



## BULGARIA

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

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

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

IN 2006

## INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: **Bulgaria**

Reporting Year: **2006**

**Institutions and laboratories involved in reporting and monitoring:**

Laboratory name	Description	Contribution
		Brucelloses, Bruceloidoses, Leptospirosis, Malleus, Enzootic Bovine Leucosis, Salmonellosis, Trichinellosis, Anthrax, TSE, CSF, Rabies, Tuberculosi
		Brucelloses, Bruceloidoses, Leptospirosis, Malleus, Enzootic Bovine Leucosis, Salmonellosis, Trichinellosis, Anthrax, TSE, CSF, Rabies, Tuberculosi
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## PREFACE

This report is submitted to the European Commission in accordance with Article 9 of Council Directive 2003/99/EC<sup>1</sup>. 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 Bulgaria during the year 2006. 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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<sup>1</sup> 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**

#### **Additional information**

no





## **2. INFORMATION ON SPECIFIC ZOOSES AND ZOONOTIC AGENTS**

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

## **2.1. SALMONELLOSIS**

### **2.1.1. General evaluation of the national situation**

#### **A. General evaluation**

##### **History of the disease and/ or infection in the country**

POSITIVE FINDINGS FOR SALMONELLA  
(FOR THE PERIOD 2001-2006)

2001

There are no positive findings

2002

District settlement species Positive holdings

Pleven Gorna Mitropolia poultry 1

Montana Slavotin poultry 1

Vladimirovo poultry 1

2003

There are no positive findings

2004

District settlement species Positive holdings

Burgas Vetren poultry 1

Troianovo poultry 1

Veliko Tarnovo Pavlikeni poultry 2

2005

District settlement species Number of positive holdings

Burgas M. Poliana poultry 1

2006

District settlement species Number of positive holdings

Varna Devnia poultry 1

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

Since 1 Jan. 2007 NVS implements the multy annual technical program for control of Salmonellosis for breeding flocks poultry.

With COMMISSION DECISION, concerning a Community financial contribution towards a baseline survey on the prevalence of Salmonella in turkeys to be carried out in Bulgaria and in Romania (2007/ 208/ EC) NVS implements survey program.

With COMMISSION DECISION 2007/ 219/ EC concerning a Community financial contribution towards a baseline survey on the prevalence of Salmonella in slaughter pigs to be carried out in Bulgaria and in Romania NVS implements survey program.

MULTI-ANNUAL CONTROL PROGRAMME ON SALMONELLA IN LAYING HENS OF GALLUS GALLUS was drafted and sent to the Comm. for approaval. The implementation of the program will start on 1 Jan. 2008.

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

no data available

**Recent actions taken to control the zoonoses**

since now NVS takes samples for Salmonella bacteria from:

fresh broiler meat;

fresh pig meat;

fresh turkey meat;

table eggs;

cloacal swabs of breeding flocks;

cloacal swabs of broiler flocks;

feecal samples of fattening pigs.

**Suggestions to the Community for the actions to be taken**

no

**Additional information**

no

## **2.1.2. Salmonellosis in humans**

### **A. Salmonellosis in humans**

#### **Reporting system in place for the human cases**

A competent authority is a Ministry of health.

Table Salmonella in humans - Species/ serotype distribution

Salmonella	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.	Unknown status
S. Enteritidis	0	0	0	0	0	0	0
S. Typhimurium							

Footnote

A competent authority is a Ministry of health.

**Table Salmonella in humans - Age distribution**

Age Distribution	S. Enteritidis			S. Typhimurium			Salmonella spp.		
	All	M	F	All	M	F	All	M	F
<1 year									
1 to 4 years									
5 to 14 years									
15 to 24 years									
25 to 44 years									
45 to 64 years									
65 years and older									
Age unknown									
<b>Total :</b>	0	0	0	0	0	0	0	0	0

**Footnote**

A competent authority is a Ministry of health.

**Table Salmonella in humans - Seasonal distribution**

Month	S. Enteritidis		S. Typhimurium		Salmonella spp.	
	Cases		Cases		Cases	
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						
not known						
<b>Total :</b>		0		0		0

**Footnote**

A competent authority is a Ministry of health.

### **2.1.3. Salmonella in foodstuffs**

#### **A. Salmonella spp. in eggs and egg products**

##### **Monitoring system**

##### **Sampling strategy**

As a member state, we implement EU legislation.

The sampling strategy is according to Reg. 2073/ 2005/ EC.

#### **B. Salmonella spp. in broiler meat and products thereof**

##### **Monitoring system**

##### **Sampling strategy**

##### **At slaughterhouse and cutting plant**

As a member state, we implement EU legislation.

The sampling strategy is according to Reg. 2073/ 2005/ EC.

#### **C. Salmonella spp. in turkey meat and products thereof**

##### **Monitoring system**

##### **Sampling strategy**

##### **At slaughterhouse and cutting plant**

As a member state, we implement EU legislation.

The sampling strategy is according to Reg. 2073/ 2005/ EC.

#### **D. Salmonella spp. in pig meat and products thereof**

##### **Monitoring system**

##### **Sampling strategy**

##### **At slaughterhouse and cutting plant**

In each slaughterhouse and cutting plant there is a program for monitorins of Salmonella spp.

The samples shall be taken from each pig batch.

##### **At meat processing plant**

As a Member State, Bulgaria implements Council Regulation 2073/ 2004/ EC

##### **At retail**



no

### **Methods of sampling (description of sampling techniques)**

#### **At slaughterhouse and cutting plant**

according COMMISSION DECISION 2007/ 219/ EC,concerning a Community financial contribution towards a baseline survey on the prevalence of Salmonella in slaughter pigs to be carried out in Bulgaria and in Romania

### **Preventive measures in place**

Regarding the State Profilaxis Program of Bulgaria in the outbreaks there is a vaccination of pigs twice per year (at the first day after born and 15 days after that.)

In all backyards and commercial holdings there are biosecurity measures according to the EU legislation.

### **Control program/ mechanisms**

#### **The control program/ strategies in place**

The control programme is according to the Commission Decision 2007/ 219 EC

#### **Suggestions to the Community for the actions to be taken**

No

### **Notification system in place**

WAHIS

### **Results of the investigation**

No data available

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

No data available

### **Additional information**

NO

## **E. Salmonella spp. in bovine meat and products thereof**

### **Monitoring system**

#### **Sampling strategy**

#### **At slaughterhouse and cutting plant**

As a member state, we implement EU legislation.

The sampling strategy is according to Reg. 2073/ 2005/ EC.

## **2.1.4. Salmonella in animals**

### **A. Salmonella spp. in Gallus gallus - breeding flocks for egg production and flocks of laying hens**

#### **Monitoring system**

##### **Sampling strategy**

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

SAMPLING CARRIED OUT BY THE OWNER OF THE HOLDING OR BY A PERSON AUTHORISED BY THE OWNER

1. Sampling at the hatchery – The sample for every breeding flock shall consist of at least one composite sample of faeces of one-day old chickens taken at random from five separate hatcher baskets or locations in the hatcher to reach a total of at least 1sq.m. When the hatching eggs from a breeding flock occupy more than one incubator, one composite sample shall be taken from each incubator. In cases where hatcher basket liners are not used, 10g broken eggshells shall be taken from 25 separate hatcher baskets, crushed, mixed and 25 g sub sample taken.

2. Sampling at the holding

– Within 4 weeks following moving to laying unit

– Towards the end of the laying phase but not earlier than 8 weeks before the end of the production cycle;

##### **OFFICIAL CONTROL SAMPLING**

- Sampling at the hatchery: at every two weeks

- Sampling at the holding: 0, 4, 16, 26, 34 and every 8 weeks. The sampling shall cover the each production unit: parents, grandparents and elite.

##### **Laying hens flocks**

SAMPLING CARRIED OUT BY THE OWNER OF THE HOLDING OR BY A PERSON AUTHORISED BY THE OWNER.

Laying flocks shall be sampled at the initiative of the food business operator (operator) and by the National Veterinary Service (NVS) of Bulgaria as a competent authority.

Sampling at the initiative of the operator shall take place at least every fifteen weeks.

The first sampling shall take place at the age of  $24 \pm 2$  weeks.

##### **OFFICIAL CONTROL SAMPLING**

NVS shall take samples at least:

(a) in one flock per year per holding comprising at least 1 000 birds;

(b) at the age of  $24 \pm 2$  weeks in laying flocks housed in buildings where salmonella was detected in the preceding flock;

(c) in any case of suspicion of Salmonella Enteritidis or Salmonella Typhimurium infection, as a result of the epidemiological investigation of food-borne outbreaks in accordance with Article 8 of Directive 2003/ 99/ EC of the European Parliament and of the Council (1);

(d) in all other laying flocks on the holding in case Salmonella Enteritidis or

Salmonella Typhimurium are detected in one laying flock on the holding;  
(e) in cases where the NVS considers it appropriate.

