European Food Safety Authority

ZOONOSES MONITORING

MALTA

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 2009

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: Malta

Reporting Year:

Laboratory name	Description	Contribution
Fiah andFarming Regulation Control division		

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 Malta during the year 2009 .

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

List of Contents

1. ANIMAL POPULATIONS

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

A. Information on susceptible animal population

Sources of information

National Livestock Database, National Veterinary Laboratory of the Agriculture and fisheries Regulation Division (CA)

Dates the figures relate to and the content of the figures

2009

Geographical distribution and size distribution of the herds, flocks and holdings

The data covers both the islands of Malta and Gozo.Malta's location is set in the heart of the Mediterranean Sea, half way between Sicily and North Africa, the Maltese archipelago consists of five islands: Malta, Gozo, Comino and two uninhabited islands, Cominetto and Filfla. The size of Malta is about 27 km long by 14.5 km width.Most of the farms for all species are found mainly on the main island i.e. Malta.

Table Susceptible animal populations

* Only if different than current reporting year

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	Category of animals	Data	Year*	Data	Year*	Data	Year*	Data	Year*
Cattle (bovine animals)	meat production animals [1]	224				1848		224	
	mixed herds	0				16861		0	
	dairy cows and heifers [2]	139				9431		139	
	calves (under 1 year)	139				3755		139	
	- in total	363		6241		16861		363	
Deer	farmed - in total [3]	0		0		0		0	
Ducks	grandparent breeding flocks [4]	0		0		0		0	
	mixed flocks/holdings [5]	0		0		0		0	
	parent breeding flocks [6]	0		0		0		0	
	meat production flocks [7]	0		0		0		0	
	breeding flocks, unspecified - in total [8]	0		0		0		0	
	elite breeding flocks [9]	0		0		0		0	
	- in total [10]	0		0		0		0	

Table Susceptible animal populations

Animal species	Category of animals	Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
		Data	Year*	Data	Year*	Data	Year*	Data	Year*
Gallus gallus (fowl)	elite breeding flocks, unspecified - in total [11]	0		0		0		0	
	mixed flocks/holdings [12]	0							
	parent breeding flocks, unspecified - in total [13]	0							
	breeding flocks, unspecified - in total [14]	0							
	grandparent breeding flocks for egg production line [15]	0							
	parent breeding flocks for egg production line	0							
	breeding flocks for egg production line - in total	0							
	broilers	508		2817333		3102998		110	
	grandparent breeding flocks, unspecified - in total	0		0		0		0	
	elite breeding flocks for meat production line	0		0		0		0	
	laying hens [16]	237		555271		555271		48	
	breeding flocks for meat production line - in total	0		0		0		0	
	parent breeding flocks for meat production line	0		0		0		0	
	grandparent breeding flocks for meat production line	0		0		0		0	

Table Susceptible animal populations

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	Category of animals	Data	Year*	Data	Year*	Data	Year*	Data	Year*
Gallus gallus (fowl)	elite breeding flocks for egg production line	0		0		0		0	
	- in total	745		2817333		3656269		158	
Geese	grandparent breeding flocks	0		0		0		0	
	breeding flocks, unspecified - in total	0		0		0		0	
	mixed flocks/holdings	0		0		0		0	
	meat production flocks	0		0		0		0	
	elite breeding flocks	0		0		0		0	
	parent breeding flocks	0		0		0		0	
	- in total	0		0		0		0	
Goats	mixed herds [17)]								
	animals over 1 year			67		5071			
	milk goats			631		4616			
	animals under 1 year					906			
	- in total			698		5977			

Table Susceptible animal populations

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	Category of animals	Data	Year*	Data	Year*	Data	Year*	Data	Year*
Pigs	fattening pigs	173		88026		53000		173	
Pigs - breeding animals - unspecified	breeding animals - unspecified - sows and gilts [18)]			2114		7208			
Pigs	- in total			90140		60208			
Reindeers	farmed - in total [19)]	0		0		0		0	
Sheep	animals over 1 year					10694			
	milk ewes			1391		10122			
	animals under 1 year (lambs)					2324			
	- in total			1619		13018			
Turkeys	parent breeding flocks	0							
	grandparent breeding flocks	0							
	breeding flocks, unspecified - in total	0							
	elite breeding flocks	0							
	meat production flocks	0							
	mixed flocks/holdings	0							

Table Susceptible animal populations

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	Category of animals	Data	Year*	Data	Year*	Data	Year*	Data	Year*
Turkeys	- in total [20)]	0							
Wild boars	farmed - in total [21)]	0							

Comments:

[1)] small holdings with a small number of animals, (with an average of 20 animals per holding),
[2)] Dairy farms may also rear or sell male calves for fattening.
[3)] no farmed deer are present in Malta
[4)] No ducks are farmed in Malta
[5)] No ducks are farmed in Malta
[6)] No ducks afe farmed in Malta
[7)] No ducks are farmed in Malta
[8)] No ducks are farmed in Malta
[9)] No ducks are farmed in Malta
[10)] No ducks are farmed in Malta
[11)] No breeding flocks are reared in the Maltese Islands
[12)] There are no breeding flocks
[13)] There are no parent breeding flocks
[14)] there are no breeding flocks
[15)] There are no grandparent breeding flocks for egg production line
[16)] No layers are slaughtered for human consumption in Malta. All layers are culled and disposed of at the end of the laying period.
[17)] These holdings are mixed farms having both goats and sheep. They are predomently dairy and cheese profucing units which from time to time sell animals for slaughter.
[18)] includes also boars
[19)] No Reindeers
[20)] no commercial turkey flocks
[21)] No wild boars are present in Malta

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

Salmonella has been on the rise in Malta again since 2008. This follows a trough from 1999 - 2007. Majority of cases are S. Enteritidis and Tymphimurium.

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

Most cases of Salmonella originate from households, including outbreaks (30-45 %). the sources are usually eggs and chicken meat.Information about salmonella in pork is not available.

Recent actions taken to control the zoonoses

Control of layers and broilers with culling for positive flocks of S. Enteritidis and S. Typhimurium. Heat treatment of eggs from infected layer flocks is also carried out.

