

Malta

TRENDS AND SOURCES OF ZOONOSES AND ZONOTIC AGENTS IN FOODSTUFFS, ANIMALS AND FEEDINGSTUFFS

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

IN 2015

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 2015.

The information covers the occurrence of these diseases and agents in animals, foodstuffs and in some cases also in feedingstuffs. In addition the report includes data on antimicrobial resistance in some zoonotic agents and indicator 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 Union 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 European Union 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 European Union Summary Reports on zoonoses and antimicrobial resistance that are published each year by EFSA.

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

TEXTFORMS	3
1 ANIMAL POPULATIONS	3
1.1 Populations	3
1.1.1 Information on susceptible animal population	3
2 DISEASE STATUS	4
2.1 TUBERCULOSIS, MYCOBACTERIAL DISEASES	4
2.1.1 General evaluation of the national situation	4
2.1.1.1 Mycobacterium - general evaluation	4
2.1.2 Mycobacterium in animals	4
2.1.2.1 Mycobacterium tuberculosis complex (MTC) in animal - Cattle (bovine animals)	4
2.2 BRUCELLOSIS	5
2.2.1 General evaluation of the national situation	5
2.2.1.1 Brucella - general evaluation	5
2.2.2 Brucella in animals	5
2.2.2.1 B. abortus in animal - Cattle (bovine animals)	5
2.2.2.2 B. melitensis in animal - Goats	7
3 INFORMATION ON SPECIFIC ZOOSES AND ZOO NOTIC AGENTS	9
3.1 SALMONELLOSIS	9
3.1.1 General evaluation of the national situation	9
3.1.1.1 Salmonella - general evaluation	9
3.1.2 Salmonella in foodstuffs	9
3.1.2.1 Salmonella in food - Eggs	9
3.1.3 Salmonella in animals	10
3.1.3.1 Salmonella in animal - Gallus gallus (fowl) - broilers	10
3.1.3.2 Salmonella in animal - Gallus gallus (fowl) - breeding flocks, unspecified	11
3.2 LISTERIOSIS	12
3.2.1 General evaluation of the national situation	12
3.2.1.1 Listeria - general evaluation	12
3.3 YERSINIOSIS	12
3.3.1 General evaluation of the national situation	12
3.3.1.1 Yersinia - general evaluation	12
3.4 TRICHINELLOSIS	12
3.4.1 General evaluation of the national situation	12
3.4.1.1 Trichinella - general evaluation	12
3.4.2 Trichinella in animals	13
3.4.2.1 Trichinella in animal - Solipeds, domestic - horses	13
3.5 ECHINOCOCCOSIS	13
3.5.1 General evaluation of the national situation	13
3.5.1.1 Echinococcus - general evaluation	13
3.5.2 Echinococcus in animals	14
3.5.2.1 Echinococcus in animal - Dogs	14
3.6 RABIES	14
3.6.1 General evaluation of the national situation	14
3.6.1.1 Lyssavirus (rabies) - general evaluation	14
3.7 Q-FEVER	15
3.7.1 General evaluation of the national situation	15
3.7.1.1 Coxiella (Q-fever) - general evaluation	15
3.8 ESCHERICHIA COLI, NON-PATHOGENIC	15
3.8.1 General evaluation of the national situation	15
3.8.1.1 Escherichia coli, non-pathogenic - general evaluation	15
4 INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS	16
4.1 CRONOBACTER	16
4.1.1 General evaluation of the national situation	16
4.1.1.1 Cronobacter - general evaluation	16
4.1.2 Cronobacter in foodstuffs	16
4.1.2.1 Cronobacter in food	16
4.2 HISTAMINE	17
4.2.1 General evaluation of the national situation	17
4.2.1.1 Histamine - general evaluation	17
4.3 STAPHYLOCOCCAL ENTEROTOXINS	17
4.3.1 General evaluation of the national situation	17
4.3.1.1 Staphylococcal enterotoxins - general evaluation	17
5 FOODBORNE OUTBREAKS	18
5.1 Outbreaks	18
5.1.1 Foodborne outbreaks	18
ANIMAL POPULATION TABLES	19
DISEASE STATUS TABLES FOR BRUCELLA	20
Bovine brucellosis in countries and regions that do not receive Community co-financing for eradication programme	20
Ovine or Caprine brucellosis in countries and regions that do not receive Community co-financing for eradication programme	21
DISEASE STATUS TABLES FOR MYCOBACTERIUM	22
Bovine tuberculosis in countries and regions that do not receive Community co-financing for eradication programme	22
PREVALENCE TABLES	23
ANISAKIS	23
animal	23
BRUCELLA	24
animal	24
ECHINOCOCCUS	25
animal	25
ESCHERICHIA COLI, NON-PATHOGENIC	26
animal	26
MYCOBACTERIUM	27
animal	27
SALMONELLA	28
animal	28
TRICHINELLA	29
animal	29
FOODBORNE OUTBREAKS TABLES	30
AMR TABLES FOR CAMPYLOBACTER	33
AMR TABLES FOR SALMONELLA	34
Salmonella Croft	34
Meat from pig - carcase - Slaughterhouse - Monitoring - Official sampling - AMR MON	34
Salmonella Give	35
Meat from pig - carcase - Slaughterhouse - Monitoring - Official sampling - AMR MON	35
Salmonella Goldcoast	36
Meat from pig - carcase - Slaughterhouse - Monitoring - Official sampling - AMR MON	36
Salmonella Infantis	37
Meat from pig - carcase - Slaughterhouse - Monitoring - Official sampling - AMR MON	37
Salmonella Panama	38
Meat from pig - carcase - Slaughterhouse - Monitoring - Official sampling - AMR MON	38
Salmonella Typhimurium, monophasic	39
Meat from pig - carcase - Slaughterhouse - Monitoring - Official sampling - AMR MON	39
AMR TABLES FOR ESCHERICHIA COLI	40
Escherichia coli, non-pathogenic, unspecified	40
Pigs - fattening pigs - Slaughterhouse - Monitoring - Official sampling - AMR MON	40
OTHER AMR TABLES	42