### **Methods of sampling (description of sampling techniques)**

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

Faecal sampling to detect Salmonella in case that there is 1% prevalence within the flock, with 95% confidence limit is effected by:

I. Pooled faeces made up of separate samples of fresh faeces each weighing not less than 1 g, taken at random from a number of sites in the building in which the birds are kept.

If the birds are kept in several buildings a pooled sample shall be taken from each building. Faeces shall be pooled for analyses up to a minimum of two pools.

#### **Laying hens: Day-old chicks**

Sampling at the hatchery – The sample for every breeding flock shall consist of at least one composite sample of faeces of one-day old chickens taken at random from five separate hatcher baskets or locations in the hatcher to reach a total of at least 1sq.m. When the hatching eggs from a breeding flock occupy more than one incubator, one composite sample shall be taken from each incubator. In cases where hatcher basket liners are not used, 10g broken eggshells shall be taken from 25 separate hatcher baskets, crushed, mixed and 25 g sub sample taken

#### **Laying hens: Production period**

Faecal sampling to detect Salmonella in case that there is 1% prevalence within the flock, with 95% confidence limit is effected by:

I. Pooled faeces made up of separate samples of fresh faeces each weighing not less than 1 g, taken at random from a number of sites in the building in which the birds are kept.

If the birds are kept in several buildings a pooled sample shall be taken from each building. Faeces shall be pooled for analyses up to a minimum of two pools

#### **Laying hens: Before slaughter at farm**

- Boot swabs used shall be sufficiently absorptive to soak up moisture. Tube gauze “socks” are also acceptable.

The surface of the boot swabs shall be moistened using appropriate sterile diluent (such as 0, 8% sodium chloride, 0, 1% peptone)

Walking around shall be done in a manner which will sample representatively all parts of the sector, including littered and slatted areas. All separate pens within a house shall be included in sampling.

On completion of sampling in the chosen sector, boot swabs must be removed carefully so as not to dislodge adherent material for analyses.

The boot swabs shall be pooled into a minimum of two pools.

In cases of increased mortality carcass material is sent for testing of Salmonella and Salmonella infector.

### **Laying hens: At slaughter**

The NVS take samples for Salmonellosis in slaughterhouses according with the requirements of COMMISSION REGULATION (EC) No 2073/ 2005 of 15 November 2005 on microbiological criteria for foodstuffs.

Sampling rules for poultry carcasses:

For the Salmonella analyses, a minimum of 15 carcasses shall be sampled at random during each sampling session and after

chilling. A piece of approximately 10 g from neck skin shall be obtained from each carcass. On each occasion the neck skin

samples from three carcasses shall be pooled before examination in order to form 5 x 25 g final samples.

When the requirements for Salmonella in minced meat, meat preparations and meat products intended to be eaten cooked of all species are fulfilled, the batches of those products placed on the market must be clearly labelled by the manufacturer in order to inform the consumer of the need for thorough cooking prior to consumption.

### **Eggs at packing centre (flock based approach)**

according Reg. 2160/ 2003/ EC

## **Vaccination policy**

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

We haven't vaccination policy at all.

But there are some registered vaccines:

Floraviar P+S

Bio Thyphoid

Cevac Set K

Nobilis Salenvac T

Avi Pro Salmonella Vac E /

Gallimmune SE

Gallimmune SE+ST

## **B. Salmonella spp. in Gallus gallus - breeding flocks for meat production and broiler flocks**

### **Monitoring system**

#### **Sampling strategy**

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

we have common monitoring program for all breeding flocks (for meat production and for egg production) and the strategy is described in the previous table.

## **C. Salmonella spp. in turkey - breeding flocks and meat production flocks**

## **Monitoring system**

### **Sampling strategy**

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

As a member state, we implement EU legislation.

The sampling strategy is according to Reg. 2073/ 2005/ EC.

## **D. Salmonella spp. in geese - breeding flocks and meat production flocks**

## **Monitoring system**

### **Sampling strategy**

#### **Breeding flocks**

As a member state, we implement EU legislation.

The sampling strategy is according to Reg. 2073/ 2005/ EC.

## **E. Salmonella spp. in ducks - breeding flocks and meat production flocks**

## **Monitoring system**

### **Sampling strategy**

#### **Breeding flocks**

As a member state, we implement EU legislation.

The sampling strategy is according to Reg. 2073/ 2005/ EC.

## **F. Salmonella spp. in pigs**

## **Monitoring system**

### **Sampling strategy**

#### **Breeding herds**

As a member state, we implement EU legislation.

The sampling strategy is according to Reg. 2073/ 2005/ EC.

## **G. Salmonella spp. in bovine animals**

## **Monitoring system**

### **Sampling strategy**

as a member state, we implement EU legislation.

The sampling strategy is according to Reg. 2073/ 2005/ EC









**Table Salmonella in other animals**

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	S. Choleraesuis
<b>Cattle (bovine animals)</b>		animal	8	0				
<b>Sheep</b>		animal	8	0				
<b>Pigs</b>								
breeding animals		animal	318	4	2			2
unspecified		animal	1169	0				
<b>Rabbits</b>								
- at farm - Clinical investigations		animal	4	0				

#### **2.1.5. Salmonella in feedingstuffs**

#### **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	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry	
Sources of isolates (*)	M	C	M	C	M	C	M	C
Number of isolates in the laboratory	N=							
Number of isolates serotyped	N=	0	0	0	0	0	0	0

**Footnote**

(\*) M : Monitoring, C : Clinical  
no data available

**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	
	M	C	M	C	M	C	M	C	M	C
	Sources of isolates (*)									
Number of isolates in the laboratory	N=									
Number of isolates serotyped	N=		0		0		0		0	
			0		0		0		0	

**Footnote**

(\*) M : Monitoring, C : Clinical  
no data available

**Table Salmonella Enteritidis phagetypes in animals**

Phagetype	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry	
Sources of isolates (*)	M	C	M	C	M	C	M	C
Number of isolates in the laboratory	N=							
Number of isolates phagetyped	N=	0	0	0	0	0	0	0

**Footnote**

(\*) M : Monitoring, C : Clinical  
no data available

**Table Salmonella Enteritidis phagetypes in food**

Phagetype	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Other poultry		Other products of animal origin	
	M	C	M	C	M	C	M	C	M	C
	Sources of isolates (*)									
Number of isolates in the laboratory	N=									
Number of isolates phagetyped	N=		0		0		0		0	
			0		0		0		0	

**Footnote**

(\*) M : Monitoring, C : Clinical  
no data available



**Table Salmonella Enteritidis phagetypes in humans**

Phagetype		humans	
		M	C
Sources of isolates (*)			
Number of isolates in the laboratory	N=		
Number of isolates phagetyped	N=	0	0

**Footnote**

(\*) M : Monitoring, C : Clinical

A competent authority is a Ministry of health.

**Table Salmonella Typhimurium phagetypes in animals**

Phagetype	Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry	
Sources of isolates (*)	M	C	M	C	M	C	M	C
Number of isolates in the laboratory	N=							
Number of isolates phagetyped	N=	0	0	0	0	0	0	0

**Footnote**

(\*) M : Monitoring, C : Clinical  
no data available

**Table Salmonella Typhimurium phagetypes in food**

Phagetype	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Other poultry		Other products of animal origin	
	M	C	M	C	M	C	M	C	M	C
	Sources of isolates (*)									
Number of isolates in the laboratory	N=									
Number of isolates phagetyped	N=		0		0		0		0	
			0		0		0		0	

**Footnote**

(\*) M : Monitoring, C : Clinical  
no data available

**Table Salmonella Typhimurium phagetypes in humans**

Phagetype		humans	
		M	C
Sources of isolates (*)			
Number of isolates in the laboratory	N=		
Number of isolates phagetyped	N=	0	0

**Footnote**

(\*) M : Monitoring, C : Clinical

A competent authority is a Ministry of health.

### **2.1.7. Antimicrobial resistance in Salmonella isolates**

Antimicrobial resistance is the ability of certain microorganisms to survive or grow in the presence of a given concentration of antimicrobial agent that usually would kill or inhibit the microorganism species in question. Antimicrobial resistant Salmonella strains may be transferred from animals or foodstuffs to humans.