2.1.2 Salmonellosis in humans

A. Salmonellosis in humans

Reporting system in place for the human cases

Physician and laboratory surveillance in place.

Case definition

Clinical picture with isolation of Salmonella from clinical specimens.
A probable case has has an epdemiological link with a confirmed case.

Diagnostic/analytical methods used

Culture methods and serology.

Notification system in place

Statutorily notifiable.

History of the disease and/or infection in the country

Salmonella has been on the rise in Malta again since 2008. This follows a trough from 1999 - 2007.

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

Most cases of Salmonella originate from households, including outbreaks (30-45 %). the sources are usually eggs and chicken meat.Information about salmonella in pork is not available.

Table Salmonella in humans - Species/serotype distribution

Distribution Zoonotic Agent	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.	Unknown status
Salmonella	125	31.25	124	31	1	.25	0
S. Enteritidis	56	14	56	14	0	0	0
S. Typhimurium	21	5.25	21	5.25	0	0	0
S. Bareilly	2	0.5	1	0.25	1	0.25	0
S. Clackamas	1	0.25	1	0.25	0	0	0
S. Derby	1	0.25	1	0.25	0	0	0
S. Give	1	0.25	1	0.25	0	0	0
S. Goldcoast	1	0.25	1	0.25	0	0	0
S. Indiana	1	0.25	1	0.25	0	0	0
S. Infantis	1	0.25	1	0.25	0	0	0
S. Kedougou	4	1	4	1	0	0	0
S. Kentucky	2	0.5	2	0.5	0	0	0
S. Kisii	1	0.25	1	0.25	0	0	0
S. Livingstone	3	0.75	3	0.75	0	0	0
S. London	1	0.25	1	0.25	0	0	0
S. Muenchen	1	0.25	1	0.25	0	0	0
S. Paratyphi B	1	0.25	1	0.25	0	0	0
S. Tokoin	1	0.25	1	0.25	0	0	0
S. Tsevie	1	0.25	1	0.25	0	0	0
S. Tumodi	1	0.25	1	0.25	0	0	0
S. Virchow	1	0.25	1	0.25	0	0	0

Table Salmonella in humans - Age distribution

Age distribution	S. Enteritidis			S. Typhimurium			Salmonella spp.			S. Bareilly			S. Clackamas		
	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F
<1 year	9	8	1	2	1	1	0	0	0	0	0	0	1	1	0
1 to 4 years	17	6	11	10	8	2	0	0	0	1	0	1	0	0	0
5 to 14 years	17	8	9	3	2	1	0	0	0	0	0	0	0	0	0
15 to 24 years	3	0	3	2	1	1	0	0	0	0	0	0	0	0	0
25 to 44 years	3	1	2	0	0	0	0	0	0	0	0	0	0	0	0
45 to 64 years	3	0	3	2	2	0	1	0	1	1	0	1	0	0	0
65 years and older	3	0	3	2	2	0	1	0	1	0	0	0	0	0	0
Age unknown	1	1	0	0	0	0	3	2	1	0	0	0	0	0	0
Total :	56	24	32	21	16	5	5	2	3	2	0	2	1	1	0

	S. Derby			S. Give			S. Goldcoast			S. Indiana			S. Infantis		
	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F
<1 year	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 to 4 years	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
5 to 14 years	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
15 to 24 years	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 to 44 years	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45 to 64 years	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0
65 years and older	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0

Table Salmonella in humans - Seasonal distribution

Distribution Seasonal	S. Enteritidis	S. Typhimurium	Salmonella spp.	S. Bareilly	S. Clackamas	S. Derby	S. Give	S. Goldcoast	S. Indiana	S. Infantis	S. Kedougou	S. Kentucky	S. Kisii	S. Livingstone	S. London
	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases
January	5	1	0	0	0	1	0	0	0	0	0	0	0	0	0
February	2	0	1	0	0	0	1	0	0	0	0	0	0	0	1
March	5	3	3	0	0	0	0	0	0	0	1	0	0	0	0
April	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
May	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
June	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0
July	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0
August	8	2	3	1	0	0	0	0	0	1	0	0	0	0	0
September	9	3	0	0	1	0	0	0	0	0	1	1	1	2	0
October	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
November	1	4	0	0	0	0	0	0	1	0	1	1	0	0	0
December	3	5	0	0	0	0	0	0	0	0	1	0	0	1	0
not known	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total :	56	21	7	2	1	1	1	1	1	1	4	2	1	3	1

	S. Muenchen	S. Paratyphi B	S. Tokoin	S. Tsevie	S. Tumodi	S. Virchow	Salmonella spp., unspecified
	Cases	Cases	Cases	Cases	Cases	Cases	Cases
January	0	0	0	0	0	0	2
February	0	0	0	0	1	0	0

2.1.3 Salmonella in foodstuffs

A. Salmonella spp. in eggs and egg products

Monitoring system

Sampling strategy

there are no egg packing center each farmer packs his own eggs. Eggs were analysed on two occasions as re-confirmatory according to the Commission Regulation 1237/2007.

Diagnostic/analytical methods used

Raw material for egg products (at production plant)

Bacteriological method: ISO 6579:2002

2.1.4 Salmonella in animals

A. Salmonella spp. in Gallus Gallus - breeding flocks

Monitoring system

Sampling strategy

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

There are no breeding flocks in Malta

B. Salmonella spp. in Gallus Gallus - broiler flocks

Monitoring system

Sampling strategy

Broiler flocks

All broiler flocks are sampled irrespective of their capacity. currently the sampling and analysis of both official controls and on behalf of the business operator are being carried out by the Competent Authority; namely the National Veterinary Laboratory

Frequency of the sampling

Broiler flocks: Before slaughter at farm

__2-3__ weeks prior to slaughter

Type of specimen taken

Broiler flocks: Before slaughter at farm

Socks/ boot swabs

Methods of sampling (description of sampling techniques)

Broiler flocks: Before slaughter at farm

The number of boot swabs taken per holding depends on the capacity of the farm.Six pairs of boot swabs are taken if the farms has a capacity of over 50,000. Four boot swabs are taken when there is a capacity between 10,000 - 50,000. Twp pairs of boot swabs are taken when the capacity is less than 10,00. Two pairs of boot swabs are taken from each house sampled.

