimicrobial susceptibility testing of S. Virchow in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Virchow		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		2																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	2	0																	1	1					
	Kanamycin		0	0																							
	Neomycin	12	0	0																							
	Streptomycin	11	2	0										2													
Amphenicols	Chloramphenicol	12	2	0																				1	1		
	Florfenicol	14	1	0																		1					
Cephalosporins	3rd generation cephalosporins	13	2	0																							
Fluoroquinolones	Ciprofloxacin	15	2	0																							
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	13	1	0																			1				
Quinolones	Nalidixic acid	13	2	0																	1		1				
Sulfonamides	Sulfonamide	12	2	0																					1		
Tetracyclines	Tetracyclin	19	2	0																1	1						
Trimethoprim	Trimethoprim	10	2	0																1	1						
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																							

Table Antimicrobial susceptibility testing of S. Virchow in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling - quantitative data [Diffusion method]

S. Virchow		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes - official sampling						
Isolates out of a monitoring program (yes/no)		no						
Number of isolates available in the laboratory		2						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	3rd generation cephalosporins		1	1				
Fluoroquinolones	Ciprofloxacin						2	
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide	1						
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Antimicrobial susceptibility testing of Salmonella in animals

Salmonella spp.		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)		no											
Number of isolates available in the laboratory		2											
Antimicrobials:		N	n	N	n	N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin	2	0										
	Neomycin	2	2										
Amphenicols	Chloramphenicol	2	0										
Cephalosporins	3rd generation cephalosporins	2	2										
Fluoroquinolones	Ciprofloxacin	2	0										
	Enrofloxacin	2	0										
Penicillins	Ampicillin	2	0										
Quinolones	Nalidixic acid	2	1										
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	2	2										
Tetracyclines	Tetracyclin	2	2										
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	2	1										

Table Antimicrobial susceptibility testing of S. enterica subsp. salamae in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes (S.enterica subs. salamae 4,12:b:e,n,x) - quantitative data [Diffusion method]

S. enterica subsp. salamae		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes (S.enterica subs. salamae 4,12:b:e,n,x)																									
Isolates out of a monitoring program (yes/no)		no																									
Number of isolates available in the laboratory		1																									
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	1	0																		1					
	Kanamycin		0	0																							
	Neomycin	12	0	0																							
	Streptomycin	11	1	0								1															
Amphenicols	Chloramphenicol	12	1	0																				1			
	Florfenicol	14	0	0																							
Cephalosporins	3rd generation cephalosporins	13	1	0																							
Fluoroquinolones	Ciprofloxacin	15	1	0																							
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	13	1	0																	1						
Quinolones	Nalidixic acid	13	1	0																1							
Sulfonamides	Sulfonamide	12	1	0																						1	
Tetracyclines	Tetracyclin	19	1	0															1								
Trimethoprim	Trimethoprim	10	1	0																						1	
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																							

Table Antimicrobial susceptibility testing of S. enterica subsp. salamae in Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes (S.enterica subs. salamae 4,12:b:e,n,x) - quantitative data [Diffusion method]

S. enterica subsp. salamae		Gallus gallus (fowl) - laying hens - at farm - Control and eradication programmes (S.enterica subs. salamae 4,12:b:e,n,x)						
Isolates out of a monitoring program (yes/no)		no						
Number of isolates available in the laboratory		1						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	3rd generation cephalosporins					1		
Fluoroquinolones	Ciprofloxacin							1
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Antimicrobial susceptibility testing of S. enterica subsp. salamae in Gallus gallus (fowl) - laying hens - Control and eradication programmes - official sampling (S.enterica sub salamae 42:b:e,n,x,z15) - quantitative data [Diffusion method]

