European Food Safety Authority

ZOONOSES MONITORING

Malta

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

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

IN 2018

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 2018.

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.

The national report contains two parts: tables summarising data reported in the Data Collection Framework and the related text forms. The text forms were sent by email as pdf files and they are incorporated at the end of the report.

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

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ANIMAL POPULATION TABLES

Table Susceptible animal population

		Population			
Animal species	**Category of animals**	**holding**	**animal**	**slaughter animal (heads)**	**herd/flock**
Cattle (bovine animals)	Cattle (bovine animals)			4,139	
	Cattle (bovine animals) - adult cattle over 2 years		199		
	Cattle (bovine animals) - calves (under 1 year) - dairy calves		3,540		
	Cattle (bovine animals) - dairy cows	98			
	Cattle (bovine animals) - dairy cows - adult		6,737		
	Cattle (bovine animals) - dairy cows - young cattle (1-2 years)		2,569		
	Cattle (bovine animals) - meat production animals	168			
	Cattle (bovine animals) - meat production animals - calves (under 1 year)		733		
	Cattle (bovine animals) - meat production animals - young cattle (1-2 years)		430		
Dogs	Dogs		72,188		
Gallus gallus (fowl)	Gallus gallus (fowl) - broilers	60	1,458,714	2,233,526	342
	Gallus gallus (fowl) - laying hens	30	360,348		95
	Gallus gallus (fowl) - mixed flocks/holdings	3			
Goats	Goats	355	5,678	1,203	
Pigs	Pigs - breeding animals - not raised under controlled housing conditions	4			
	Pigs - breeding animals - not raised under controlled housing conditions - boars		117		
	Pigs - breeding animals - not raised under controlled housing conditions - sows		2,790		
	Pigs - breeding animals - not raised under controlled housing conditions - sows and boars			1,047	
	Pigs - fattening pigs - not raised under controlled housing conditions	9	28,382	52,593	
	Pigs - mixed herds - not raised under controlled housing conditions	90			
Sheep	Sheep	826	12,935	5,216	
Sheep and goats	Sheep and goats	399			
Solipeds, domestic	Solipeds, domestic - horses			4	

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	266	0	266

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	1,580	0	1,580

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	266	0	266

PREVALENCE TABLES

Table Brucella:BRUCELLA in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling Details	Method	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
Not Available	Cattle (bovine animals) - Farm - Not Available - animal sample - blood - Surveillance - Official sampling - Census	N_A	Rose Bengal plate test (RBT)/Buffered Brucella antigen test (BBAT)	animal	10629	0	Brucella	0
	Sheep and goats - Farm - Not Available - animal sample - blood - Surveillance - Official sampling - Census	N_A	Rose Bengal plate test (RBT)/Buffered Brucella antigen test (BBAT)	animal	17435	0	Brucella	0

Table Campylobacter:CAMPYLOBACTER in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling Details	Method	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
Not Available	Gallus gallus (fowl) - broilers - before slaughter - Slaughterhouse - Not Available - animal sample - caecum - Surveillance - Official sampling - Census	N_A	ISO 10272-2:2017 Campylobacter	slaughter animal batch	84	8	Campylobacter jejuni	8

Table Mycobacterium:MYCOBACTERIUM in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling Details	Method	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
Not Available	Cattle (bovine animals) - dairy cows - Slaughterhouse - Malta - animal sample - lymph nodes - Clinical investigations - Official sampling - Suspect sampling	N_A	Microbiological tests	animal	6	0	Mycobacterium	0
	Cattle (bovine animals) - dairy cows - Slaughterhouse - Malta - animal sample - lymph nodes - Clinical investigations - Official sampling - Suspect sampling	N_A	PCR	animal	1	0	Mycobacterium tuberculosis complex (MTC)	0