Case definition

Broiler flocks: Before slaughter at farm

A positive case is when Salmonella enteritidis and Salmonella typhimurium are isolated.

Diagnostic/analytical methods used

Broiler flocks: Before slaughter at farm

Bacteriological method: ISO 6579:2002

Broiler flocks: At slaughter (flock based approach)

Bacteriological method: ISO 6579:2002

Vaccination policy

Broiler flocks

no vaccination for salmonella is carried out in Malta.

Other preventive measures than vaccination in place

Broiler flocks

In accordance to Commission Regulation 1177/2007, no antimicrobial treatment is permitted as a control measure in the case of salmonella infection in poultry flocks.

Control program/mechanisms

The control program/strategies in place

Broiler flocks

Broiler flocks positive to S.typhimurium and S.enteritidis are culled.The A Salmonella National control programme according to Council Regulation 2160/2003 and Commission Regulation 646/2007is being implemented.

Recent actions taken to control the zoonoses

Broiler flocks positive to s.typhimurium and s.enteritidis are destroyed.

Measures in case of the positive findings or single cases

Broiler flocks: Before slaughter at farm

Broiler flocks positive to s.typhimurium and s.enteritidis are destroyed.

Notification system in place

the National Veterinary Laboratory under the competent authority is responsible for notification of results to the Animal Health section and The Food Safety section which fall under the same CA for necessary action.

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

The Salmonella control programme has begun to be implemented in mid-2009, therefore it is a bit early to evaluate the situation . On what information is available the prevalence for all types of Salmonella infection is 31%.

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

Monitoring system

Sampling strategy

Laying hens flocks

The competent authority samples all layer flocks irrespectful of the capacity as official controls but also currently those on behalf of the business operators.

Frequency of the sampling

Laying hens: Rearing period

__18__ weeks prior to moving

Laying hens: Production period

Every __15__ weeks

Type of specimen taken

Laying hens: Rearing period

Environmental sample: samples of faeces and dust

Laying hens: Production period

Environmental sample: samples of faeces and dust

Methods of sampling (description of sampling techniques)

Laying hens: Rearing period

Two faecal samples and two dust samples are collected from each house on a holding.Faecal samples are collected from the bottom tiers of the manure belt.

Laying hens: Production period

The same samples are taken as described above.

Diagnostic/analytical methods used

Laying hens: Rearing period

Bacteriological method: ISO 6579:2002

Laying hens: Production period

Bacteriological method: ISO 6579:2002

Vaccination policy

Laying hens flocks

Layers are not vaccinated locally.

Other preventive measures than vaccination in place

Laying hens flocks

No antibiotic treatment is permitted as a means of control in case of salmonella infection in flocks.

Control program/mechanisms

The control program/strategies in place

Laying hens flocks

There is the Salmonella National control Programme that has been drawn up in accordance the Council Regulation 2160/2003 and Commission Regulation 1168/2006 and Control strategies followed are as

commission regulation 1177/2006.

Recent actions taken to control the zoonoses

Salmonella enteritidis and Salmonella typhimurium positive flocks have restriction measures implemented. The eggs are considered not fit for human consumption and are destroyed or heat-treated.

Measures in case of the positive findings or single cases

Laying hens flocks

Salmonella enteritidis and Salmonella typhimurium positive flocks have restriction measures implemented. The eggs are considered not fit for human consumption and are destroyed or heat-treated.

Notification system in place

All samples are brought into the National Veterinary Laboratory which carries out the analyses. Typing of positive isolates is carried out by the National reference laboratory. The National Veterinary Laboratory which falls under the competent authority is then responsible for communicating the information to the animal health section and food safety section which fall under the same authority for any further action if necessary. Action is only taken for Salmonella enteritidis and salmonella typhimurium positive cases.

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

The Salmonella Control Programme commenced in mid-2009. Based on the current data 42% of the holdings are positive for all types of Salmonella. it is too early in the programme to evaluate the trend.

Table Salmonella in breeding flocks of Gallus gallus

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Hadar	S. Infantis	S. Typhimurium	S. Virchow	Salmonella spp., unspecified
Gallus gallus (fowl) - parent breeding flocks for egg production line - day-old chicks	0										
Gallus gallus (fowl) - parent breeding flocks for egg production line - during rearing period	0										
Gallus gallus (fowl) - parent breeding flocks for egg production line - adult	0										
Gallus gallus (fowl) - parent breeding flocks for egg production line - unspecified	0										
Gallus gallus (fowl) - grandparent breeding flocks for egg production line	0										
Gallus gallus (fowl) - elite breeding flocks for egg production line	0										
Gallus gallus (fowl) - parent breeding flocks for broiler production line - day-old chicks	0										
Gallus gallus (fowl) - parent breeding flocks for broiler production line - during rearing period	0										
Gallus gallus (fowl) - parent breeding flocks for broiler production line - adult	0										
Gallus gallus (fowl) - parent breeding flocks for broiler production line - unspecified	0										
Gallus gallus (fowl) - grandparent breeding flocks for broiler production line	0										
Gallus gallus (fowl) - elite breeding flocks for broiler production line	0										
Gallus gallus (fowl) - parent breeding flocks, unspecified - day-old chicks	0										

Table Salmonella in breeding flocks of Gallus gallus

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Hadar	S. Infantis	S. Typhimurium	S. Virchow	Salmonella spp., unspecified
Gallus gallus (fowl) - parent breeding flocks, unspecified - during rearing period	0										
Gallus gallus (fowl) - parent breeding flocks, unspecified - adult	0										
Gallus gallus (fowl) - parent breeding flocks, unspecified	0										
Gallus gallus (fowl) - grandparent breeding flocks, unspecified	0										
Gallus gallus (fowl) - elite breeding flocks, unspecified	0										

Footnote:

In Malta there are no breeding flocks of any type of poultry.