S. enterica subsp. salamae		Gallus gallus (fowl) - laying hens - Control and eradication programmes - official sampling (S.enterica sub salamae 42:b:e,n,x,z15)																								
Isolates out of a monitoring program (yes/no)		no																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	1	0																				1			
	Kanamycin		0	0																							
	Neomycin	12	0	0																							
	Streptomycin	11	1	0												1											
Amphenicols	Chloramphenicol	12	1	0																					1		
	Florfenicol	14	1	0																					1		
Cephalosporins	3rd generation cephalosporins	13	1	0																							
Fluoroquinolones	Ciprofloxacin	15	0	0																							
	Enrofloxacin		0	0																							
Penicillins	Ampicillin	13	0	0																							
Quinolones	Nalidixic acid	13	1	0																			1				
Sulfonamides	Sulfonamide	12	1	0																					1		
Tetracyclines	Tetracyclin	19	1	0																	1						
Trimethoprim	Trimethoprim	10	1	0																							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																							

Table Antimicrobial susceptibility testing of S. enterica subsp. salamae in Gallus gallus (fowl) - laying hens - Control and eradication programmes - official sampling (S.enterica sub salamae 42:b:e,n,x,z15) - quantitative data [Diffusion method]

S. enterica subsp. salamae		Gallus gallus (fowl) - laying hens - Control and eradication programmes - official sampling (S.enterica sub salamae 42:b:e,n,x,z15)						
Isolates out of a monitoring program (yes/no)		no						
Number of isolates available in the laboratory		1						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	3rd generation cephalosporins		1					
Fluoroquinolones	Ciprofloxacin							
	Enrofloxacin							
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim		1					
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Breakpoints for antibiotic resistance testing

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

Standards used for testing
NCCLS

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	**Gentamicin**							10	15	14	12
	Neomycin							30	17	15	12
	Streptomycin							10	15	13	11
Amphenicols	**Chloramphenicol**							30	18	15	12
	Florfenicol							30	19	16	14
Cephalosporins	**3rd generation cephalosporins**							30	23	18	13
Fluoroquinolones	**Ciprofloxacin**							5	21	18	15
Penicillins	**Ampicillin**							10	17	15	13
Quinolones	**Nalidixic acid**							30	19	16	13
Sulfonamides	**Sulfonamide**							25	17	15	12
Tetracyclines	**Tetracyclin**							30	16	17	19
Trimethoprim	**Trimethoprim**							25	16	13	10
Trimethoprim + sulfonamides	**Trimethoprim + sulfonamides**							25	16	13	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
AFFECTED SPECIES: Animals / Contaminated Food

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

Results of monitoring
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 foodstuffs

2.2.4 Campylobacter in animals

Table Campylobacter in animals

	Source of information	Sampling unit	Units tested	Total units positive for thermophilic Campylobacter spp.	C. coli	C. jejuni	C. lari	C. upsaliensis	C. fetus	Thermophilic Campylobacter spp., unspecified
Sheep - at farm - animal sample - Clinical investigations (aborted fetus)	State	animal	69	6					6	

2.2.5 Antimicrobial resistance in Campylobacter isolates

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).

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

Summary Statistical Results
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 unit	Sample weight	Units tested	Total units positive for L.monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Cheeses made from cows' milk - hard - made from pasteurised milk - at retail - Monitoring - official sampling	State	single	25 gr	34	0	34	0			
Cheeses made from cows' milk - soft and semi-soft - made from pasteurised milk - at retail - Monitoring - official sampling	State	single	25 gr	47	0	37	0	10	0	0
Cheeses made from goats' milk - soft and semi-soft - made from pasteurised milk - at retail - Monitoring - official sampling	State	single	25 gr	10	0	10	0			
Cheeses made from sheep's milk - hard - made from pasteurised milk - at retail - Monitoring - official sampling	State	single	25 gr	71	1	71	1			
Cheeses made from sheep's milk - soft and semi -soft - made from pasteurised milk - at retail - Monitoring - official sampling	State	single	25 gr	472	0	467	0	5	0	0
Cheeses, made from mixed milk from cows, sheep and/or goats - soft and semi-soft - at retail - Monitoring - official sampling	State	single	25 gr	146	0	146	0			
Cheeses, made from unspecified milk or other animal milk - at processing plant - Monitoring - official sampling	state	single	25 gr	63	0	63	0			
Dairy products (excluding cheeses) - butter - at retail - Monitoring - official sampling	State	single	25 gr	15	0	15	0			
Dairy products (excluding cheeses) - dairy products, not specified - at processing plant - Monitoring - official sampling	State	single	25 gr	8	0	8	0			
Dairy products (excluding cheeses) - dairy products, not specified - at retail - Monitoring - official sampling	State	single	25 gr	157	0	157	0			