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

1.1 Populations

1.1.1 Information on susceptible animal population

Sources of information

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

Dates the figures relate to and the content of the figures

2015

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 middle of the Mediterranean Sea, 98 km from Sicily and 356 km from 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, covering a total surface area of 316 sq.km. The population of Malta is around 423,000 with a population density of 1318 inhabitants/sq.km. Most of the farms for all species are found mainly on the main island i.e. Malta. The farming industry consists of mainly Bovine Dairy Herds, Fattening Pigs, Poultry and a substantial number of Ovine and Caprine holdings. Most of the Bovine and Swine holdings are run by full time farmers and are generally family run. These holdings are of small to medium size, the majority of farms being small holdings. Broiler and Layers flocks are generally operated by part-time farmers. The sheep and goat industry consists of a few medium sized flocks with the great majority of the holdings being small backyard type flocks.

2 DISEASE STATUS

2.1 TUBERCULOSIS, MYCOBACTERIAL DISEASES

2.1.1 General evaluation of the national situation

2.1.1.1 Mycobacterium - 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.

2.1.2 Mycobacterium in animals

2.1.2.1 Mycobacterium tuberculosis complex (MTC) in animal - Cattle (bovine animals)

Status as officially free of bovine tuberculosis during the reporting year

Additional information

In November 2015 Malta submitted to the Commission documentation demonstrating compliance for the entire territory with the conditions laid down in Directive 64/432/EEC for officially tuberculosis-free status as regards bovine herds. This application was accepted by the Commission in March 2016.

Monitoring system

Diagnostic/analytical methods used

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

Control program/mechanisms

The control program/strategies in place

The intradermal comparative tuberculin test performed every six months on all animals over 6 weeks old (with the exception of males for fattening); The post mortem inspection to detect the presence of tuberculosis visible lesions carried out at the slaughterhouse on all the bovine animals slaughtered, including males for fattening.

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.

2.2 BRUCELLOSIS

2.2.1 General evaluation of the national situation

2.2.1.1 Brucella - 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.

2.2.2 Brucella in animals

2.2.2.1 B. abortus in animal - Cattle (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.

Free regions

All the Maltese Islands including the island of Gozo are considered free of Brucella

Additional information

The history of Brucella Surveillance in Malta can be summarized as follows: - surveillance programme established in 60s - Vaccination programme in early 80s - Eradication programme in 1987 - Compulsory registration of animals and farms - Awareness campaign - Control movement according to health status - Test and slaughter with depopulation if high prevalence - Compensation - Stop vaccination - 2005 more strict control programme - In November 2015 Malta submitted to the Commission documentation demonstrating compliance for the entire territory with the conditions laid down in Directive 64/432/EEC for officially brucella-free status as regards bovine herds. This application was accepted by the Commission in March 2016

Monitoring system

Sampling strategy

All animals over 6 months

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 farm are 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.