Table Salmonella in other poultry

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Gallus gallus (fowl) - laying hens - day-old chicks				0				
Gallus gallus (fowl) - laying hens - during rearing period				0				
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes - official and industry sampling [1)]	98	CA	Holding	48	20	0	0	20
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes - sampling by industry				0				
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes - official sampling - objective sampling				0				
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes - official sampling - suspect sampling				0				
Gallus gallus (fowl) - broilers - day-old chicks				0				
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes - official and industry sampling [2)]	508	CA	Holding	87	27	0	2	25
Turkeys - breeding flocks, unspecified				0				
Turkeys - meat production flocks				0				
Ducks - breeding flocks, unspecified				0				
Ducks - meat production flocks				0				
Geese - breeding flocks, unspecified				0				

Table Salmonella in other poultry

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Geese - meat production flocks				0				

Comments:

[1)] there were 20 holdings positive for other serovars of Salmonella all were typed

[2)] there were 25 other holdings positive for Salmonella spp. all were typed.

2.1.5 Antimicrobial resistance in Salmonella isolates

Table Antimicrobial susceptibility testing of Salmonella in humans

Salmonella	S. Enteritidis		S. Typhimurium		Salmonella spp.		S. Bareilly		S. Clackamas		S. Derby		S. Give		S. Goldcoast		S. Indiana		S. Infantis		S. Kedougou		S. Kentucky		S. Kisii	
Isolates out of a monitoring program (yes/no)	no		no		no		no		no		no		no		no		no		no		no		no		no	
Number of isolates available in the laboratory	56		21		5		2		1		1		1		1		1		1		4		2		1	
Antimicrobials:	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n
Fluoroquinolones - Ciprofloxacin	53	0	21	0	5	0	2	0	1	0	1	0	1	0	1	0	1	0	1	0	3	0	2	0	1	0
Trimethoprim	53	0	21	0	5	0	2	0	1	0	1	0	1	0	1	0	1	0	1	0	3	0	2	0	1	0
Aminoglycosides - Gentamicin	53	0	21	0	5	0	2	0	1	0	1	0	1	0	1	0	1	0	1	0	3	0	2	0	1	0
Penicillins - Ampicillin	53	2	21	14	5	0	2	0	1	0	1	0	1	0	1	0	1	0	1	0	2	1	2	0	1	0
Fully sensitive	53	0			5	0	2	0	1	0	1	0	1	0	1	0	1	0	1	0	3	0	2	0	1	0
Resistant to 1 antimicrobial			21	14																						
Resistant to 4 antimicrobials																										

Salmonella	S. Livingstone		S. London		S. Muenchen		S. Paratyphi B		S. Tokoin		S. Tsevie		S. Tumodi		S. Virchow		Salmonella spp., unspecified	
Isolates out of a monitoring program (yes/no)	no		no		no		no		no		no		no		no		no	
Number of isolates available in the laboratory	3		1		1		1		1		1		1		1		18	
Antimicrobials:	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n
Fluoroquinolones - Ciprofloxacin	2	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	11	1
Trimethoprim	2	0	1	0	1	0	1	0	1	0	0	0	1	0	1	0	11	1
Aminoglycosides - Gentamicin	2	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	11	1
Penicillins - Ampicillin	2	0	1	0	1	0	1	0	1	0	1	1	1	0	1	0	11	1
Fully sensitive	2	0	1	0	1	0	1	0	1	0	0	0	1	0	1	0	10	0
Resistant to 1 antimicrobial											1	1						

Table Antimicrobial susceptibility testing of Salmonella in humans

Salmonella	S. Livingstone		S. London		S. Muenchen		S. Paratyphi B		S. Tokoin		S. Tsevie		S. Tumodi		S. Virchow		Salmonella spp., unspecified	
Isolates out of a monitoring program (yes/no)	no		no		no		no		no		no		no		no		no	
Number of isolates available in the laboratory	3		1		1		1		1		1		1		1		18	
Antimicrobials:	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n	N	n
Resistant to 4 antimicrobials																	11	1

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

Test Method Used	Standard methods used for testing

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

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

Test Method Used	Standard methods used for testing
	NCCLS/CLSI

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

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

Test Method Used	Standard methods used for testing

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

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

Test Method Used	Standard methods used for testing
	NCCLS/CLSI

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Florfenicol		32	
Fluoroquinolones	Ciprofloxacin	NCCLS/CLSI	4	
Trimethoprim	Trimethoprim	NCCLS/CLSI	4	
Aminoglycosides	Gentamicin	NCCLS/CLSI	16	
Penicillins	Ampicillin	NCCLS/CLSI	32	

2.2 CAMPYLOBACTERIOSIS

2.2.1 General evaluation of the national situation

2.2.2 Campylobacteriosis in humans

A. Thermophilic Campylobacter in humans

Reporting system in place for the human cases

Statutorily notifiable.

Case definition

ECDC definition holds

Diagnostic/analytical methods used

Culture and serology

Notification system in place

Yes. Physician and loboratory surveillance system.

History of the disease and/or infection in the country

The rates of campylobacteriosis have been increasing in the past few years.

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

sources of infection are probably poultry meats. National campaigns and food safety weeks being held annually to educate the public.

Relevance as zoonotic disease

A relevant zoonotic disease in veiw of the numbers involved, morbidity, expenses and possible long term complications.

Table Campylobacter in humans - Species/serotype distribution

Distribution Zoonotic Agent	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.	Unknown status
Campylobacter	132	33	130	32.5	2	.5	0
C. coli	10	2.5	10	2.5	0	0	0
C. jejuni	96	24	95	23.75	1	0.25	0
C. upsaliensis	0	0	0	0	0	0	0
Campylobacter spp., unspecified	26	6.5	25	6.25	1	0.25	0

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	0	0	0	11	7	4	2	2	0
1 to 4 years	1	1	0	27	17	10	4	3	1
5 to 14 years	1	1	0	20	15	5	4	2	2
15 to 24 years	1	1	0	9	5	4	2	0	2
25 to 44 years	5	2	3	11	7	4	6	4	2
45 to 64 years	0	0	0	9	5	4	1	0	1
65 years and older	2	1	1	7	6	1	7	4	3
Age unknown	0	0	0	2	1	1	0	0	0
Total :	10	6	4	96	63	33	26	15	11

Table Campylobacter in humans - Seasonal distribution

Distribution Seasonal	C. coli	C. jejuni	C. upsaliensis	Campylobacter spp., unspecified
	Cases	Cases	Cases	Cases
January	0	5	0	0
February	1	7	0	0
March	0	4	0	4
April	0	13	0	1
May	1	10	0	2
June	1	9	0	2
July	0	11	0	1
August	3	7	0	3
September	1	7	0	4
October	0	4	0	3
November	0	8	0	1
December	3	11	0	5
not known	0	0	0	0
Total :	10	96	0	26