Table Listeria monocytogenes in milk and dairy products

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for L.monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Dairy products (excluding cheeses) - ice-cream - at retail - Monitoring - official sampling	State	single	25 gr	40	0	40	0			
Dairy products (excluding cheeses) - yoghurt - at retail - Monitoring - official sampling	State	single	25 gr	25	0	25	0			
Milk, cows' - pasteurised milk - at retail - Monitoring - official sampling	State	single	25 ml	31	0	31	0			

Table Listeria monocytogenes in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for L.monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Bakery products - at retail - Monitoring - official sampling	State	single	25 gr	19	0	19	0			
Fish - smoked - at retail - Monitoring - official sampling	State	single	25 gr	71	1	71	1			
Fishery products, unspecified - raw - at retail - Monitoring - official sampling	State	single	25 gr	13	0	13	0			
Meat from bovine animals - fresh - at processing plant - Monitoring - official sampling	State	single	25 gr	9	0	9	0			
Meat from bovine animals - meat products - at retail - Monitoring - official sampling	State	single	25 gr	55	0	55	0			
Meat from bovine animals - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling - selective sampling	state	single	25 gr	5	5	2	2	3	3	0
Meat from broilers (Gallus gallus) - fresh - at retail - Monitoring - official sampling	State	single	25 gr	44	0	44	0			
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling	State	single	25 gr	30	4	15	4	15	0	0
Meat from broilers (Gallus gallus) - minced meat - at retail - Monitoring - official sampling	State	single	25 gr	63	3	60	0	3	3	0
Meat from pig - fresh - at retail - Monitoring - official sampling	State	single	25 gr	42	0	42	0			
Meat from pig - meat products - cooked, ready-to -eat - at retail - Monitoring - official sampling	State	single	25 gr	122	3	122	3			
Meat from turkey - at retail - Monitoring - official sampling	State	single	25 gr	12	0	12	0			
Other processed food products and prepared dishes - sandwiches - with meat - at retail - Monitoring - official sampling	State	single	25 gr	93	0	93	0			

Table Listeria monocytogenes in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for L.monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Ready-to-eat salads - at retail - Monitoring - official sampling	State	single	25 gr	23	0	23	0			
Sauce and dressings - Mayonnaise - at retail - Monitoring - official sampling	State	single	25 gr	8	6	2	0	6	6	
Snails - at retail - Monitoring - official sampling	State	single	25 gr	10	0	10	0			

2.3.4 Listeria in animals

Table Listeria in animals

	Source of information	Sampling unit	Units tested	Total units positive for Listeria spp.	L. monocytogenes	Listeria spp., unspecified
Gallus gallus (fowl) - - organ/tissue - Clinical investigations (internal organs)	state vet lab	animal	2	2	2	
Goats - - organ/tissue - Monitoring - official sampling - selective sampling (brain)	state vet lab	animal	18	14	12	2
Sheep - - organ/tissue - Monitoring - official sampling - selective sampling (brain)	state vet lab	animal	34	9	9	