#### **A. Antimicrobial resistance in Salmonella in cattle**

##### **Sampling strategy used in monitoring**

###### **Frequency of the sampling**

no data available

###### **Type of specimen taken**

no data available

###### **Methods of sampling (description of sampling techniques)**

no data available

###### **Procedures for the selection of isolates for antimicrobial testing**

no data available

###### **Methods used for collecting data**

no data available

##### **Laboratory methodology used for identification of the microbial isolates**

no data available

##### **Laboratory used for detection for resistance**

###### **Antimicrobials included in monitoring**

NDSRVMI -National Diagnostic Scientific Research Veterinary Medicine Institute,  
Regional diagnostic veterinary medicine institute  
Veliko Tarnovo,  
Regional diagnostic veterinary medicine institute  
Stara Zagora

##### **Control program/ mechanisms**

###### **The control program/ strategies in place**

no control program is drafted

###### **Recent actions taken to control the zoonoses**

no control program is drafted

**Suggestions to the Community for the actions to be taken**

no

**Notification system in place**

WAHIS

**Results of the investigation**

no data available

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

no data available

**Additional information**

no

**B. Antimicrobial resistance in Salmonella in pigs**

**Sampling strategy used in monitoring**

**Frequency of the sampling**

no data available

**Type of specimen taken**

no data available

**Methods of sampling (description of sampling techniques)**

no data available

**Procedures for the selection of isolates for antimicrobial testing**

no data available

**Methods used for collecting data**

no data available

**Laboratory methodology used for identification of the microbial isolates**

no data available

**Laboratory used for detection for resistance**

**Antimicrobials included in monitoring**

no data available

**Breakpoints used in testing**

no data available

**Preventive measures in place**

no data available

**Control program/ mechanisms**

**The control program/ strategies in place**

no data available

**Recent actions taken to control the zoonoses**

no data available

**Suggestions to the Community for the actions to be taken**

no

**Measures in case of the positive findings or single cases**

no data available

**Notification system in place**

WAHIS

**Results of the investigation**

no data available

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

no data available

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

no data available

**Additional information**

no

**C. Antimicrobial resistance in Salmonella in poultry**

**Sampling strategy used in monitoring**

**Frequency of the sampling**

no data available

**Type of specimen taken**

no data available

**Methods of sampling (description of sampling techniques)**

no data available

**Procedures for the selection of isolates for antimicrobial testing**

no data available

**Methods used for collecting data**

no data available

**Laboratory methodology used for identification of the microbial isolates**

no data available

**Laboratory used for detection for resistance**

**Antimicrobials included in monitoring**

no data available

**Breakpoints used in testing**

no data available

**Preventive measures in place**

no data available

**Control program/ mechanisms**

**The control program/ strategies in place**

no data available

**Recent actions taken to control the zoonoses**

no data available

**Suggestions to the Community for the actions to be taken**

no data available

**Measures in case of the positive findings or single cases**

no data available

**Notification system in place**



WAHIS

**Results of the investigation**

no data available

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

no data available

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

no data available

**Additional information**

no

**D. Antimicrobial resistance in Salmonella in foodstuff derived from cattle**

**Sampling strategy used in monitoring**

**Frequency of the sampling**

no data available

**Type of specimen taken**

no data available

**Methods of sampling (description of sampling techniques)**

no data available

**Procedures for the selection of isolates for antimicrobial testing**

no data available

**Methods used for collecting data**

no data available

**Laboratory methodology used for identification of the microbial isolates**

no data available

**Laboratory used for detection for resistance**

**Antimicrobials included in monitoring**

no data available

**Breakpoints used in testing**

no data available

**Preventive measures in place**

no data available

**Control program/ mechanisms**

**The control program/ strategies in place**

no data available

**Recent actions taken to control the zoonoses**

no data available

**Suggestions to the Community for the actions to be taken**

no data available

**Measures in case of the positive findings or single cases**

no data available

**Notification system in place**

WAHIS

**Results of the investigation**

no data available

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

no data available

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

no data available

**Additional information**

no

**E. Antimicrobial resistance in Salmonella in foodstuff derived from pigs**

**Sampling strategy used in monitoring**

**Frequency of the sampling**

no data available

**Type of specimen taken**

no data available

**Methods of sampling (description of sampling techniques)**

no data available

**Procedures for the selection of isolates for antimicrobial testing**

no data available

**Methods used for collecting data**

no data available

**Laboratory methodology used for identification of the microbial isolates**

no data available

**Laboratory used for detection for resistance**

**Antimicrobials included in monitoring**

no data available

**Breakpoints used in testing**

no data available

**Preventive measures in place**

no data available

**Control program/ mechanisms**

**The control program/ strategies in place**

no data available

**Recent actions taken to control the zoonoses**

no data available

**Suggestions to the Community for the actions to be taken**

no

**Measures in case of the positive findings or single cases**

no data available

**Notification system in place**

WAHIS

**Results of the investigation**

no data available

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

no data available

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

no data available

**Additional information**

no

**F. Antimicrobial resistance in Salmonella in foodstuff derived from poultry**

**Sampling strategy used in monitoring**

**Frequency of the sampling**

no data available

**Type of specimen taken**

no data available

**Methods of sampling (description of sampling techniques)**

no data available

**Procedures for the selection of isolates for antimicrobial testing**

no data available

**Methods used for collecting data**

no data available

**Laboratory methodology used for identification of the microbial isolates**

no data available

**Laboratory used for detection for resistance**

**Antimicrobials included in monitoring**

no data available

**Breakpoints used in testing**

no data available

**Preventive measures in place**

no data available

**Control program/ mechanisms**

**The control program/ strategies in place**

no data available

**Recent actions taken to control the zoonoses**

no data available

**Suggestions to the Community for the actions to be taken**

no

**Measures in case of the positive findings or single cases**

no data available

**Notification system in place**

WAHIS

**Results of the investigation**

no data available

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

no data available

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

no data available

**Additional information**

no

**Table Antimicrobial susceptibility testing of Salmonella spp. in food**

n = Number of resistant isolates								
	Salmonella spp.							
	Meat from bovine animals	Meat from pig		Meat from broilers (Gallus gallus)		Meat from other poultry species		
Isolates out of a monitoring programme								
Number of isolates available in the laboratory								
Antimicrobials:	N	n	N	n	N	n	N	n

**Footnote**

no data available

## Table Breakpoints for antibiotic resistance testing in Animals

### Test Method Used

Disc diffusion

Agar dilution

Broth dilution

E-test

### Standards used for testing

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ ml)			Range tested concentration (microg/ ml)		Disk content	Breakpoint Zone diameter (mm)		
		Susceptible ≤	Intermediate	Resistant >	lowest	highest		microg	Susceptible ≥	Intermediate
Amphenicols										
Chloramphenicol										
Florfenicol										
Tetracyclines										
Tetracyclin										
Fluoroquinolones										
Ciprofloxacin										
Enrofloxacin										
Quinolones										
Nalidixic acid										
Trimethoprim										
Sulfonamides										
Sulfonamide										
Aminoglycosides										
Streptomycin										
Gentamicin										
Neomycin										
Kanamycin										
Trimethoprim + sulfonamides										
Cephalosporins										
3rd generation cephalosporins										
Penicillins										
Ampicillin										

### Footnote

no data available

## Table Breakpoints for antibiotic resistance testing in Feedingstuff

### Test Method Used

Disc diffusion

Agar dilution

Broth dilution

E-test

### Standards used for testing

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ ml)			Range tested concentration (microg/ ml)		Disk content	Breakpoint Zone diameter (mm)		
		Susceptible ≤	Intermediate	Resistant >	lowest	highest		microg	Susceptible ≥	Intermediate
Amphenicols										
Chloramphenicol										
Florfenicol										
Tetracyclines										
Tetracyclin										
Fluoroquinolones										
Ciprofloxacin										
Enrofloxacin										
Quinolones										
Nalidixic acid										
Trimethoprim										
Sulfonamides										
Sulfonamide										
Aminoglycosides										
Streptomycin										
Gentamicin										
Neomycin										
Kanamycin										
Trimethoprim + sulfonamides										
Cephalosporins										
3rd generation cephalosporins										
Penicillins										
Ampicillin										

### Footnote

no data available



## Table Breakpoints for antibiotic resistance testing in Humans

### Test Method Used

Disc diffusion

Agar dilution

Broth dilution

E-test

### Standards used for testing

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ ml)			Range tested concentration (microg/ ml)		Disk content	Breakpoint Zone diameter (mm)		
		Susceptible ≤	Intermediate	Resistant >	lowest	highest		microg	Susceptible ≥	Intermediate
Amphenicols										
Chloramphenicol										
Florfenicol										
Tetracyclines										
Tetracyclin										
Fluoroquinolones										
Ciprofloxacin										
Enrofloxacin										
Quinolones										
Nalidixic acid										
Trimethoprim										
Sulfonamides										
Sulfonamide										
Aminoglycosides										
Streptomycin										
Gentamicin										
Neomycin										
Kanamycin										
Trimethoprim + sulfonamides										
Cephalosporins										
3rd generation cephalosporins										
Penicillins										
Ampicillin										

### Footnote

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## **2.2. CAMPYLOBACTERIOSIS**

### **2.2.1. General evaluation of the national situation**

#### **A. Thermophilic Campylobacter general evaluation**

##### **History of the disease and/ or infection in the country**

Bulgaria not tested for Campylobacter

### **2.2.2. Campylobacteriosis in humans**

#### **A. Thermophilic Campylobacter in humans**

##### **Reporting system in place for the human cases**

A competent authority is a Ministry of health.