2.2.2.2 B. melitensis in animal - Goats

Status as officially free of caprine brucellosis during the reporting year

The entire country free

The history of Brucella Surveillance in Malta can be summarized as follows: - surveillance programme established in 60s; - Vaccination programme in early 80s - Eradication programme in 1987 - Compulsory registration of animals and farms - Awareness campaign - Control movement according to health status - Test and slaughter with depopulation if high prevalence - Compensation - Stop vaccination - 2005 to date more strict control programme. Brucella abortus has never been recorded in caprines. The last case confirmed was B. melitensis in 1996.

Monitoring system

Sampling strategy

All animals over 6 months are tested twice yearly.

Frequency of the sampling

All animals over 6 months are tested twice yearly.

Type of specimen taken

Blood

Methods of sampling (description of sampling techniques)

Blood samples are taken from all animals over 6 months.

Diagnostic/analytical methods used

Rose Bengal Test, Complement Fixation Test, ELISA and Microbiology

Vaccination policy

No Vaccination is practiced in the Maltese Islands

Other preventive measures than vaccination in place

Strict control of animal movement

Measures in case of the positive findings or single cases

Any animal positive for RBT is then re tested using CFT and ELISA. Positive CFT/ELISA animals are slaughtered and organs are submitted for Microbiological investigation.

3 INFORMATION ON SPECIFIC ZONOSSES AND ZONOTIC 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.

3.1 SALMONELLOSIS

3.1.1 General evaluation of the national situation

3.1.1.1 Salmonella - 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 Typhimurium.

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.

3.1.2 Salmonella in foodstuffs

3.1.2.1 Salmonella in food - Eggs

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

3.1.3 Salmonella in animals

3.1.3.1 Salmonella in animal - Gallus gallus (fowl) - broilers

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. Two 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 646/2007 is 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 .

3.1.3.2 Salmonella in animal - Gallus gallus (fowl) - breeding flocks, unspecified

Monitoring system

Sampling strategy

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

There are no breeding flocks in Malta

3.2 LISTERIOSIS

3.2.1 General evaluation of the national situation

3.2.1.1 Listeria - general evaluation

History of the disease and/or infection in the country

No cases of human disease in recent years.

3.3 YERSINIOSIS

3.3.1 General evaluation of the national situation

3.3.1.1 Yersinia - general evaluation

History of the disease and/or infection in the country

No cases in recent years.

3.4 TRICHINELLOSIS

3.4.1 General evaluation of the national situation

3.4.1.1 Trichinella - general evaluation

History of the disease and/or infection in the country

The absence of suitable wild life hosts such as wild boar exclud the possibility of Trichinella infection becoming established in Malta. Non the less sampling and testing for Trichinella is still carried out as required by EU legislation. There have never been any recorded human or animal cases of Trichinella in the Maltese Islands.

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. The National Veterinary Laboratory is also accredited to carry out Trichinella testing by the digestive method under ISO 17025.