2.4 E. COLI INFECTIONS

2.4.1 General evaluation of the national situation

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 animals

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

DISEASE/AGENT: Tuberculosis, Mycobacterium bovis
AFFECTED SPECIES: Animals, Bovines
Susceptible population:
768.890 animals raised in 29.351 herds.
Surveillance system:
Eradication program for bovine tuberculosis.
Method used:
Registration and marking of all bovines.
Tuberculin testing of all bovines over the age of 6 weeks.
Case definition:
nfected 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 (2007) as the herd prevalence increased from 1,46% (2007) to 1,97% (2008). The herd incidence rate similarly increased from 0,81% (2007) to 1,13% (2008). The 2008 animal prevalence (0,72%) recorded slightly higher than the previous year 2007 (0,53%). 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 the eradication programme, 121 positive herds with 10.084 animals were reported at the end of

the reference year 2008. However, following epidemiological data analysis at country level, 13.218 herds reported officially free, 3.655 herds were reported as officially suspended health status herds and 1.801 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 programme at local level.

In general, the epidemiological situation in 2008 remained overall steady with observed increase 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, tracing the infected farms after identifying TB lesions at slaughterhouse and properly implementing the program respecting the appropriate timetable between the checks will be urgently addressed in order to meet the eradication targets of Bovine Tuberculosis the coming implementation years.

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

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 investigations for the year 2008:

Number of herds under the programme (official control): 18.941
Number of animals under the programme (official control: 490.540
Number of herds tested by tuberculin test: 7.110
Number of herds positive: 140
Number of new herds positive : 80
Number of animals tested by tuberculin test: 240.499
Number of animals as positive reactors: 1.727
Total number of animals slaughtered: 1.875
Number of TB positive animals-reactors slaughtered: 1.717

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 status of herds at the end of the period - Community co-financed eradication programmes

Footnote:

The disease status " free" is not applicable for the Bovive Tuberculosis eradication programme .

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

Region	Total number of existing bovine		Officially free herds		Infected herds		Routine tuberculin testing		Number of tuberculin tests carried out before the introduction into the herds (Annex A(I)(2)(c) third indent (1) of Directive 64/432/EEC)	Number of animals with suspicious lesions of tuberculosis examined and submitted to histopathological and bacteriological examinations	Number of animals detected positive in bacteriological examination
	Herds	Animals	Number of herds	%	Number of herds	%	Interval between routine tuberculin tests	Number of animals tested			
GREECE	20054	521181	13218	65.91	140	.7	1	240499			
Total	20054	521181	13218	65.91	140	0.7	1	240499	0	0	0
Total - 1											

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: Brucellosis
AFFECTED SPECIES: Animals, Bovines

Susceptible population
768.890 animals raised in 29.351 herds.

Surveillance system
Eradication program for bovine brucellosis.

Method used
Registration and marking 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 2008 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 2006 in the whole country.

From 16.207 reported herds at central level under the program, 7.594 herds were tested and 298 herds were found infected (period herd prevalence: 3,92%). From the positive herds, 177 were new cases (incidence: 2,33%). Among 312.264 animals under the program, 203.823 were tested and 3.501 disease-positive reactors were recorded.

Concerning the epidemiological situation at the end of the year, 207 herds were classified as infected herds, 1.211 herds have never been investigated and remained in the unknown health status, 198 herds tested negative and 12.873 herds were reported as officially free. Additionally, in 1.602 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 2008. The 2008 period prevalence rate reported slightly higher (3,92%) compared to the previous year 2007 (3,42%). The estimated herd incidence rate increased from 1,75 % (2007) to 2,33% (2008). The 2008 animal prevalence (1,72%) reported higher in comparison with the previous year 2007 (0,96%). 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 2008 has not significantly improved compared to 2007, 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

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.

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.

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 2008, 116 Bovine herds (11.423 animals) reported vaccinated.

Summary Epidemiological and Statistical Data on the evolution of 2008 Bovine Brucellosis Programme are presented in the Reporting Tables of EFSA web-based zoonoses system.