2.2.3 Campylobacter in animals

Table Campylobacter in animals

	Source of information	Sampling unit	Units tested	Total units positive for Campylobacter	C. coli	C. jejuni	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Cats [1)]									
Cattle (bovine animals) - calves (under 1 year) [2)]									
Cattle (bovine animals) - dairy cows [3)]									
Dogs [4)]									
Ducks [5)]									
Gallus gallus (fowl) - broilers - at farm [6)]									
Gallus gallus (fowl) - broilers - at slaughterhouse [7)]									
Geese [8)]									
Goats [9)]									
Pigs [10)]									
Sheep [11)]									
Solipeds, domestic [12)]									
Turkeys [13)]									

Comments:

[1)] no data available
[2)] no data available
[3)] no data available
[4)] no data available

Table Campylobacter in animals

[5] no data available
[6] no data available
[7] no data available
[8] no data available
[9] no data available
[10] no data available
[11] no data available
[12] no data available
[13] no data available

2.2.4 Antimicrobial resistance in Campylobacter isolates

Table Antimicrobial susceptibility testing of Campylobacter in humans

Campylobacter	Campylobacter spp., unspecified		C. coli		C. jejuni	
Isolates out of a monitoring program (yes/no)	no		no		no	
Number of isolates available in the laboratory	26		10		96	
Antimicrobials:	N	n	N	n	N	n
Fluoroquinolones - Ciprofloxacin	26	4	10	3	96	18
Macrolides - Erythromycin	26	0	10	8	96	0
Fully sensitive	26	1	10	3	96	12
Resistant to 1 antimicrobial	26	4	10	3	96	0

Table Cut-off values used for antimicrobial susceptibility testing of Campylobacter in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		2	
Fluoroquinolones	Ciprofloxacin		1	
Aminoglycosides	Gentamicin		1	
	Streptomycin		2	
Macrolides	Erythromycin		4	

Table Cut-off values used for antimicrobial susceptibility testing of Campylobacter in Food

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		2	
Fluoroquinolones	Ciprofloxacin		1	
Aminoglycosides	Gentamicin		1	
	Streptomycin		2	
Macrolides	Erythromycin		4	

Table Cut-off values used for antimicrobial susceptibility testing of Campylobacter in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		2	
Fluoroquinolones	Ciprofloxacin		1	
Aminoglycosides	Gentamicin		1	
	Streptomycin		2	
Macrolides	Erythromycin		4	

Table Cut-off values used for antimicrobial susceptibility testing of Campylobacter in Humans

Test Method Used	Standard methods used for testing
	NCCLS/CLSI

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Fluoroquinolones	Ciprofloxacin	NCCLS/CLSI	1	
Macrolides	Erythromycin	NCCLS/CLSI	4	

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

No cases of human disease in recent years.

2.3.2 Listeriosis in humans

A. Listeriosis in humans

Reporting system in place for the human cases

A notifiable disease.

Case definition

ECDC definition holds.

Diagnostic/analytical methods used

Culture

Notification system in place

Yes

History of the disease and/or infection in the country

No notified cases of listeriosis in recent years.

Table Listeria in humans - Species/serotype distribution

Distribution Zoonotic Agent	Cases	Cases Inc.
Listeria	0	0
Listeria spp., unspecified	0	0
Congenital cases	0	0
Deaths	0	0

Table Listeria in humans - Age distribution

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

2.3.3 Listeria in animals

Table Listeria in animals

	Source of information	Sampling unit	Units tested	Total units positive for Listeria	L. monocytogenes	Listeria spp., unspecified
Cattle (bovine animals) [1)]						
Cattle (bovine animals) - dairy cows [2)]						
Gallus gallus (fowl) [3)]						
Goats [4)]						
Pigs [5)]						
Sheep [6)]						
Turkeys [7)]						

Comments:

[1)] no data available
[2)] no data available
[3)] no data available
[4)] no data available
[5)] no data available
[6)] no data available
[7)] no data available

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 - Species/serotype distribution

Distribution Zoonotic Agent	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
Escherichia coli, pathogenic	32	8	32	8	0	0
HUS	0	0	0	0	0	0
- clinical cases	0	0	0	0	0	0
- lab. confirmed cases	0	0	0	0	0	0
- caused by O157 (VT+)	0	0	0	0	0	0
- caused by other VTEC	0	0	0	0	0	0
E.coli infect. (except HUS)	8	2	8	2	0	0
- clinical cases	8	2	8	2	0	0
- laboratory confirmed	8	2	8	2	0	0
- caused by 0157 (VT+)	8	2	8	2	0	0
- caused by other VTEC	0	0	0	0	0	0

Footnote:

Our laboratories only test for by culture and serologically for E. coli O157. The capacity to test for non-O157 VTEC is not available.
As for Pathogenic strians of E. coli the Clinical laboratory has the capacity to test for these by serological means.

Table Escherichia coli, pathogenic in humans - Age distribution

Age distribution	Verotoxigenic E. coli (VTEC)			VTEC O157:H7			VTEC non-O157		
	All	M	F	All	M	F	F	M	All
<1 year	1	1	0	1	1	0	0	0	0
1 to 4 years	2	2	0	2	2	0	0	0	0
5 to 14 years	1	0	1	1	0	1	0	0	0
15 to 24 years	0	0	0	0	0	0	0	0	0
25 to 44 years	1	1	0	1	1	0	0	0	0
45 to 64 years	0	0	0	0	0	0	0	0	0
65 years and older	3	0	3	3	0	3	0	0	0
Age unknown	0	0	0	0	0	0	0	0	0
Total :	8	4	4	8	4	4	0	0	0

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

In a recent study (1995-2005) the elderly group of locally born persons are mostly affected with an incidence of 10.6/100,000 persons-years. Since 2003 we have seen a rise in TB corresponding to a wave of illegal immigrants from the sub-sahharin regions of Africa.

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

The trends of TB in immigrants has been steady with a number of active and latent cases being treated.