3.4.2 Trichinella in animals

3.4.2.1 Trichinella in animal - Solipeds, domestic - horses

Monitoring system

Sampling strategy

All Horses slaughtered for human consumption are sampled

Frequency of the sampling

All Horses slaughtered for human consumption are sampled

Type of specimen taken

Muscle

Diagnostic/analytical methods used

Digestive Method as per Commission Regulation (EU) 2015/1375

3.5 ECHINOCOCCOSIS

3.5.1 General evaluation of the national situation

3.5.1.1 Echinococcus - general evaluation

History of the disease and/or infection in the country

No notified cases in the past few years

3.5.2 Echinococcus in animals

3.5.2.1 Echinococcus in animal - Dogs

Monitoring system

Sampling strategy

Malta like the United Kingdom, Finland, Ireland and Norway is free from Echinococcus Multilocularis. Malta is also free from both the intermediate and final host for this parasite. Therefore Malta has opted to retain the obligation for antiparasitic treatment of animals being brought into the Island from endemic areas. Commission Regulation (EU) No 1152/2011 requires that those countries claiming to be free of the parasite monitor and report on the occurrence of E.multilocularis. The pathogen-specific surveillance programme is designed to detect a prevalence of not more than 1 % at confidence level of at least 95 %. The pathogen-specific surveillance programme uses sampling at the defined prevalence specified above to ensure the detection of the Echinococcus multilocularis parasite if present. The regulation is due to be revised in 2016. To date no infection with EM has been found through this monitoring program.

Frequency of the sampling

The surveillance programme for echinococcus Multilocularis consists in the ongoing collection, during the 12-month surveillance period, of samples from domestic definitive hosts, in the case of Malta, where there is evidence of the absence of wild definitive hosts.

Type of specimen taken

Faecal samples from dogs

Diagnostic/analytical methods used

Flotation and concentration of eggs from faeces followed by PCR identification.

Other preventive measures than vaccination in place

Deworming treatment for animals entering the country from endemic areas.

3.6 RABIES

3.6.1 General evaluation of the national situation

3.6.1.1 Lyssavirus (rabies) - general evaluation

History of the disease and/or infection in the country

Last reported rabies case at the beginning of the 20th century!A notifiable infection

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

No known animal cases.

3.7 Q-FEVER

3.7.1 General evaluation of the national situation

3.7.1.1 Coxiella (Q-fever) - general evaluation

History of the disease and/or infection in the country

No reported cases in recent years.

3.8 ESCHERICHIA COLI, NON-PATHOGENIC

3.8.1 General evaluation of the national situation

3.8.1.1 Escherichia coli, non-pathogenic - 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 campaigns, stricter control at food production premises.

4 INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS

4.1 CRONOBACTER

4.1.1 General evaluation of the national situation

4.1.1.1 Cronobacter - general evaluation

History of the disease and/or infection in the country

No known history of cases in Malta.

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

No cases of disease identified in Malta

Suggestions to the European Union for the actions to be taken

None so far

4.1.2 Cronobacter in foodstuffs

4.1.2.1 Cronobacter in food

Monitoring system

Type of specimen taken

Milk

Methods of sampling (description of sampling techniques)

EC regulation 2073/2005 on microbiological criteria on food stuffs where in 30 samples of 10 grms all samples must be negative.

Definition of positive finding

Detection of *Enterobacter sakazakii* in any of the samples.

Diagnostic/analytical methods used

ISO/ts: 22964 /2006

Preventive measures in place

4.2 HISTAMINE

4.2.1 General evaluation of the national situation

4.2.1.1 Histamine - general evaluation

History of the disease and/or infection in the country

Malta has few reported cases of histamine 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.

4.3 STAPHYLOCOCCAL ENTEROTOXINS

4.3.1 General evaluation of the national situation

4.3.1.1 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

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.

5.1 Outbreaks

5.1.1 Foodborne outbreaks

System in place for identification, epidemiological 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.

ANIMAL POPULATION TABLES

Table Susceptible animal population

Animal species	Category of animals	Population			
		holding	animal	slaughter animal (heads)	herd/flock
Cattle (bovine animals)	Cattle (bovine animals)			3,943	
	Cattle (bovine animals) - calves (under 1 year)		3,623		
	Cattle (bovine animals) - dairy cows	108			
	Cattle (bovine animals) - dairy cows - adult		6,999		
	Cattle (bovine animals) - dairy cows - young cattle (1-2 years)		2,930		
	Cattle (bovine animals) - meat production animals	163	1,804		
	Cattle (bovine animals) - meat production animals - calves (under 1 year)		875		
	Cattle (bovine animals) - meat production animals - young cattle (1-2 years)		690		
Dogs	Dogs		57,477		
Gallus gallus (fowl)	Gallus gallus (fowl) - broilers	64	2,152,282	1,878,353	456
	Gallus gallus (fowl) - laying hens	34	385,730	84,784	83
Goats	Goats	345	5,123	1,122	345
Pigs	Pigs - breeding animals - not raised under controlled housing conditions - boars		331	75	
	Pigs - breeding animals - not raised under controlled housing conditions - sows		7,808	1,356	
	Pigs - breeding animals - not raised under controlled housing conditions - sows and boars	111			
	Pigs - fattening pigs - not raised under controlled housing conditions	4	40,000	59,517	
Sheep	Sheep	856	12,017	4,568	856
Sheep and goats	Sheep and goats	483			483
Solipeds, domestic	Solipeds, domestic - horses			17	