Table Campylobacter in humans - Species/ serotype distribution

Campylobacter	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.	Unknown status
C. coli	0	0	0	0	0	0	0
C. jejuni							
C. upsaliensis							

Footnote

A competent authority is a Ministry of health.

**Table Campylobacter in humans - Age distribution**

Age Distribution	C. coli			C. jejuni			Campylobacter spp., unspecified		
	All	M	F	All	M	F	All	M	F
<1 year									
1 to 4 years									
5 to 14 years									
15 to 24 years									
25 to 44 years									
45 to 64 years									
65 years and older									
Age unknown									
<b>Total :</b>	0	0	0	0	0	0	0	0	0

**Footnote**

A competent authority is a Ministry of health.

**Table Campylobacter in humans - Seasonal distribution**

Month	C. coli		C. jejuni		C. upsaliensis		Campylobacter spp., unspecified	
	Cases		Cases		Cases		Cases	
January								
February								
March								
April								
May								
June								
July								
August								
September								
October								
November								
December								
not known								
<b>Total :</b>		0		0		0		0

**Footnote**

A competent authority is a Ministry of health.

### **2.2.3. Campylobacter in foodstuffs**

#### **A. Thermophilic Campylobacter in Broiler meat and products thereof**

##### **Monitoring system**

##### **Sampling strategy**

##### **At slaughterhouse and cutting plant**

Bulgaria not tested for Campylobacter

## **2.2.4. Campylobacter in animals**

### **A. Thermophilic Campylobacter in Gallus gallus**

#### **Monitoring system**

#### **Sampling strategy**

Bulgaria not tested for Campylobacter



## **2.2.5. Antimicrobial resistance in Campylobacter isolates**

### **A. Antimicrobial resistance in Campylobacter jejuni and coli in cattle**

**Sampling strategy used in monitoring**

**Frequency of the sampling**

no data available

### **B. Antimicrobial resistance in Campylobacter jejuni and coli in pigs**

**Sampling strategy used in monitoring**

**Frequency of the sampling**

no data available

### **C. Antimicrobial resistance in Campylobacter jejuni and coli in poultry**

**Sampling strategy used in monitoring**

**Frequency of the sampling**

no data available

### **D. Antimicrobial resistance in Campylobacter jejuni and coli in foodstuff derived from cattle**

**Sampling strategy used in monitoring**

**Frequency of the sampling**

no data available

### **E. Antimicrobial resistance in Campylobacter jejuni and coli in foodstuff derived from pigs**

**Sampling strategy used in monitoring**

**Frequency of the sampling**

no data available

### **F. Antimicrobial resistance in Campylobacter jejuni and coli in foodstuff derived from poultry**

**Sampling strategy used in monitoring**

**Frequency of the sampling**

no data available

## Table Breakpoints used for antimicrobial susceptibility testing in Humans

### Test Method Used

Disc diffusion

Agar dilution

Broth dilution

E-test

### Standards used for testing

Campylobacter	Standard for breakpoint	Breakpoint concentration (microg/ ml)			Range tested concentration (microg/ ml)		Disk content  microg	Breakpoint Zone diameter (mm)			
		Susceptible ≤	Intermediate	Resistant >	lowest	highest		Susceptible ≥	Intermediate	Resistant ≤	
Tetracyclines											
Tetracyclin											
Fluoroquinolones											
Ciprofloxacin											
Quinolones											
Nalidixic acid											
Aminoglycosides											
Gentamicin											
Macrolides											
Erythromycin											
Penicillins											
Ampicillin											

### Footnote

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### **2.3. LISTERIOSIS**

#### **2.3.1. General evaluation of the national situation**

##### **A. Listeriosis general evaluation**

###### **History of the disease and/ or infection in the country**

Last case 2004 - 23 sheep in Bourgas region

###### **Recent actions taken to control the zoonoses**

Annual vaccination in period Oct.-Feb. for all sheep in affected settlements

###### **Suggestions to the Community for the actions to be taken**

not yet

###### **Additional information**

no

### **2.3.2. Listeriosis in humans**

#### **A. Listeriosis in humans**

##### **Reporting system in place for the human cases**

No data available.

##### **Case definition**

No data available.

##### **Diagnostic/ analytical methods used**

No data available.

##### **Notification system in place**

No data available.

##### **History of the disease and/ or infection in the country**

No data available.

##### **Results of the investigation**

No data available.

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

No data available.

##### **Relevance as zoonotic disease**

No data available.

##### **Additional information**

no

**Table Listeria in humans - Species/ serotype distribution**

Listeria	Cases	Cases Inc.
Listeria spp.	0	0
Congenital cases		
Deaths		

**Footnote**

no data available

Table Listeria in humans - Age distribution

Age Distribution	L. monocytogenes			Listeria spp.		
	All	M	F	All	M	F
<1 year						
1 to 4 years						
5 to 14 years						
15 to 24 years						
25 to 44 years						
45 to 64 years						
65 years and older						
Age unknown						
Total :	0	0	0	0	0	0

Footnote

no data available

### **2.3.3. Listeria in foodstuffs**



**Table Listeria monocytogenes in other foods**

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for L.monocytogenes	Listeria monocytogenes presence in x g	> detection limit but ≤ 100 cfu/ g	L. monocytogenes > 100 cfu/ g
<b>Fish</b>								
smoked		batch		46	0			

#### **2.3.4. Listeria in animals**

**2.4. E. COLI INFECTIONS****2.4.1. General evaluation of the national situation****2.4.2. E. Coli Infections in humans****Table Escherichia coli, pathogenic in humans - Age distribution**

Escherichia coli, pathogenic	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
HUS						
- clinical cases						
- lab. confirmed cases						
- caused by O157 (VT+)						
- caused by other VTEC						
E.coli infect. (except HUS)						
- clinical cases						
- laboratory confirmed						
- caused by O157 (VT+)						
- caused by other VTEC						

**Footnote**

A competent authority is a Ministry of health.

**Table Escherichia coli, pathogenic in humans - Species/ serotype distribution**

Age Distribution	Verotoxigenic E. coli (VTEC)			VTEC O157:H7			VTEC non-O157		
	All	M	F	All	M	F	All	M	F
<1 year									
1 to 4 years									
5 to 14 years									
15 to 24 years									
25 to 44 years									
45 to 64 years									
65 years and older									
Age unknown									
<b>Total :</b>	0	0	0	0	0	0	0	0	0

**Footnote**

A competent authority is a Ministry of health.

#### **2.4.3. Escherichia coli, pathogenic in foodstuffs**

#### **2.4.4. Escherichia coli, pathogenic in animals**

**2.5. TUBERCULOSIS, MYCOBACTERIAL DISEASES****2.5.1. General evaluation of the national situation****2.5.2. Tuberculosis, Mycobacterial Diseases in humans****Table Mycobacterium in humans - Species/ serotype distribution**

<b>Mycobacterium</b>	<b>Cases</b>	<b>Cases Inc.</b>	<b>Autochthon cases</b>	<b>Autochthon Inc.</b>	<b>Imported cases</b>	<b>Imported Inc.</b>
M. bovis	0	0	0	0	0	0
M. tuberculosis						
Reactivation of previous cases						

**Footnote**

A competent authority is a Ministry of health.

**Table Mycobacterium in humans - Age distribution**

Age Distribution	M. bovis			F
	All	M		
<1 year				
1 to 4 years				
5 to 14 years				
15 to 24 years				
25 to 44 years				
45 to 64 years				
65 years and older				
Age unknown				
<b>Total :</b>	0	0		0

**Footnote**

A competent authority is a Ministry of health.

### **2.5.3. Mycobacterium in animals**

#### **A. Mycobacterium bovis in bovine animals**

##### **Status as officially free of bovine tuberculosis during the reporting year**

###### **The entire country free**

Bulgaria still is not recognised as an officially free from tuberculosis country.