Additional information

Summary results of the investigations in the year 2008

Number of herds under the programme (official control): 16.207
Number of animals under the programme (official control): 312.264
Number of herds tested: 7.594
Number of herds positive: 298
Number of new herds positive: 177
Number of animals tested: 193.666
Number of animals tested individually: 105.773
Number of animals positive: 3.501
Total number of animals slaughtered: 4.005
Number of Brucella positive animals slaughtered: 3.481

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 PROGRAM 800
ANIMALS UNDER THE PROGRAM 42.445
VACCINATED HERDS 141
ANIMALS IN VACCINATED HERDS 10.295
VACCINATED ANIMALS 8.203
CUMULATIVE HERD COVERAGE AT THE END OF THE YEAR 2005 42%
ANIMAL COVERAGE IN VACCINATED HERDS 80 %
CUMULATIVE ANIMAL VACCINATION COVERAGE AT THE END OF THE YEAR 2005 45%

B. Brucella melitensis in sheep

Vaccination policy

SEMI-WILD BOVINE VACCINATION WITH REV 1 VACCINE UNDER THE OVINE AND CAPRINE CONTROL AND ERADICATION PROGRAMME

As an additional preventive measure under the existing control and eradication brucellosis programme for sheep and goats, the free-ranged 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.

Results of the investigation

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

Epidemiological and Technical evaluation

The 2008 ovine and caprine Brucellosis control and eradication programme was implemented in mainland and islands of Greece. The Country is divided in 54 prefectures - Nomos. For the implementation of brucellosis control and eradication programme, Greece is divided in two 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.

EPIDEMIOLOGICAL SITUATION IN THE MAINLAND – DATA ANALYSIS

Mass vaccination carried out in the Mainland. During 2008, based on vaccination records and reports from the Regional Veterinary Directorates (at Prefecture level) , 991.493 sheep and goats were vaccinated with the vaccine REV 1 . Further analysis and detailed statistics (flock and animal vaccination data, follow –up and up to date flock & animal coverage) are available through the central data base of the specific computerized system for monitoring the sheep and goat vaccination activities at national , regional and local level (mainland).

EPIDEMIOLOGICAL SITUATION IN THE ISLANDS – DATA ANALYSIS

In the islands (eradication zone), except Evia, Lesvos and Leros, the 2008 flock incidence and animal prevalence of brucellosis in tested sheep and goats were reported 1,80 % and 0,46% respectively. The islands of Lesvos and Leros have been excluded from the eradication policy and belong to the mainland programme status.

The 2008 Brucella Melitensis flock prevalence and incidence rates within eradication zone are mainly influenced of the positive reactors reported from the regions Kefalinia, Lasithi and Dodekanissa and the are not representative indicators within the eradication zone where the programme is carried out.
The reported results of the eradication programme for the year 2008 are presented in the Web Based Reporing Tables.

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

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

GENERAL INFO:
DISEASE/AGENT:Brucellosis , Brucella melitensis
AFFECTED SPECIES: Animals, Ovine and caprine

Susceptible population (Data 2008 / Directorate of Animal Health , MRDF)
15.396.062 sheep and Goats, in 128.779 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.

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.

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

Region	Total number of existing bovine		Officially free herds		Infected herds		Surveillance						Investigations of suspect cases								
							Serological tests			Examination of bulk milk			Information about			Epidemiological investigation					
	Herds	Animals	Number of herds	%	Number of herds	%	Number of bovine herds tested	Number of animals tested	Number of infected herds	Number of bovine herds tested	Number of animals or pools tested	Number of infected herds	Number of notified abortions whatever cause	Number of isolations of Brucella infection	Number of abortions due to Brucella abortus	Number of animals tested with serological blood tests	Number of suspended herds	Number of positive animals		Number of animals examined microbiologically	Number of animals positive microbiologically
																		Sero logically	BST		
GREECE	21833	553347	12873	58.96	207	.95	9551	105773	298		98050										
Total	21833	553347	12873	58.96	207	0.95	9551	105773	298	0	98050	0	0	0	0	0	0	0	0	0	0
Total - 1																					