DISEASE STATUS TABLES

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

Region	Number of herds with status officially free	Number of infected herds	Total number of herds
MALTA	182	0	182

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

Region	Number of herds with status officially free	Number of infected herds	Total number of herds
MALTA	1,685	0	1,685

DISEASE STATUS TABLES

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

Region	Number of herds with status officially free	Number of infected herds	Total number of herds
MALTA	99	0	99

PREVALENCE TABLES

Table ANISAKIS in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
MALTA	Fish - wild - Retail - Malta - animal sample - Survey - Not applicable - Convenient sampling	animal	104	59	Anisakis, unspecified sp.	59

Table BRUCELLA in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
MALTA	Cattle (bovine animals) - Farm - Malta - animal sample - blood - Surveillance - Official sampling - Census	animal	16024	0	Brucella	0
	Sheep and goats - Farm - Malta - animal sample - blood - Surveillance - Official sampling - Census	animal	19908	0	Brucella	0

Table ECHINOCOCCUS in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
MALTA	Dogs - Farm - Malta - animal sample - faeces - Surveillance - Official sampling - Objective sampling	animal	335	2	Echinococcus granulosus complex	2

Table ESCHERICHIA COLI, NON-PATHOGENIC in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
MALTA	Pigs - fattening pigs - not raised under controlled housing conditions - Slaughterhouse - Malta - animal sample - caecum - Monitoring - Official sampling - Objective sampling	animal	68	68	Escherichia coli, non-pathogenic	68

Table MYCOBACTERIUM in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
MALTA	Cattle (bovine animals) - Farm - Malta - animal sample - Surveillance - Official sampling - Census	animal	13894	0	Mycobacterium bovis	0

Table SALMONELLA in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	N of flocks under control programme	Target verification	Total units tested	Total units positive	Zoonoses	N of units positive
MALTA	Gallus gallus (fowl) - broilers - before slaughter - Farm - Malta - environmental sample - boot swabs - Control and eradication programmes - Official and industry sampling - Census	herd/flock	456	Y	456	2	Salmonella Typhimurium, monophasic	2
	Gallus gallus (fowl) - laying hens - adult - Farm - Malta - animal sample - faeces - Control and eradication programmes - Industry sampling - Census	herd/flock	83	N_A	45	0	Salmonella	0
	Gallus gallus (fowl) - laying hens - adult - Farm - Malta - animal sample - faeces - Control and eradication programmes - Official and industry sampling - Census	herd/flock	83	Y	83	1	Salmonella Enteritidis	1
	Gallus gallus (fowl) - laying hens - during rearing period - flocks under control programme - Farm - Malta - animal sample - faeces - Control and eradication programmes - Industry sampling - Census	herd/flock	83	N_A	17	0	Salmonella	0
	Gallus gallus (fowl) - laying hens - during rearing period - flocks under control programme - Farm - Malta - animal sample - faeces - Control and eradication programmes - Official sampling - Census	herd/flock	83	N_A	6	0	Salmonella	0

Table TRICHINELLA in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
MALTA	Pigs - breeding animals - not raised under controlled housing conditions - sows and boars - Slaughterhouse - Malta - animal sample - organ/tissue - Surveillance - Official sampling - Census	animal	1199	0	Trichinella	0
	Pigs - fattening pigs - not raised under controlled housing conditions - Slaughterhouse - Malta - animal sample - organ/tissue - Surveillance - Official sampling - Census	animal	59639	0	Trichinella	0
	Solipeds, domestic - horses - Slaughterhouse - Malta - animal sample - organ/tissue - Surveillance - Official sampling - Census	animal	17	0	Trichinella	0

FOODBORNE OUTBREAKS TABLES

Foodborne Outbreaks: summarized data

No data returned for this view. This might be because the applied filter excludes all data.

Strong Foodborne Outbreaks: detailed data

No data returned for this view. This might be because the applied filter excludes all data.