###### **Free regions**

no

###### **Additional information**

In 2000 5 new outbreaks of bovine tuberculosis were registered - 3 in Dobrich Region, 1 in Kardjali and 1 in Silistra.

In 2001 no new infections with bovine tuberculosis were found.

In 2002 2 outbreaks of bovine tuberculosis were found, 1 in Kardjali Region and 1 in VelkoTarnovo Region.

In 2003 no outbreak of bovine tuberculosis were registered.

In 2004 only one outbreak of bovine tuberculosis was found in Pazardjik Region.

In 2005 only one outbreak was found in the village of Lenovo, Plovdiv Region.

In 2006 there was no outbreak of bovine tuberculosis.

##### **Monitoring system**

###### **Sampling strategy**

Until 2004 the bovine herds were examined for bovine tuberculosis twice a year. Since the beginning of 2005 subject to annual testing have been all bovine animals over 42 days of age, during spring, and during autumn - only the newborn calves over 42-days age, in accordance with the requirements of Annex B to Directive 97/ 12.

Description of the submitted programme:

- Testing of bovines in animal holdings over 42 days of age;
- Differential tuberculinization 42 days later of all suspect and positive animals using bovine or poultry tuberculin;
- Examination after 69 days with double dose of tuberculin (0,2 ml);
- Detailed epizootic survey;
- Slaughter of positive bovines;
- Payment of compensations to the owners of compulsory slaughtered animals;
- Placing on the market of the products obtained from the slaughtered animals.

###### **Frequency of the sampling**

every time of slaughter of positive bovines.

###### **Methods of sampling (description of sampling techniques)**



lymph nodes in affected area

### **Case definition**

In 2006 there was no outbreak of bovine tuberculosis.

### **Diagnostic/ analytical methods used**

the laboratory examination for bovine tuberculosis shall be carried out in the Diagnostics Reference Laboratory for Tuberculosis at the National Research Veterinary Institute (NRVI), Sofia

### **Vaccination policy**

no - intradermal examinations with bovine tuberculin (tuberculinization)

### **Other preventive measures than vaccination in place**

differential examination (with bovine and poultry tuberculin) and examinations with double dose of tuberculin (0,2 ml)

### **Control program/ mechanisms**

#### **The control program/ strategies in place**

have control program in place

#### **Recent actions taken to control the zoonoses**

- Testing of bovines in animal holdings over 42 days of age;
- Differential tuberculinization 42 days later of all suspect and positive animals using bovine or poultry tuberculin;
- Examination after 69 days with double dose of tuberculin (0,2 ml);
- Detailed epizootic survey;
- Slaughter of positive bovines;
- Payment of compensations to the owners of compulsory slaughtered animals;
- Placing on the market of the products obtained from the slaughtered animals

#### **Suggestions to the Community for the actions to be taken**

no

### **Measures in case of the positive findings or single cases**

- Detailed epizootic survey;
- Slaughter of positive bovines;
- Payment of compensations to the owners of compulsory slaughtered animals;
- Placing on the market of the products obtained from the slaughtered animals

### **Notification system in place**

WAHIS

**Results of the investigation**

In 2006 there was no outbreak of bovine tuberculosis

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

Bulgaria can take statut like a tuberculosis free country

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

no data available

**Additional information**

no

## **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**

The Republic of Bulgaria has been free of the Bovine Brucellosis since 1958.

From the date of eradication of the disease till 1998 subject to mandatory annual testing were all bovine animals over 12 months of age. In 1998 the surveillance scheme for Bovine Brucellosis was changed to cover the testing of 100% of the animals reared in the border municipalities along the borders with the Republic of Turkey, the Republic of Greece, Macedonia (FYROM) and the Republic of Serbia, 50% of the bovine animals reared in the regions bordering the abovementioned countries and 25% of the bovine animals reared in the regions inside the country.

In 2003 and 2004 100% of the bovine animals over 12 months of age were tested for Bovine Brucellosis as the Republic of Bulgaria was in process of EU accession.

In 2005 all bovine animals over 24 months of age were tested pursuant to the requirements of Annex A, Section II, Subparagraph 8 of Directive 1997/ 12 aimed at maintaining the status of a region officially free of bovine brucellosis (*Brucella abortus*).

In 2007 all bovine animals over 12 months of age are subject to testing.

Since 1958 all test results for *Brucella abortus* have been negative. The animals tested in the last 7 years they are as follows:

2000 – 157 427 bovine animals;

2001 – 126 836 bovine animals;

2002 – 126 633 bovine animals;

2003 – 359 770 bovine animals;

2004 – 339 657 bovine animals;

2005 - 327 311 bovine animals;

2006 – 357 809 bovine animals;

2007 (including March) – 21 148 bovine animals;

Since 2005 the abortions of bovine animals are subject to mandatory notification and testing pursuant to the requirements of Directive 64/ 432/ EC, whereas the cows that have had an abortion are tested serologically immediately after the abortion and a second time 15 days after that. For 2005 the number of the cows that had had an abortion was 92 bovine animals, for 2006 – 96 bovine animals and for 2007 (till 01.03.2007) – 27 bovine animals, whereas all of them have had negative results for the presence of *Brucella abortus*.

##### **Recent actions taken to control the zoonoses**

National Veterinary surves draft the Programme of monitoring and eradication of bovine and ovine Brucellosis. The implemenatation of the programme will start on 01.01.2008.

##### **Suggestions to the Community for the actions to be taken**

No

## 2.6.2. Brucellosis in humans

Table Brucella in humans - Species/ serotype distribution

Brucella	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
B. abortus	0	0	0	0	0	0
B. melitensis						
B. suis						
Occupational cases						

**Footnote**

A competent authority is a Ministry of health.

**Table Brucella in humans - Age distribution**

Age Distribution	B. abortus			B. melitensis			Brucella spp.		
	All	M	F	All	M	F	All	M	F
<1 year									
1 to 4 years									
5 to 14 years									
15 to 24 years									
25 to 44 years									
45 to 64 years									
65 years and older									
Age unknown									
<b>Total :</b>	0	0	0	0	0	0	0	0	0

**Footnote**

A competent authority is a Ministry of health.

### **2.6.3. Brucella in foodstuffs**

### **2.6.4. Brucella in animals**

#### **A. Brucella abortus in bovine animals**

##### **Status as officially free of bovine brucellosis during the reporting year**

###### **The entire country free**

Bulgaria is not recognized as officially free of bovine brucellosis during 2006

###### **Free regions**

Bulgaria is not recognized as officially free of bovine brucellosis during 2006

###### **Additional information**

no

##### **Monitoring system**

###### **Sampling strategy**

In Bulgaria the sampling strategy is an individual testing of 100% of the bovine animals over 12 months of age.

###### **Frequency of the sampling**

The frequency of testing is according to:

- the slaughtering of all bovine animals over 12 months of age and -Slaughtering of the animals that have shown a positive reaction for enzootic bovine leucosis.
- testing twice of all animals with slipping- after the slipping and 15- 20 days after that.
- twice serological sampling of male animals
- serological sampling of all imported from third countries animals.

###### **Case definition**

The reporting of positive cases is through WAHIS system

###### **Diagnostic/ analytical methods used**

rose bengal, SAT, Complement fixation test and ELISA

##### **Vaccination policy**

No vaccination is carried out

##### **Other preventive measures than vaccination in place**

No

## **Control program/ mechanisms**

### **The control program/ strategies in place**

In the year 2008 the PROGRAM will be implemented by the National Veterinary Service of the Republic of Bulgaria for Bovine Brucellosis diagnostics aimed at maintaining the status of a country officially free from Bovine Brucellosis

### **Suggestions to the Community for the actions to be taken**

NO

## **Notification system in place**

WAHIS

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

No data available

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

No data available

## **Additional information**

No

## **B. Brucella melitensis in sheep**

### **Status as officially free of ovine brucellosis during the reporting year**

#### **The entire country free**

The Republic of Bulgaria is not recognized as officially free of ovine brucellosis during the 2006.