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

Footnote:

The implementation of ovine and caprine eradication programme refered to the islands of Greece where the relevant programme is curried out only. In the mainland as described in the text section of the report , a mass vaccination programme is implented in young and adult animals

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

Region	Total number of existing		Officially free herds		Infected herds		Surveillance			Investigations of suspect cases				
	Herds	Animals	Number of herds	%	Number of herds	%	Number of herds tested	Number of animals tested	Number of infected herds	Number of animals tested with serological blood tests	Number of animals positive serologically	Number of animals examined microbio logically	Number of animals positive microbio logically	Number of suspended herds
GREECE	10842	1237761	5032	46.41	105	.97								
Total	10842	1237761	5032	46.41	105	0.97	0	0	0	0	0	0	0	0
Total - 1														

Footnote:

The Reported Data presented in the table referred only to the eradication national programme applied in the islands of Greece (eradication zone based on the priciples of the programme). The programme for 2008 was not co- financed by EU but for 2009 was approved and co -financed.

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

Footnote:

The disease status " free " is not applicable in the eradication zone based on the programme

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 2008.

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

2.7.3 Yersinia in animals

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: Trichinella spirallis
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 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 integrated by the national monitoring Trichinella systems in Member- States.

Epidemiological history
No positive findings were reported at slaughterhouses meat inspections in 2008.

Results of monitoring
Data are presented in the relevant tables 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 unit	Units tested	Total units positive for Trichinella spp.	T. spiralis	Trichinella spp., unspecified
Pigs - breeding animals - unspecified - sows and boars - at slaughterhouse - Monitoring - official sampling	Regional	animal	7075	0		
Pigs - fattening pigs - not raised under controlled housing conditions in integrated production system - at slaughterhouse - Monitoring - official sampling	Regional	animal	2376	0		
Pigs - fattening pigs - raised under controlled housing conditions in integrated production system - at slaughterhouse - Monitoring - official sampling	Regional	animal	839169	0		
Wild boars - farmed - at slaughterhouse - Monitoring - official sampling	Regional	animal	790	0		

Footnote:

From 849410 pigs tested in 2008 for trichinella, 163212 pigs (2180 pooled - samples tests) were examined for first time with the new official reference method of Trichinella detection as forseen and described in the Annex 1 of the Commission Regulation 2075/2005.

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: Animals

Susceptible population
All animals eligible for slaughter at country level.

Surveillance system
Inspection of all carcasses at the slaughterhouses.
Preventive treatment of all owned dogs with antiparasitic tablets.

Method used
For farm animals , meat inspection of carcasses at slaughterhouses. For dogs the arecolin test applied and for humans X-ray, echo and serological investigation performed.

Epidemiological history
The infection among the owned dogs has been almost disappeared due to systematic preventive treatment of animals with antiparasitic medicine. The infection in stray dogs is unknown. The overall infection in farm animals is decreasing over time.

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

Source of human infection
Mainly through the consumption of contaminated food (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 unit	Units tested	Total units positive for Echinococcus spp.	E. granulosus	E. multilocularis	Echinococcus spp., unspecified
Cattle (bovine animals) - at slaughterhouse - Monitoring - official sampling	Regional	animal	160585	1744			1744
Goats - at slaughterhouse - Monitoring - official sampling	Regional	animal	694204	3624			3624
Pigs - at slaughterhouse - Monitoring - official sampling	Regional	animal	675984	7			7
Sheep - at slaughterhouse - Monitoring - official sampling	Regional	animal	2034355	30478			30478
Wild boars - at slaughterhouse - Monitoring - official sampling	Regional	animal	300	0			

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

Toxoplasma gondii is dedected in Sheep and Goats tested under national Surveys. The laboratory method used for the year 2008 was the IFAT (Indirect Immunofluoresence Antibody test) for detecting Toxoplasma antibodies in blood sera. The sampling was not random and derived from sheep and goats flocks with reported abortions.