Weak Foodborne Outbreaks: detailed data

No data returned for this view. This might be because the applied filter excludes all data.

ANTIMICROBIAL RESISTANCE TABLES FOR CAMPYLOBACTER

ANTIMICROBIAL RESISTANCE TABLES FOR SALMONELLA

Table Antimicrobial susceptibility testing of Salmonella Croft in Meat from pig - carcass

Sampling Stage: Slaughterhouse

Sampling Type: food sample - carcass swabs

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method: Dilution - sensititre

Country of Origin: Malta

AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
ECOFF	8	16	0.5	2	16	0.642	2	2	0.125	16	256	8	1	2
Lowest limit	1	2	0.25	0.5	8	0.015	1	0.5	0.03	4	8	2	0.25	0.25
Highest limit	64	64	4	8	128	8	16	32	16	128	1024	64	8	32
N of tested isolates	1	1	1	1	1	1	1	1	1	1	1	1	1	1
N of resistant isolates	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MIC														
2								1						
64											1			
<=0.015						1								
<=0.03									1					
<=0.25			1										1	1
<=0.5				1										
<=1	1						1							
<=2		1										1		
<=4										1				
<=8					1									

Table Antimicrobial susceptibility testing of Salmonella Give in Meat from pig - carcass

Sampling Stage: Slaughterhouse

Sampling Type: food sample - carcass swabs

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method: Dilution - sensititre

Country of Origin: Malta

AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim	
ECOFF	8	16	0.5	2	16	0.642	2	2	0.125	16	256	8	1	2	
Lowest limit	1	2	0.25	0.5	8	0.015	1	0.5	0.03	4	8	2	0.25	0.25	
Highest limit	64	64	4	8	128	8	16	32	16	128	1024	64	8	32	
N of tested isolates	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
N of resistant isolates	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
MIC															
2									1						
1024											1				
<=0.015						1									
<=0.03										1					
<=0.25			1								1				
<=0.5					1									1	1
<=1	1							1							
<=2			1										1		
<=4											1				
<=8					1										

Table Antimicrobial susceptibility testing of Salmonella Goldcoast in Meat from pig - carcass

Sampling Stage: Slaughterhouse

Sampling Type: food sample - carcass swabs

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method: Dilution - sensititre

Country of Origin: Malta

AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim	
ECOFF	8	16	0.5	2	16	0.642	2	2	0.125	16	256	8	1	2	
Lowest limit	1	2	0.25	0.5	8	0.015	1	0.5	0.03	4	8	2	0.25	0.25	
Highest limit	64	64	4	8	128	8	16	32	16	128	1024	64	8	32	
N of tested isolates	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
N of resistant isolates	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
MIC															
2									1						
>1024											1				
<=0.015						1									
<=0.03										1					
<=0.25			1								1				
<=0.5					1									1	1
<=1	1							1							
<=2			1										1		
<=4											1				
<=8					1										

Table Antimicrobial susceptibility testing of Salmonella Infantis in Meat from pig - carcass

Sampling Stage: Slaughterhouse

Sampling Type: food sample - carcass swabs

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method: Dilution - sensititre

Country of Origin: Malta

AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
ECOFF	8	16	0.5	2	16	0.642	2	2	0.125	16	256	8	1	2
Lowest limit	1	2	0.25	0.5	8	0.015	1	0.5	0.03	4	8	2	0.25	0.25
Highest limit	64	64	4	8	128	8	16	32	16	128	1024	64	8	32
N of tested isolates	6	6	6	6	6	6	6	6	6	6	6	6	6	6
N of resistant isolates	0	0	0	0	0	0	1	0	0	0	1	0	0	0
MIC														
0.03														
2														
4														
128														
>1024														
<=0.015														
<=0.03														
<=0.25														
<=0.5														
<=1														
<=2														
<=4														
<=8														

Table Antimicrobial susceptibility testing of Salmonella Panama in Meat from pig - carcass

Sampling Stage: Slaughterhouse

Sampling Type: food sample - carcass swabs

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method: Dilution - sensititre