#### **Free regions**

-

## **Monitoring system**

### **Sampling strategy**

female ovine and caprine animals in breeding age and non-castrated male animals more than 6 months old

### **Frequency of the sampling**

Taking samples of:

-all female animals near the borders with Greece and Turkey

- 25 % of all female animals in each herd
- in herds with less than 50 female animals the samples are taken of each female animal
- all male animals of age more than 6 months.
- serological testing of all slipping animals- after the slipping and 15 days after that
- serological testing of all animals imported from third countries due to quarantine period

### **Methods of sampling (description of sampling techniques)**

Blood samples for serological testing

### **Diagnostic/ analytical methods used**

rose bengal, SAT and Complement fixation test

### **Vaccination policy**

No vaccination in Bulgaria

### **Other preventive measures than vaccination in place**

no

### **Control program/ mechanisms**

#### **The control program/ strategies in place**

in the year 2008 will be implemented the PROGRAM by the National Veterinary Service of the Republic of Bulgaria for Ovine Brucellosis diagnostics aimed at maintaining the status of a country officially free of Ovine Brucellosis

#### **Suggestions to the Community for the actions to be taken**

No

### **Notification system in place**

WAHIS

### **Additional information**

The Republic of Bulgaria has been free of the disease Ovine Brucellosis / *Brucella melitensis* since 1941.

Till 1998 subject to mandatory annual testing had been all ovine and caprine animals more than 12 months old. After 1998 the schedule concerning the surveillance of Ovine Brucellosis was changed, i.e. 100% of the animals grown in the border municipalities along the borders with the Republic of Turkey, the Republic of Greece, Macedonia (FYROM) and the Republic of Serbia, 50% of the bovine animals grown in the regions bordering the abovementioned countries and 25% of the bovine animals grown in the regions inside the country were subject to testing.

In 2003 and 2004 all the ovine and caprine animals more than 12 months old, i.e. 100% were subject to tests for Ovine Brucellosis as the Republic of Bulgaria was going to become member of the European Union (EU).

In 2005 were all the ovine and caprine animals more than 12 months old in municipalities



immediately along the borders with the Republic of Turkey, the Republic of Greece, Macedonia (FYROM) and the Republic of Serbia and 25% of all female individuals in breeding age in the herds with more than 50 sheep and goats and all the sheep and goats in the herds with less than 50 ovine and caprine animals and all the non-castrated male animals in breeding age more than 6 months old pursuant to the requirements of Annex A, Chapter 2, letter "c" of Directive 91/ 68 aimed at preservation of the status of a region officially free of Ovine Brucellosis.

On 07.06.2006 during the testing of goats in the town of Zlatograd, municipality Zlatograd, Smolyan district, which is situated near the border with the Republic of Greece Ovine Brucellosis was found in two goats grown in the personal yard of an owner. Immediately all the animals in the yard of this owner (4 goats, 1 goat kid, 1 donkey, 1 calf and 1 dog) were annihilated.

On 22.06.2006 a new outbreak of Ovine Brucellosis was found among goats grown by an owner in the village of Startsevo, municipality Zlatograd, Smolyan district. The positive animals were annihilated immediately.

Following the two outbreaks orders were given for testing of all the ovine and caprine animals more than 6 months old and 100% of all the solipeds. In Zlatograd were tested: 264 bovine animals, 425 sheep, 199 goats and 76 solipeds with negative results for Ovine Brucellosis. In the village of Startsevo were tested: 274 bovine animals, 100 ovine and caprine animals and 4 solipeds, all with negative results for Ovine Brucellosis. The tests were made by means of rose bengal, Serum agglutination test (SAT) and Complement fixation test (CSF). Two months later all the ovine and caprine animals grown in these two places were subject again a testing for Ovine Brucellosis, whereas all the results obtained were negative.

On 17.10.2006 in the town of Straldja, Yambol district, a third outbreak of Ovine Brucellosis was reported in 2 goats grown in the personal yard of an owner. The infected animals were annihilated immediately and all the bovine, ovine and caprine animals more than 6 months old were tested for Ovine Brucellosis. All the 711 samples tested showed negative results.

## **2.7. YERSINIOSIS**

### **2.7.1. General evaluation of the national situation**

#### **A. Yersinia enterocolitica general evaluation**

##### **History of the disease and/ or infection in the country**

no data available

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

no data available

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

no data available

##### **Recent actions taken to control the zoonoses**

no data available

##### **Suggestions to the Community for the actions to be taken**

no

##### **Additional information**

no

## **2.7.2. Yersiniosis in humans**

### **A. Yersiniosis in humans**

#### **Reporting system in place for the human cases**

no data available

#### **Case definition**

no data available

#### **Diagnostic/ analytical methods used**

no data available

#### **Notification system in place**

no data available

#### **History of the disease and/ or infection in the country**

no data available

#### **Results of the investigation**

no data available

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

no data available

#### **Relevance as zoonotic disease**

no data available

#### **Additional information**

no

**Table Yersinia in humans - Species/ serotype distribution**

<b>Yersinia</b>	<b>Cases</b>	<b>Cases Inc.</b>	<b>Autochthon cases</b>	<b>Autochthon Inc.</b>	<b>Imported cases</b>	<b>Imported Inc.</b>
Y. enterocolitica	0	0	0	0	0	0
Y. enterocolitica - O:3						
Y. enterocolitica - O:9						

**Footnote**

no data available

**Table Yersinia in humans - Age distribution**

Age Distribution	Y. enterocolitica			Yersinia spp.		
	All	M	F	All	M	F
<1 year						
1 to 4 years						
5 to 14 years						
15 to 24 years						
25 to 44 years						
45 to 64 years						
65 years and older						
Age unknown						
<b>Total :</b>	0	0	0	0	0	0

**Footnote**

no data available

**Table Yersinia in humans - Seasonal distribution**

Month	Y. enterocolitica		Yersinia spp.	
	Cases		Cases	
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				
not known				
<b>Total :</b>		0		0

**Footnote**

no data available

### **2.7.3. Yersinia in foodstuffs**

### **2.7.4. Yersinia in animals**

#### **A. Yersinia enterocolitica in pigs**

##### **Monitoring system**

###### **Sampling strategy**

###### **Animals at farm**

no monitoring system in place

###### **Animals at slaughter (herd based approach)**

no monitoring system in place

###### **Methods of sampling (description of sampling techniques)**

###### **Animals at farm**

no monitoring system in place

###### **Animals at slaughter (herd based approach)**

no monitoring system in place

###### **Case definition**

###### **Animals at farm**

no monitoring system in place

###### **Animals at slaughter (herd based approach)**

no monitoring system in place

##### **Vaccination policy**

no vaccination policy in place

##### **Other preventive measures than vaccination in place**

no preventive measures in place

##### **Control program/ mechanisms**

###### **The control program/ strategies in place**

no control program in place

###### **Recent actions taken to control the zoonoses**

no

**Suggestions to the Community for the actions to be taken**

not yet

**Measures in case of the positive findings or single cases**

no positive cases

**Notification system in place**

no

**Results of the investigation**

no investigation

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

no control program on place

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

no data available

**Additional information**

no





## **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**

mandatory testing for all slaughtered pigs and aquine;  
mandatory testing for all hunted boars (wild pigs), bears and badger.

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

no data available.

##### **Recent actions taken to control the zoonoses**

mandatory testing for all slaughtered pigs and aquine;  
mandatory testing for all hunted boars (wild pigs), bears and badger.

##### **Suggestions to the Community for the actions to be taken**

no

##### **Additional information**

no

## **2.8.2. Trichinellosis in humans**

### **A. Trichinellosis in humans**

#### **Reporting system in place for the human cases**

no data available

#### **Case definition**

no data available

#### **Diagnostic/ analytical methods used**

no data available

#### **Notification system in place**

no data available

#### **History of the disease and/ or infection in the country**

no data available

#### **Results of the investigation**

no data available

#### **Description of the positive cases detected during the reporting year**

no data available

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

no data available

#### **Relevance as zoonotic disease**

no data available

#### **Additional information**

no

**Table Trichinella in humans - Species/ serotype distribution**

Trichinella	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
Trichinella spp.	0	0	0	0	0	0

**Footnote**

no data available

**Table Trichinella in humans - Age distribution**

Age Distribution	Trichinella spp.			F
	All	M		
<1 year				
1 to 4 years				
5 to 14 years				
15 to 24 years				
25 to 44 years				
45 to 64 years				
65 years and older				
Age unknown				
<b>Total :</b>	0	0		0

**Footnote**

no data available

### 2.8.3. Trichinella in animals

#### A. Trichinella in pigs

**Number of officially recognised Trichinella-free holdings**

0

**Categories of holdings officially recognised Trichinella-free**

0

**Officially recognised regions with negligible Trichinella risk**

0

**Monitoring system**

**Sampling strategy**

**General**

testing of all slaughtered pigs;  
testing of all hunted wild pigs.