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

Immigrant cases are mostly imported ones. Few might be locally acquired possibly because of close proximity of living quarters in detention centers

Recent actions taken to control the zoonoses

routine screening of all immigrants and DOTS treatment.

2.5.2 Tuberculosis, mycobacterial diseases in humans

A. Tuberculosis due to Mycobacterium bovis in humans

Reporting system in place for the human cases

Statutory Notification from Laboratories, Physicians.

Diagnostic/analytical methods used

Culture

Notification system in place

Statutory Notification from Laboratories, Physicians.

History of the disease and/or infection in the country

very rare in humans

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

Last human case in 2006. Case acquired from contact with cattle. No further cases since.

Table Mycobacterium in humans - Species/serotype distribution

Distribution Zoonotic Agent	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
Mycobacterium	46	11.5	10	2.5	34	8.25
M. bovis	0	0	0	0	0	0
M. tuberculosis	44	11	10	2.5	32	8
Reactivation of previous cases	2	0.5	0	0	2	0.25

Footnote:

Please note that as the figures show the majority of TB human cases are in foreign born immigrants. It is difficult to be precise in making a trict definition and criteria for TB of imported cases. As a country we make distinction into Malta-locally born and foreign born individuals.

The incubation period is long, reactivation of latent TB can occcur while the social conditions of detention make spread and reactivation may be a contributing factor.

Malta does however screen immigrants o n their arrival to the country.

Table Mycobacterium in humans - Age distribution

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

2.5.3 Mycobacterium in animals

A. Mycobacterium bovis in bovine animals

Status as officially free of bovine tuberculosis during the reporting year

Additional information

The last confirmed positive case was in 2001.

Monitoring system

Diagnostic/analytical methods used

On farm skin test carried out twice yearly according to standard protocols.

Measures in case of the positive findings or single cases

The positive animal is slaughtered and tissue samples taken for microbiology tests. If microbiology is negative the farm is considered as negative.

Notification system in place

The Veterinary officer in charge of animal health is responsible of informing the farmer. The farmer is then advised to make arrangements for the slaughter of the animal and sampling for Microbiology is carried out.

Table Tuberculosis in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Mycobacterium	M. bovis	M. tuberculosis	Mycobacterium spp., unspecified
Goats		Animal	884	0	0	0	0

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	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			
Malta	363	16861	363	100	0	0	2 times a year	13769	0	0	0
Total : [1)]	363	16861	363	100	0	0	N.A.	13769	0	0	0

Comments:

[1)] N.A.

2.6 BRUCELLOSIS

2.6.1 General evaluation of the national situation

A. Brucellosis general evaluation

History of the disease and/or infection in the country

The last case of brucellosis in Malta occurred in 1998. This followed a short epidemic related to goat's milk in 1995.

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

Strict control of animal herds have eliminated human cases since 1998.

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

n reported findings in foodstuffs.

Recent actions taken to control the zoonoses

Routine surveillance from the veterinary end.

2.6.2 Brucellosis in humans

A. Brucellosis in humans

Reporting system in place for the human cases

Statutory notification obliging laboratories and physicians to notify cases.

Case definition

Clinical picture with demonstration of specific antibody response, demonstration by immunoflorescense of Isolation of Brucella.

Diagnostic/analytical methods used

Serology, Immunoflorescence and isolation from clinical specimens.

Notification system in place

Statutory notification by labs and physicians.

History of the disease and/or infection in the country

As above.

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

N human cases since 1998.

Relevance as zoonotic disease

There is the hope that in the future Malta might be Brucella free

Table Brucella in humans - Species/serotype distribution

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

Table Brucella in humans - Age distribution

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

2.6.3 Brucella in animals

A. Brucella abortus in bovine animals

Status as officially free of bovine brucellosis during the reporting year

The entire country free

Brucella abortus has never been recorded in bovines in Malta. The last case confirmed in Bovines was B.melitensis in 1996.

Monitoring system

Sampling strategy

All animals over 6 mouths

Frequency of the sampling

Blood twice Yearly, Milk bulk tank 3 times a year.

Type of specimen taken

Other: blood, milk or tissue

Methods of sampling (description of sampling techniques)

Blood sampling on farms is carried out twice yearly for screening with RBT/ELISA. Bulk milk tank samples are taken 3 times a year to screen by MRT.

Diagnostic/analytical methods used

Rose Bengal Test, ELISA, Milk Ring Test, Complement Fixation Test, Microbiological analysis of lymph node samples from CFT positive animals.

Vaccination policy

No vaccination for brucellosis is carried out in Malta.

Other preventive measures than vaccination in place

Animal movement is controlled and only authorized by the CA and based on the Health Status of the farm.

Control program/mechanisms

The control program/strategies in place

Animals that test positive to a complement fixation test are slaughtered and tissue samples lifted. These samples are then subject to microbiological analysis.

Measures in case of the positive findings or single cases

The positive animal is slaughtered and tissue samples lifted. These samples are then sent for microbiology. All the animals on the farmare retested at an interval of 1 month from the slaughter of the CFT positive animal and again after 2 months. If the microbiology test is negative the farm is considered negative.

Notification system in place

The National Veterinary Laboratory sends the results of screening to the National Livestock database. In the case of a positive screening result the Veterinary officer responsible for Animal Health is informed by email of the positive result. Farmers are sent a copy of both the negative and positive result (RBT,MRT,ELISA,Microbiology). If the microbiology test is negative the farm is considered negative.

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
Malta	1860	18995	1350	72.58	0	0	1350	15604	0	15604	0	0	0	0
Total : [1)]	1860	18995	1350	72.58	0	0	1350	15604	0	15604	0	0	0	0

Comments:

[1)] N.A.

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

Region	Total number of herds	Total number of herds under the programme	Number of herds checked	Number of positive herds	Number of new positive herds	Number of herds depopulated	% positive herds depopulated	Indicators		
								% herd coverage	% positive herds Period herd prevalence	% new positive herds Herd Incidence
Malta	363	363	363	0	0	0	N.A.	100	0	0
Total : [1)]	363	363	363	0	0	0	N.A.	100	0	0
Total - 1	421	421	421	0	0	0	N.A.	100	0	0

Comments:

[1)] N.A.