Country of Origin: Malta

AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim	
ECOFF	8	16	0.5	2	16	0.642	2	2	0.125	16	256	8	1	2	
Lowest limit	1	2	0.25	0.5	8	0.015	1	0.5	0.03	4	8	2	0.25	0.25	
Highest limit	64	64	4	8	128	8	16	32	16	128	1024	64	8	32	
N of tested isolates	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
N of resistant isolates	0	0	0	0	0	0	0	0	0	0	3	0	0	0	
MIC															
2								1	3						
1024											1				
>1024												2			
<=0.015						3									
<=0.03										3					
<=0.25				3							3	3			
<=0.5					3										
<=1	3							2							
<=2			3										3		
<=4											3				
<=8					3										

Table Antimicrobial susceptibility testing of Salmonella Typhimurium, monophasic in Meat from pig - carcass

Sampling Stage: Slaughterhouse

Sampling Type: food sample - carcass swabs

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method: Dilution - sensititre

Country of Origin: Malta

AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim		
ECOFF	8	16	0.5	2	16	0.642	2	2	0.125	16	256	8	1	2		
Lowest limit	1	2	0.25	0.5	8	0.015	1	0.5	0.03	4	8	2	0.25	0.25		
Highest limit	64	64	4	8	128	8	16	32	16	128	1024	64	8	32		
N of tested isolates	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
N of resistant isolates	3	0	0	0	1	0	0	0	0	0	4	4	0	0		
MIC																
0.5													1			
1				1												
2					1			1	4							
64						1									1	
>64	3													3		
>1024											4					
<=0.015						4										
<=0.03										4						
<=0.25				4									3	4		
<=0.5							2									
<=1	1									3						
<=2			4													
<=4											4					
<=8					3											

ANTIMICROBIAL RESISTANCE TABLES FOR INDICATOR ESCHERICHIA COLI

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic, unspecified in Pigs - fattening pigs

Sampling Stage: Slaughterhouse

Sampling Type: animal sample - caecum

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method: Dilution - sensititre

Country of Origin: Malta

	AM										Nalidixic				
	substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
ECOFF	8	16	0.25	0.5	16	0.642	2	2	0.125	16	64	8	1	2	
Lowest limit	1	2	0.25	0.5	8	0.015	1	0.5	0.03	4	8	2	0.25	0.25	
Highest limit	64	64	4	8	128	8	16	32	16	128	1024	64	8	32	
N of tested isolates	68	68	68	68	68	68	68	68	68	68	68	68	68	68	
N of resistant isolates	17	0	0	0	7	4	0	3	0	3	29	47	1	28	
MIC															
0.06							2				3				
0.12							1								
0.5												3	4		
1								4							
2	12							1	1						
4	1								2						
8						2									
>8							1								
16	1	1				9					1	14	2		
32					4							7	15	1	
>32								1							
64	2					2						7	21		
>64	14														9
128					1						1				
>128										2					
256											1				
1024												3			
>1024												25			
<=0.015							62								

	AM	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
ECOFF		8	16	0.25	0.5	16	0.642	2	2	0.125	16	64	8	1	2
Lowest limit		1	2	0.25	0.5	8	0.015	1	0.5	0.03	4	8	2	0.25	0.25
Highest limit		64	64	4	8	128	8	16	32	16	128	1024	64	8	32
N of tested isolates		68	68	68	68	68	68	68	68	68	68	68	68	68	68
N of resistant isolates		17	0	0	0	7	4	0	3	0	3	29	47	1	28
MIC															
<=0.03										65					
<=0.25				68										64	33
<=0.5					68				60						
<=1		38						67							
<=2			67										20		
<=4											64				
<=8						52						11			

OTHER ANTIMICROBIAL RESISTANCE TABLES

Specific monitoring of ESBL-/AmpC-/carbapenemase-producing bacteria and specific monitoring of carbapenemase-producing bacteria, in the absence of isolate detected

Programme Code	Matrix Detailed	Zoonotic Agent Detailed	Sampling Strategy	Sampling Stage	Sampling Details	Sampling Context	Sampler	Sample Type	Sampling Unit Type	Sample Origin	Comment	Total Units Tested	Total Units Positive
ESBL MON	Pigs - fattening pigs	Escherichia coli, non-pathogenic, unspecified	Objective sampling	Slaughterhouse	N_A	Monitoring	Official sampling	animal sample - caecum	slaughter animal batch	Malta	N_A	68	0