**For Trichinella free holdings**

no monitoring system

**For categories of holdings officially recognised Trichinella-free**

no monitoring system

**For regions with negligible Trichinella risk**

no monitoring system

**Frequency of the sampling**

**General**

no monitoring system

**For Trichinella free holdings**

no monitoring system

**For categories of holdings officially recognised Trichinella-free**

no monitoring system

**For regions with negligible Trichinella risk**

no monitoring system

**Type of specimen taken**

**General**

diaphragm muscle

**For Trichinella free holdings**

diaphragm muscle

**For categories of holdings officially recognised Trichinella-free**

diaphragm muscle

**For regions with negligible Trichinella risk**

diaphragm muscle

**Methods of sampling (description of sampling techniques)**

**General**

compression method,  
destructive method

**For Trichinella free holdings**

no monitoring system  
compression method,  
destructive method

**For categories of holdings officially recognised Trichinella-free**

no monitoring system  
compression method,  
destructive method

**For regions with negligible Trichinella risk**

no monitoring system  
compression method,  
destructive method

**Case definition**

**General**

no monitoring system

**For Trichinella free holdings**

no monitoring system

**For categories of holdings officially recognised Trichinella-free**

no monitoring system

**For regions with negligible Trichinella risk**

no monitoring system

**Diagnostic/ analytical methods used**

**General**

no monitoring system

compression method,

destructive method

**For Trichinella free holdings**

no monitoring system

compression method,

destructive method

**For categories of holdings officially recognised Trichinella-free**

no monitoring system

compression method,

destructive method

**For regions with negligible Trichinella risk**

no monitoring system

compression method,

destructive method

**Preventive measures in place**

no

**Control program/ mechanisms**

**The control program/ strategies in place**

no

**Summary results of the inspections of Trichinella-free holdings including information on farmer compliance**

no control program

**Recent actions taken to control the zoonoses**

no control program

**Suggestions to the Community for the actions to be taken**



no

**Measures in case of the positive findings or single cases**

destruction of carcasses in rendering plants, deratisations

**The contingency plan in place**

no

**Notification system in place**

WAHIS

**Results of the investigation including description of the positive cases and the verification of the *Trichinella* species**

**Fattening pigs raised under controlled housing conditions in integrated production system**

We not found *Trichinella* in Bulgaria in those kind of farms.

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

We found only *Trichinella spiralis* in Bulgaria in those kind of farms.

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

no data available

**Additional information**

no

**B. *Trichinella* in horses**

**Monitoring system**

**Sampling strategy**

mandatory testing for all slaughtered equine;

**For categories of holdings officially recognised *Trichinella*-free**

no control program in place

Bulgaria is not recognised like *Trichinella*-free country

**Frequency of the sampling**

depends of slaughtering - de facto for 2006 we haven't slaughtering

**Type of specimen taken**

masseters, musculus intracostalis

**Methods of sampling (description of sampling techniques)**

destructive and compresion method

**Case definition**

not defined

**Diagnostic/ analytical methods used**

only postmortem investigation

**Results of the investigation including the origin of the positive animals**

no positive animals

**Control program/ mechanisms**

**The control program/ strategies in place**

no control program in place

**Recent actions taken to control the zoonoses**

no control program in place

**Suggestions to the Community for the actions to be taken**

no

**Measures in case of the positive findings or single cases**

carcase destruction in randering plant, disinfection and deratisation in place of origin.

**Notification system in place**

WAHIS

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

no control program in place

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

no data available

**Additional information**

no

**Table Trichinella in animals**

	Source of information	Sampling unit	Units tested	Total units positive for Trichinella spp.	T. spiralis	Trichinella spp., unspecified
<b>Pigs</b>						
<b>fattening pigs</b>						
not raised under controlled housing conditions in integrated production system		animal	210913	22	22	
<b>Wild boars</b>						
wild		animal	2511	8	8	
<b>Badgers</b>						
- at game handling establishment - environmental sample - Monitoring - official sampling - objective sampling		animal	3	1	1	

## **2.9. ECHINOCOCCOSIS**

### **2.9.1. General evaluation of the national situation**

#### **A. Echinococcus spp. general evaluation**

##### **History of the disease and/ or infection in the country**

Investigation for this disease start after 1950. Until 1995, human case of Echinococcus decrease. From 1996 start again increasing of cases.

Echinococcus have in whole country, but highly affected are the next regions:

for bovine - Sofia - 37%, Bourgas - 31.6%, Haskovo - 28%;

for sheep - Vratza - 29%, Pernik - 24%, Sliven - 23%, Varna - 32%.

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

Echinococcus is big problem for Bulgaria.

Analysis of the situation after 2000 in inspected carcasses in slaughter houses shows increasing of cases:

bovine - from 9.17% to 17.91%;

sheep - from 5.17% to 7.5%;

swine - from 0.8% to 2.19%.

carrier:

sheep dogs - 78%, stray dogs - 57%, home dogs - 31%, hunter dogs - 16%

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

Main reasons for big number of human cases are:

1. Partial registration of home dogs and not full dehelmentisation;
2. Many stray dogs, on practise - without dehelmentisation;
3. Not all infected viscera is destroyed in rendering plants.

##### **Recent actions taken to control the zoonoses**

we have national program for control of Echinococcus in humans and animals between 2004 and 2008.

##### **Suggestions to the Community for the actions to be taken**

no

##### **Additional information**

no

## 2.9.2. Echinococcosis in humans

**Table Echinococcus in humans - Species/ serotype distribution**

<b>Echinococcus</b>	<b>Cases</b>	<b>Cases Inc.</b>	<b>Autochthon cases</b>	<b>Autochthon Inc.</b>	<b>Imported cases</b>	<b>Imported Inc.</b>
E. granulosus	0	0	0	0	0	0
E. multilocularis						
Echinococcus spp.						

**Footnote**

no data available

**Table Echinococcus in humans - Age distribution**

Age Distribution	E. granulosus			E. multilocularis			Echinococcus spp.		
	All	M	F	All	M	F	All	M	F
<1 year									
1 to 4 years									
5 to 14 years									
15 to 24 years									
25 to 44 years									
45 to 64 years									
65 years and older									
Age unknown									
<b>Total :</b>	0	0	0	0	0	0	0	0	0

**Footnote**

no data available

### **2.9.3. Echinococcus in animals**

## **2.10. TOXOPLASMOSIS**

### **2.10.1. General evaluation of the national situation**

### **2.10.2. Toxoplasmosis in humans**

**Table Toxoplasma in humans - Species/ serotype distribution**

<b>Toxoplasma</b>	<b>Cases</b>	<b>Cases Inc.</b>
Toxoplasma spp.	0	0
Congenital cases		

#### **Footnote**

A competent authority is a Ministry of health.



**Table Toxoplasma in humans - Age distribution**

Age Distribution	Toxoplasma spp.			F
	All	M		
<1 year				
1 to 4 years				
5 to 14 years				
15 to 24 years				
25 to 44 years				
45 to 64 years				
65 years and older				
Age unknown				
<b>Total :</b>	0	0		0

**Footnote**

A competent authority is a Ministry of health.

### **2.10.3. Toxoplasma in animals**

## **2.11. RABIES**

### **2.11.1. General evaluation of the national situation**

#### **A. Rabies general evaluation**

##### **History of the disease and/ or infection in the country**

In our country rabies disease has been spreading mainly in North Bulgaria. The total number of cases confirmed in Bulgaria since the beginning of 1988 up to the end of 2005 is 507, of which 484 cases (95.5%) are in North Bulgaria (to the north of Stara Planina mountain chain that divides the country into two) and only 23 (4.5%) are the cases identified in South Bulgaria, not a single case of rabies being identified in South Bulgaria during all the previous 8 years (see Table 1 in the Annex).

Wild predatory animals are the reservoir of rabies virus in our country, and these are mainly foxes and of less rates jackals. Of all the 529 animals found sick of rabies within the time-period 1988 – 2005, 262 are wild animals (49.5%), 229 (87.4%) of which being foxes (Table 2).

TABLE 2. Types and numbers of rabies diseased animals (1988 – 2005)

Year Total Domestic Animals / livestock/ Dogs Cats Foxes Jackals Other species

1988 84 39 3 - 42 - -

1989 78 38 2 - 37 - 1

1990 35 11 6 - 18 - -

1991 20 9 3 - 7 - 1

1992 23 16 - - 7 - -

1993 42 24 4 - 12 - 2

1994 14 10 - - 4 - -

1995 12 4 6 - 2 - -

1996 30 10 3 2 15 - -

1997 16 1 5 - 8 2 -

1998 9 4 1 1 2 1 -

1999 25 11 3 - 11 - -

2000 23 11 4 1 4 3 -

2001 62 7 7 4 38 4 2

2002 16 - - - 3 1 12

2003 17 3 2 - 10 - 2

2004 11 5 - 1 4 - 1

2005 12 2 1 2 5 1 1

Общо: 529 205 50 11 229 12 22

Highest is the number of rabies cases registered in spring and less are the cases registered in autumn-winter seasons, those identified in summer being the lowest (Table 3). This is due to ecological and biological specifics of the fox populations in our country. The spring pick of the disease is related to the reproduction period of foxes, while the autumn-winter rising trend is due to seeking and demand of living area manifested by young foxes.