Table Salmonella: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	Sampling Details	Method	Total units tested	Total units positive	Zoonoses	N of units positive
Not Available	Gallus gallus (fowl) - broilers - before slaughter - Farm - Not Available - environmental sample - boot swabs - Control and eradication programmes - Industry sampling - Census	herd/flock		N_A	N_A	ISO 6579-1:2017 Salmonella	337	58	Salmonella Give	7
									Salmonella Haifa	14
									Salmonella Infantis	12
									Salmonella Kedougou	3
									Salmonella Kentucky	22
	Gallus gallus (fowl) - broilers - before slaughter - Farm - Not Available - environmental sample - boot swabs - Control and eradication programmes - Official and industry sampling - Census	herd/flock	342	Y	N_A	ISO 6579-1:2017 Salmonella	342	63	Salmonella Give	7
									Salmonella Haifa	14
									Salmonella Infantis	14
									Salmonella Kedougou	3
									Salmonella Kentucky	22
									Salmonella Typhimurium, monophasic	3
	Gallus gallus (fowl) - broilers - before slaughter - Farm - Not Available - environmental sample - boot swabs - Control and eradication programmes - Official sampling - Census	herd/flock		N_A	N_A	ISO 6579-1:2017 Salmonella	5	5	Salmonella Infantis	2
									Salmonella Typhimurium, monophasic	3
	Gallus gallus (fowl) - laying hens - adult - Farm - Not Available - animal sample - faeces - Control and eradication programmes - Official and industry sampling - Census	herd/flock	95	Y	N_A	ISO 6579-1:2017 Salmonella	95	35	Salmonella Enteritidis	6
									Salmonella Give	1
									Salmonella Haifa	2
									Salmonella Infantis	11
									Salmonella Kedougou	4
									Salmonella Kentucky	6
									Salmonella Livingstone	4
									Salmonella Typhimurium, monophasic	1
	Gallus gallus (fowl) - laying hens - during rearing period - flocks under control programme - Farm - Not Available - environmental sample - Control and eradication programmes - Industry sampling - Census	herd/flock		N_A	N_A	ISO 6579-1:2017 Salmonella	7	5	Salmonella Croft	1
									Salmonella Haifa	1
									Salmonella Infantis	1
									Salmonella Kentucky	1
									Salmonella Livingstone	1
	Gallus gallus (fowl) - laying hens - during rearing period - flocks under control programme - Farm - Not Available - environmental sample - Control and eradication programmes - Official sampling - Census	herd/flock		N_A	N_A	ISO 6579-1:2017 Salmonella	3	3	Salmonella Kentucky	3

Table Salmonella:SALMONELLA in food

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Sample weight	Sample weight unit	Sampling Details	Method	Total units tested	Total units positive	Zoonoses	N of units positive
Not Available	Meat from pig - carcase - Slaughterhouse - Not Available - food sample - carcase swabs - Surveillance - based on Regulation 2073 - Official, based on Regulation 854/2004 - Objective sampling	single (food/feed)	400	Square centimetre	N_A	ISO 6579-1:2017 Salmonella	60	5	Salmonella Derby	2
									Salmonella Panama	1
									Salmonella Typhimurium	1
									Salmonella Typhimurium, monophasic	1

Table Trichinella:TRICHINELLA in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling Details	Method	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
Not Available	Pigs - breeding animals - not raised under controlled housing conditions - sows and boars - Slaughterhouse - Malta - animal sample - organ/tissue - Surveillance - Official sampling - Census	N_A	Magnetic stirrer method for pooled sample digestion	animal	1025	0	Trichinella	0
	Pigs - fattening pigs - not raised under controlled housing conditions - Slaughterhouse - Malta - animal sample - organ/tissue - Surveillance - Official sampling - Census	N_A	Magnetic stirrer method for pooled sample digestion	animal	52236	0	Trichinella	0
	Solipeds, domestic - Slaughterhouse - Malta - animal sample - organ/tissue - Surveillance - Official sampling - Census	N_A	Magnetic stirrer method for pooled sample digestion	animal	4	0	Trichinella	0

FOODBORNE OUTBREAKS TABLES

Foodborne Outbreaks: summarized data

		Outbreak strenght	Strong				Weak			
Causative agent	Food vehicle		N outbreaks	N human cases	N hospitalized	N deaths	N outbreaks	N human cases	N hospitalized	N deaths
Campylobacter	Unknown						9	24	0	0
Clostridium perfringens	Unknown						1	4	0	0
Norovirus	Unknown						2	17	0	0
Salmonella	Eggs and egg products						1	4	0	0
	Other foods		1	3	2	0				
	Unknown						8	23	0	0
Scrombotoxin	Fish and fish products						3	15	0	0
Unspecified	Unknown						22	122	0	0

Strong Foodborne Outbreaks: detailed data

Causative agent	Other Causative Agent	FBO nat. code	Outbreak type	Food vehicle	More food vehicle info	Nature of evidence	Setting	Place of origin of problem	Origin of food vehicle	Contributory factors	Comment	N outbreaks	N human cases	N hosp.	N deaths
Salmonella	Not Available	2018.064	General	Other foods	hummus	Detection of causative agent in food vehicle or its component - Detection of indistinguishable causative agent in humans;Descriptive epidemiological evidence	Take-away or fast-food outlet	Not Available	Not Available	Not Available	N_A	1	3	2	0

Weak Foodborne Outbreaks: detailed data

Causative agent	Other Causative Agent	FBO nat. code	Outbreak type	Food vehicle	More food vehicle info	Nature of evidence	Setting	Place of origin of problem	Origin of food vehicle	Contributory factors	Comment	N outbreaks	N human cases	N hosp.	N deaths
Campylobacter	Not Available	2018.073	General	Unknown	N_A	Descriptive epidemiological evidence	Take-away or fast-food outlet	Not Available	Not Available	Not Available	N_A	1	2	unk	0
		2018.092	General	Unknown	N_A	Descriptive epidemiological evidence	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Not Available	Not Available	Not Available	N_A	1	2	unk	0
		2018 OBCL 1	Household	Unknown	N_A	Descriptive epidemiological evidence	Household	Not Available	Not Available	Not Available	N_A	5	16	unk	0
		2018 OBCL 2	General	Unknown	N_A	Descriptive epidemiological evidence	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Not Available	Not Available	Not Available	N_A	2	4	unk	0
Clostridium perfringens	Not Available	2018.001	General	Unknown	N_A	Descriptive epidemiological evidence	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Not Available	Not Available	Not Available	N_A	1	4	0	0
Norovirus	Not Available	2018.016	General	Unknown	N_A	Descriptive epidemiological evidence	Take-away or fast-food outlet	Not Available	Not Available	Not Available	N_A	1	3	0	0
		2018.023	General	Unknown	N_A	Descriptive epidemiological evidence	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Not Available	Not Available	Not Available	N_A	1	14	0	0