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

Region	Total number of animals	Number of animals to be tested under the programme	Number of animals tested	Number of animals tested individually	Number of positive animals	Slaughtering		Indicators	
						Number of animals with positive result slaughtered or culled	Total number of animals slaughtered	% coverage at animal level	% positive animals - animal prevalence
Malta	16861	16861	14119	14119	0	0	0	83.74	0
Total : [1)]	16861	16861	14119	14119	0	0	0	83.74	0
Total - 1	11231	11231	11231	11231	0	0	0	100	0

Comments:

[1)] N.A.

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

	Status of herds and animals under the programme													
	Total number of herds and animals under the programme		Unknown		Not free or not officially free				Free or officially free suspended		Free		Officially free	
					Last check positive		Last check negative							
Region	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals
Malta	363	16861	363	16861	0	0	363	14119	0	0	363	14119		
Total : [1)]	363	16861	363	16861	0	0	363	14119	0	0	363	14119	0	0

Comments:

[1)] N.A.

2.7 YERSINIOSIS

2.7.1 General evaluation of the national situation

A. Yersinia enterocolitica general evaluation

History of the disease and/or infection in the country

No cases in recent years.

2.7.2 Yersiniosis in humans

A. Yersinosis in humans

Reporting system in place for the human cases

Statutorily notifiable infection.

Case definition

Clinical criteria and Isolation of pthogenic bacteria in a clinical specimen.

Diagnostic/analytical methods used

Testing in accredited to foreign labs.

Notification system in place

Yes

History of the disease and/or infection in the country

No recent history of disease locally.

Table Yersinia in humans - Species/serotype distribution

Distribution Zoonotic Agent	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
Yersinia	0	0	0	0	0	0
Y. enterocolitica	0	0	0	0	0	0
O:3	0	0	0	0	0	0
O:9	0	0	0	0	0	0

Table Yersinia in humans - Age distribution

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

Table Yersinia in humans - Seasonal distribution

Distribution Seasonal	Y. enterocolitica	Yersinia spp., unspecified
	Cases	Cases
January	0	0
February	0	0
March	0	0
April	0	0
May	0	0
June	0	0
July	0	0
August	0	0
September	0	0
October	0	0
November	0	0
December	0	0
not known	0	0
Total :	0	0

2.8 TRICHINELLOSIS

2.8.1 General evaluation of the national situation

A. Trichinellosis general evaluation

History of the disease and/or infection in the country

There are no recorded human or animal cases.

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

The possibility of swine being infected with trichinella are very remote. There are no wild animals in Malta that may support the cycle in wildlife. All Pigs are reared indoors.There are no backyard farms and no freerange pigs

Recent actions taken to control the zoonoses

There is no wildlife on Malta. Trichinella testing in the past was carried out using the trichinoscope menthod. End of 2009 the digestive method was being adopted. Full analysis of all horse/swine slaughtered commenced beginning 2010.

2.8.2 Trichinellosis in humans

A. Trichinellosis in humans

Reporting system in place for the human cases

Statutorily notifiable disease.

Case definition

EDC definition holds.

Diagnostic/analytical methods used

Bopsy of skeletal muscle and serological testing.

Notification system in place

From physicians and laboratories.

History of the disease and/or infection in the country

No recorded human cases.

Table Trichinella in humans - Species/serotype distribution

Distribution Zoonotic Agent	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
Trichinella	0	0	0	0	0	0
Trichinella spp., unspecified	0	0	0	0	0	0

Table Trichinella in humans - Age distribution

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

2.8.3 Trichinella in animals

Table Trichinella in animals

	Source of information	Sampling unit	Units tested	Total units positive for Trichinella	T. spiralis	Trichinella spp., unspecified
Bears			0			
Foxes			0			
Pigs			0			
Pigs - breeding animals - unspecified - sows and boars			0			
Pigs - fattening pigs - not raised under controlled housing conditions in integrated production system			0	0	0	0
Pigs - fattening pigs - raised under controlled housing conditions in integrated production system		Slaughter batch	100	0		
Rats			0			
Rodents			0			
Solipeds, domestic			0			
Solipeds, domestic - horses			0			
Wild boars - farmed			0			
Wild boars - wild			0			

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

No notified cases in the past few years

2.9.2 Echinococcosis in humans

A. Echinococcus spp. in humans

Reporting system in place for the human cases

Statutorily notifiable disease.

Case definition

ECDC definition holds

Table Echinococcus in humans - Species/serotype distribution

Distribution Zoonotic Agent	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
Echinococcus	0	0	0	0	0	0
E. granulosus	0	0	0	0	0	0
E. multilocularis	0	0	0	0	0	0
Echinococcus spp., unspecified	0	0	0	0	0	0

Table Echinococcus in humans - Age distribution

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

2.9.3 Echinococcus in animals

Table Echinococcus in animals

	Source of information	Sampling unit	Units tested	Total units positive for Echinococcus	E. granulosus	E. multilocularis	Echinococcus spp., unspecified
Cats [1)]							
Cattle (bovine animals) [2)]							
Dogs [3)]							
Foxes [4)]							
Goats [5)]							
Pigs [6)]							
Reindeers [7)]							
Sheep [8)]							
Solipeds, domestic [9)]							

Comments:

[1)] no data available
[2)] not reported
[3)] no data available
[4)] there are no foxes in Malta
[5)] not reported
[6)] not reported
[7)] there are no reindeers in Malta
[8)] not reported
[9)] not reported

2.10 TOXOPLASMOSIS

2.10.1 General evaluation of the national situation

A. Toxoplasmosis general evaluation

History of the disease and/or infection in the country

No reported cases.

2.10.2 Toxoplasmosis in humans

A. Toxoplasmosis in humans

Reporting system in place for the human cases

Statutorily notifiable disease.

Case definition

ECDC definition holds.

Diagnostic/analytical methods used

Serological methods.

Notification system in place

Yes

History of the disease and/or infection in the country

No notified cases.

Table Toxoplasma in humans - Species/serotype distribution

Distribution Zoonotic Agent	Cases	Cases Inc.
Toxoplasma	0	0
Toxoplasma spp., unspecified	0	0
Congenital cases	0	0

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

Last rerported rabies case at the beginning of the 20th century!