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

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.

2.10.3 Toxoplasma in animals

Table Toxoplasma in animals

	Source of information	Sampling unit	Units tested	Total units positive for Toxoplasma	T. gondii
Sheep and goats - at farm - Clinical investigations	National	animal	544	308	308

Footnote:

Detection of Toxoplasma antibody titles using the IFAT method (Indirect Immunofluoresence Antobody test). Targeting sampling - non random - in the framework of Abortion investigations

2.11 RABIES

2.11.1 General evaluation of the national situation

A. Rabies general evaluation

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 in 2008. Greece is a Rabies- free country.
The disease in humans is notifiable through mandatory system.. Last case in humans was recorded in 1970 while in wildlife (fox) in 1974 and in domestic animal (dog) in 1987 (8,9). Rabies vaccine is incorporated to the standard vaccination programme as much for dogs as for cats. However, the disease is present in neighbouring countries. Although rabies is a very rare disease in the EU, a risk of resurgence does exist, especially through the cross- border movements of rabid animals
The disease is notifiable on 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 for further rabies diagnostic examinations.

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

2.11.2 Rabies in humans

2.11.3 Lyssavirus (rabies) in animals

Table Rabies in animals

	Source of information	Sampling unit	Units tested	Total units positive for Lyssavirus (rabies)	Unspecified Lyssavirus	Classical rabies virus (genotype 1)	European Bat Lyssavirus - unspecified
Bats - wild - at farm - Monitoring (brain)	ational	animal	1	0			
Cats - - organ/tissue - Monitoring (brain)	ational	animal	1	0			
Dogs - - organ/tissue - Monitoring (brain)	National	animal	12	0			
Dogs and cats - at hospital or care home - Monitoring (blood sera) [1)]	tional	animal	1357	0			
Foxes - wild - - organ/tissue - Monitoring (brain)	ational	animal	1	0			
Mice - at farm - Monitoring (brain)	tional	animal	1	0			

Comments:

[1)] for tranport purposes and animal moving

Footnote:

Type of sampling: animal brain. In addition serology performed for Rabies antibodies title in blood sera of 1357 dogs and cats for moving and transport purposes in accordance with Community and National Legislation. The method used was FAVN.

2.12 Q-FEVER

2.12.1 General evaluation of the national situation

2.12.2 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:
Year 2001 2002 2003 2004 2005 2006
28 17 1 8 7 7
Source: MRDF (Hellenic Ministry of Rural Development and Food)

Table Coxiella burnetii (Q fever) in animals

	Source of information	Sampling unit	Units tested	Total units positive for Coxiella (Q-fever)	C. burnetii
Sheep - - blood - Clinical investigations (blood sera)	state	animal	30	8	8

3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE

3.1 ENTEROCOCCUS, NON-PATHOGENIC

3.1.1 General evaluation of the national situation

3.2 ESCHERICHIA COLI, NON-PATHOGENIC

3.2.1 General evaluation of the national situation

A. Escherichia coli 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. Nevertheless, some laboratories are using standard techniques for E.coli. detection, isolation and strain identification.

Results of investigations in the year 2008
Animals and Food samples were tested for E.coli spp in 2008
No positive E.coli results were found in animals (cattle, sheep, goats and poultry) and food. The relevant tests were not reported under the reporting tables for VTEC.

History:
Results of investigations in the year 2007
E.coli spp was detected in animals
Very few Positive E.coli samples were detected in animals (sheep and pigs) but not reported under the reporting tables for VTEC.

Results of investigation in the year 2006
E.coli spp was detected in animals and food. Analytical data are presented in relevant reported tables on the EFSA Web system. Positive samples were detected in various categories of meat and fish products.