TABLE 3

Month I II III IV V VI VII VIII IX X XI XII

Rabies cases 17 20 16 34 15 17 10 14 10 13 19 14

The reason for the definitely predominant spread of rabies in North Bulgaria should be linked with geographic specifics of the country. North Bulgaria is separated from the Southern parts of the

country through a natural geographic barrier, i.e. the Balkans Chain (Stara Planina mountain chain) and it acts as a natural barrier for the spread of rabies from north to south. Alongside the whole southern border line of Bulgaria with Turkey and Greece there is still an existing border-fencing facility (netted fence), which plays the role of a barrier preventing the passage of animals. The eastern areas of the country are also bordered by a natural geographic barrier, the Black Sea. To the north Bulgaria borders with Rumania through another natural water frontier, the river Danube, but there is also a land border of 130 km length that could enable passage of animals. To the west, Bulgaria's land borders with Yugoslavia and Macedonia are predominantly of mountainous relief, but there are some areas of plane relief (Northwest Bulgaria).

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

As until now, there is not any individual administrative district (county) in North Bulgaria, where there has not been any rabies case confirmed. Observations show that each year there are rabies cases identified in an average of 6 to 7 of the total of 14 administrative districts of North Bulgaria.

Of the total of 529 animals found sick within the aforementioned time-period (1988-2005), 205 (38.7%) are livestock animals (cows, sheep, goats and horses). This high sickness rate among these type of animals is due to specifics of their keeping, since they spend substantial time grazing on pastures where the likelihood of contacts with wild animals is much higher (see Table 2).

The species and numbers of wild predatory animals in North Bulgaria are given in Table 4.

TABLE 4. Species and Numbers of Wild Predatory Animals in North Bulgaria

Animal Species Wolves Jackals Foxes Stray Dogs

Numbers 902 13 450 17 723 10 427

For the period 01.01 – 07.12.2006 in Bulgaria were found 9 outbreaks of rabies on the territory of 5 regions (table 5, figure 1)

RVS: 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005

Blagoevgrad - - - - -

Burgas 1 1 - - - 1 - - - - -

Varna - - - - - 3 - - -

Vidin - 17 7 - 1 2 1 - 2 1 1 - - 8 1 8 2 1

Vratsa 14 8 4 14 5 7 2 - 1 1 4 5 1 1 2 1 1 -

Veliko Tarnovo 7 3 - - - 1 1 - 2 - 1 1 - 3 - 4 2 2

Gabrovo 3 3 - - - 2 - - - - -

Dobrich - - - - - 1 1 1 4 6 - - 1 4 - - 4 3

Kyustendil - - - - -

Kardzhali - - - - -

Lovech 10 18 9 - - 7 2 2 1 - - 1 - 1 2 2 - -

Montana 34 13 11 - 9 11 1 - 2 - 1 2 1 4 - - - 3

Pazardzhik - - - - -

Pernik - - - - 1 - - 1 - - - - -

Pleven 6 6 - 3 5 - 2 3 4 1 1 2 16 17 3 - 1 -

Plovdiv 5 - - - - - 1 - - - - -

Razgrad 1 - 2 - - 3 - 2 3 - - - 1 - - - -

Ruse - 3 1 - - - 1 1 1 - - - - -

Silistra 1 1 - - - - 1 1 - 2 - - 1 - - - - 2

Sliven - 2 - - - - - - - - - -

Smolyan - - - - -

Sofia-town - - - - -  
Sofia-district 1 - 1 3 2 - - - - -  
Stara Zagora - - - - - 1 - - - - -  
Targovishte 1 3 - - - 7 - 1 2 4 1 - - 12 4 2 - -  
Haskovo - - - - - 1 - - - 1 - - - - -  
Shumen - - - - - - - 3 3 7 3 - - -  
Yambol - - - - - - - - - - -  
TOTAL: 84 78 35 20 23 42 14 12 23 16 9 14 23 61 15 17 10 11

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

no information available

**Recent actions taken to control the zoonoses**

Implementation of approved multi-annual programme for control and eradication of rabies.

**Suggestions to the Community for the actions to be taken**

not yet

**Additional information**

no

## **2.11.2. Lyssavirus (rabies) in animals**

### **A. Rabies in dogs**

#### **Monitoring system**

##### **Sampling strategy**

Samples shall be taken of all suspected, shown clinical signs and found dead dogs.

##### **Frequency of the sampling**

In any case of suspected, shown clinical signs and found dead dogs.

##### **Methods of sampling (description of sampling techniques)**

Laboratory control will be effected in the National Diagnostic and Research Veterinary Medical Institute (NDRVMI) in Sofia. The following is the method to be used for exercising this control:

IFT-test - direct immune-fluorescent test for detecting the presence of the rabies virus.

##### **Case definition**

Sick from Rabies animals are: animals, shown clinical signs for Rabies and the diagnose is confirmed from the laboratory.

#### **Vaccination policy**

All dogs in Bulgaria shall be vaccinated each year.

After lab confirmation of any case in animals, all dogs, cats and pastured animals in affected settlement should be vaccinated again.

#### **Other preventive measures than vaccination in place**

All dogs should be tied and could not leave alone yards.

#### **Control program/ mechanisms**

##### **The control program/ strategies in place**

Each year the minister of agriculture and forests shall approve STATE PROFILAXIS PROGRAME, where is included all rabies control measures.

##### **Recent actions taken to control the zoonoses**

The information is included in previous pages.

##### **Suggestions to the Community for the actions to be taken**

not yet

#### **Measures in case of the positive findings or single cases**

After lab confirmation of any positive case in animals, all dogs, cats and pastured animals in affected settlement should be vaccinated again.

### **Notification system in place**

All positive cases have been notified through a WAHIS system.

### **Results of the investigation**

For 2006 from 10 positive cases there have been detected just 1 positive dog.

#### **Investigations of the human contacts with positive cases**

No data are available for 2006.

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

Wild predatory animals are the reservoir of rabies virus in our country, and these are mainly foxes and of less rates jackals. Of all the 529 animals found sick of rabies within the time-period 1988 – 2005, 262 are wild animals (49.5%), 229 (87.4%) of which being foxes. Highest is the number of rabies cases registered in spring and less are the cases registered in autumn-winter seasons, those identified in summer being the lowest. This is due to ecological and biological specifics of the fox populations in our country. The spring pick of the disease is related to the reproduction period of foxes, while the autumn-winter rising trend is due to seeking and demand of living area manifested by young foxes.

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

No data are available for 2006.

### **Additional information**

No

**Table Rabies in animals**

	Source of information	Sampling unit	Units tested	Total units positive for Lyssavirus (rabies)	unspecified Lyssavirus	European Bat Lyssavirus - unspecified	classical rabies virus (genotype 1)
<b>Sheep</b>		animal		1			1
<b>Dogs</b>		animal		1			1
<b>Cats</b>		animal		4			4
<b>Foxes</b>							
wild		animal		3			3
<b>Jackals</b>							
wild							
- at game handling establishment - environmental sample		animal		1			1

**Footnote**

the total number of tested in Bulgaria animals for rabies for 2006 is 168. We haven't data for different sampled species.



## **2.12. Q-FEVER**

### **2.12.1. General evaluation of the national situation**

### **2.12.2. Coxiella (Q-fever) in animals**

### **3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE**

### **3.1. *ESCHERICHIA COLI, NON-PATHOGENIC***

#### **3.1.1. General evaluation of the national situation**

### **3.1.2. Antimicrobial resistance in *Escherichia coli*, non-pathogenic isolates**

## **4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS**

#### **4.1. HISTAMINE**

##### **4.1.1. General evaluation of the national situation**

##### **4.1.2. Histamine in foodstuffs**

## **4.2. ENTEROBACTER SAKAZAKII**

### **4.2.1. General evaluation of the national situation**

### **4.2.2. Enterobacter sakazakii in foodstuffs**

#### **4.3. STAPHYLOCOCCAL ENTEROTOXINS**

##### **4.3.1. General evaluation of the national situation**

##### **4.3.2. Staphylococcal enterotoxins in foodstuffs**



## **5. FOODBORNE OUTBREAKS**

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

### **A. Foodborne outbreaks**

#### **System in place for identification, epidemiological investigations and reporting of foodborne outbreaks**

no data available