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

No known animal cases.

2.11.2 Rabies in humans

A. Rabies in humans

Reporting system in place for the human cases

Rabies is still a notifiable disease in Malta.

Case definition

ECDC definition holds.

2.12 Q-FEVER

2.12.1 General evaluation of the national situation

A. Coxiella burnetii (Q-fever) general evaluation

History of the disease and/or infection in the country

No reported cases in recent years.

3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE

3.1 ESCHERICHIA COLI, NON-PATHOGENIC

3.1.1 General evaluation of the national situation

A. Escherichia coli general evaluation

History of the disease and/or infection in the country

E. coli O157 disease is not common with a handful of cases each year.

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

No recent trends noticed.

Recent actions taken to control the zoonoses

Educational campiagns, stricter control at food production premises.

3.1.2 Antimicrobial resistance in Escherichia coli, non-pathogenic

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.03	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulfonamides	Sulfonamides		256	
Aminoglycosides	Streptomycin		16	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.25	
Penicillins	Ampicillin		8	

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Food

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.03	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulfonamides	Sulfonamides		256	
Aminoglycosides	Streptomycin		16	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.25	
Penicillins	Ampicillin		8	

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.03	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulfonamides	Sulfonamides		256	
Aminoglycosides	Streptomycin		16	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.25	
Penicillins	Ampicillin		8	

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Humans

Test Method Used	Standard methods used for testing
	NCCLS/CLSI

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Fluoroquinolones	Ciprofloxacin	NCCLS/CLSI	4	
Trimethoprim	Trimethoprim	NCCLS/CLSI	4	
Aminoglycosides	Gentamicin	NCCLS/CLSI	16	
Penicillins	Ampicillin	NCCLS/CLSI	32	

3.2 ENTEROCOCCUS, NON-PATHOGENIC

3.2.1 General evaluation of the national situation

3.2.2 Antimicrobial resistance in Enterococcus, non-pathogenic isolates

Table Cut-off values for antibiotic resistance of Enterococcus, non-pathogenic in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Streptomycin		512	
	Gentamicin		32	
Amphenicols	Chloramphenicol		32	
Penicillins	Ampicillin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	
Oxazolidines	Linezolid		4	

Table Cut-off values for antibiotic resistance of Enterococcus, non-pathogenic in Food

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Streptomycin		512	
	Gentamicin		32	
Amphenicols	Chloramphenicol		32	
Penicillins	Ampicillin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	
Oxazolidines	Linezolid		4	

Table Cut-off values for antibiotic resistance of Enterococcus, non-pathogenic in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Streptomycin		512	
	Gentamicin		32	
Amphenicols	Chloramphenicol		32	
Penicillins	Ampicillin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	
Oxazolidines	Linezolid		4	

4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS

4.1 ENTEROBACTER SAKAZAKII

4.1.1 General evaluation of the national situation

A. Enterobacter sakazakii general evaluation

History of the disease and/or infection in the country

No known history or cases in Malta.

Recent actions taken to control the hazard

Surveillance being done on infant milk formulatins at the laboratory end.

4.1.2 Enterobacter sakazakii in foodstuffs

Table Enterobacter sakazakii in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Enterobacter sakazakii	E. sakazakii
Foodstuffs intended for special nutritional uses - dried dietary foods for special medical purposes intended for infants below 6 months	Public health lab	---				

4.2 HISTAMINE

4.2.1 General evaluation of the national situation

A. Histamine General evaluation

History of the disease and/or infection in the country

Malta has few reported cases of histame poisoning in humans every year. It may be under reported.

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

Most cases occur via canned tuna or from locally caught dolphin fish which were temperature mis-treated at some stage of food preparation.

4.2.2 Histamine in foodstuffs

Table Histamine in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units in non-conformity	<= 100 mg/kg	>100 - <= 200 mg/kg	>200 - <= 400 mg/kg	> 400 mg/kg
Fish - Fishery products from fish species associated with a high amount of histidine - not enzyme maturated	public health labs	Single	50-200 grams	44	6	37	1	5	1
Fish - Fishery products which have undergone enzyme maturation treatment in brine	public health labs	Single	200grams	1	0	1	0	0	0

4.3 STAPHYLOCOCCAL ENTEROTOXINS

4.3.1 General evaluation of the national situation

A. Staphylococcal enterotoxins general evaluation

History of the disease and/or infection in the country

Not common.

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

There are no particular trends being observed

Recent actions taken to control the hazard

Educational campaigns on food safety and hygiene undergoing.

5. FOODBORNE

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

A. Foodborne outbreaks

System in place for identification, epidemological investigations and reporting of foodborne outbreaks

Statutory notification system involving all physicians and laboratories. Epidemiological investigation done by epidemiologists at the Health promotion and Disease Prevention Directorate, with field investigations performed by the Environmental Health Directorate of the Regulatory directorate of the Health Department.

Description of the types of outbreaks covered by the reporting:

All suspected types of food-borne outbreaks reported, however not all outbreaks are reported. All notified outbreaks are classified according to origin.

National evaluation of the reported outbreaks in the country:

Trends in numbers of outbreaks and numbers of human cases involved

There has been no major trend over the last decade in the number of outbreaks. Minor changes from year to year reflect random variability as the country is small.

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

All types of food-borne outbreaks are more common in households (30-45%).The next most common source are restaurants.

Evaluation of the severity and clinical picture of the human cases

No specific trends have been noticed.

Table Foodborne Outbreaks: summarised data

	Total number of outbreaks	Outbreaks	Human cases	Hospitalized	Deaths	Number of verified outbreaks
Bacillus	0	0	0	0	0	0
Campylobacter	5	5	13	5	0	0
Clostridium	0	0	0	0	0	0
Escherichia coli, pathogenic	1	1	4	0	0	0
Foodborne viruses	1	1	3	0	0	0
Listeria	0	0	0	0	0	0
Other agents	0	0	unknown	unknown	unknown	0
Parasites	0	0	0	0	0	0
Salmonella	14	14	88	unknown	0	0
Staphylococcus	1	1	2	0	0	0
Unknown	24	24	105	0	0	0
Yersinia	0	0	0	0	0	0