4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS

4.1 HISTAMINE

4.1.1 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. Targeted fish species for detecting Histamine are: Scrombridae, Engraulidae, Coryfenidae, Pomatomidae and Scrombresosidae.

Results of monitoring
Data are presented in the relevant table of 2007 EFSA web based electronic system report for zoonoses monitoring.

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

National evaluation of the reported outbreaks in the country:

Trends in numbers of outbreaks and numbers of human cases involved

Food borne outbreaks in humans. Reporting Year: 2008

Greece enhanced its surveillance systems in 2003, in the context of the 2004 Athens Olympic Games. The mandatory and laboratory notification systems were improved in order to gather more accurate data as well as to include notification of food-borne outbreaks.
Food-borne outbreaks are reported through the Mandatory Notification System. The competent authority is the Department of Epidemiological Surveillance and Intervention of the Hellenic Centre for Diseases Control and Prevention (HCDCP).
Once a food-borne outbreak is notified, the public health professionals conduct epidemiological investigation in order to identify the source of the outbreak and to take adequate control measures. Furthermore, the Direction of Public Health of the competent Prefecture is informed for the incident and assumes the responsibility of the environmental investigation, whenever this is feasible.
In 2008, 55 food-borne outbreaks were totally reported under the standard food-borne investigation procedure and protocols.
One of them fulfilled the recently formed definition of verified outbreak and its epidemiological characteristics are presented in detail.
Summarised data for the 54 possible outbreaks are provided as well.
However, there are available data regarding each one of these outbreaks as a result of the epidemiological, microbiological and environmental investigation conducted.
Salmonella spp. is the predominant etiologic agent for the majority of the reported food-borne outbreaks with Salmonella enteritidis the most frequently identified serotype. This is a finding consistent with previous years.
The major reported foodstuffs attributed to the 54 outbtreaks are : eggs and egg products (predominant- most common reported food source), poulty meat, desserts & bakery products and fishery products

In contrast with 2007, food-borne viruses were not detected as causes of outbreaks in Greece.
The number of reported food-borne outbreaks has been quite stable since 2004.
Almost 50% of the outbreaks were detected in one household.
With regard to the severity of human cases the number of hospitalisations per etiologic agent has been quite stable since 2004.

Foodborne Outbreaks: summarized data

	Total number of outbreaks	Outbreaks	Human cases	Hospitalized	Deaths	Number of verified outbreaks
Bacillus	0	0	unknown	unknown	unknown	0
Campylobacter	0	0	unknown	unknown	unknown	0
Clostridium	0	0	unknown	unknown	unknown	0
Escherichia coli, pathogenic	0	0	unknown	unknown	unknown	0
Foodborne viruses	0	0	unknown	unknown	unknown	0
Listeria	0	0	unknown	unknown	unknown	0
Other agents	2	1	2	2	0	1
Parasites	1	1	6	2	0	0
Salmonella	43	43	160	90	0	0
Staphylococcus	0	0	unknown	unknown	unknown	0
Unknown	9	9	237	44	0	0
Yersinia	0	0	unknown	unknown	unknown	0

Footnote:

a) Under the category of "other agents" 2 possible outbreakes were reported as follows : 1 verified outbreake (B.melitensis)and 1 possible shigella outbreake b) the one reported possible parasite outbreake refered to cryptosporidium as possible cause.

Verified Foodborne Outbreaks: detailed data

B. melitensis

	Value
Code	1
Subagent Choice	
Outbreak type	General
Human cases	111
Hospitalized	10
Deaths	0
Foodstuff implicated	Cheese
More Foodstuff	soft cheece made of raw -non pasteurized sheep and goat milk
Type of evidence	Analytical epidemiological evidence
Setting	Household
Place of origin of problem	Farm (primary production)
Origin of foodstuff	Domestic
Contributory factors	Inadequate heat treatment
Outbreaks	1
Comment	