Causative agent	Other Causative Agent	FBO nat. code	Outbreak type	Food vehicle	More food vehicle info	Nature of evidence	Setting	Place of origin of problem	Origin of food vehicle	Contributory factors	Comment	N outbreaks	N human cases	N hosp.	N deaths
Salmonella	Not Available	2018.072	General	Eggs and egg products	N_A	Product-tracing investigations;Detection of causative agent in food chain or its environment - Symptoms and onset of illness pathognomonic to causative agent;Descriptive epidemiological evidence	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Not Available	Not Available	Not Available	N_A	1	4	unk	0
		2018OBCL4	Household	Unknown	N_A	Descriptive epidemiological evidence	Hospital or medical care facility	Not Available	Not Available	Not Available	N_A	2	4	unk	0
		2018OBCL5	General	Unknown	N_A	Descriptive epidemiological evidence	Residential institution (nursing home or prison or boarding school)	Not Available	Not Available	Not Available	N_A	2	6	unk	0
		2018OBCL6	General	Unknown	N_A	Descriptive epidemiological evidence	Take-away or fast-food outlet	Not Available	Not Available	Not Available	N_A	2	4	unk	0
		2018OBCL7	General	Unknown	N_A	Descriptive epidemiological evidence	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Not Available	Not Available	Not Available	N_A	2	9	unk	0
Scrombotoxin	Not Available	2018OBCL8	General	Fish and fish products	Tuna	Detection of causative agent in food chain or its environment - Symptoms and onset of illness pathognomonic to causative agent;Descriptive epidemiological evidence	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Not Available	Not Available	Not Available	N_A	3	15	0	0
Unspecified	Not Available	2018OBCL10	General	Unknown	N_A	Descriptive epidemiological evidence	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Not Available	Not Available	Not Available	N_A	12	51	unk	0

Causative agent	Other Causative Agent	FBO nat. code	Outbreak type	Food vehicle	More food vehicle info	Nature of evidence	Setting	Place of origin of problem	Origin of food vehicle	Contributory factors	Comment	N outbreaks	N human cases	N hosp.	N deaths
Unspecified	Not Available	2018 OBCL 11	General	Unknown	N_A	Descriptive epidemiological evidence	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Not Available	Not Available	Not Available	N_A	3	31	unk	0
		2018 OBCL 12	General	Unknown	N_A	Descriptive epidemiological evidence	Temporary mass catering (fairs or festivals)	Not Available	Not Available	Not Available	N_A	2	22	unk	0
		2018 OBCL 9	General	Unknown	N_A	Descriptive epidemiological evidence	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Not Available	Not Available	Not Available	N_A	5	18	unk	0

ANTIMICROBIAL RESISTANCE TABLES FOR CAMPYLOBACTER

ANTIMICROBIAL RESISTANCE TABLES FOR SALMONELLA

Table Antimicrobial susceptibility testing of Salmonella Croft in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: environmental sample - dust

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							1								
<=0.03										1					
<=0.25				1										1	1
<=0.5					1				1						
<=1		1						1							
<=2			1										1		
<=4											1				
<=8						1									
64												1			

Table Antimicrobial susceptibility testing of Salmonella Croft in Meat from broilers (Gallus gallus) - carcase - chilled

Sampling Stage: Slaughterhouse

Sampling Type: food sample - neck skin

Sampling Context: Monitoring

Sampler: HACCP and own check

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
MIC	**N of resistant isolates**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							1								
<=0.03										1					
<=0.25				1										1	1
<=0.5					1				1						
<=1								1							
<=2			1										1		
<=4											1				
<=8						1									
>64		1													
128												1			

Table Antimicrobial susceptibility testing of Salmonella Enteritidis in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: animal sample - faeces

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							4								
<=0.03										6					
0.03							2								
<=0.25				6										6	6
<=0.5					6				6						
<=1	5							1							
<=2		3											6		
2	1							4							
<=4											6				
4		2						1							
<=8						6									
8		1													
64												1			
128												5			

Table Antimicrobial susceptibility testing of Salmonella Give in Gallus gallus (fowl) - broilers - before slaughter

Sampling Stage: Farm

Sampling Type: environmental sample - boot swabs

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
MIC	**N of resistant isolates**	**3**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**0**
<=0.015							3								
<=0.03										7					
0.03							3								
<=0.25				6										3	7
<=0.5					6				7						
0.5				1										4	
<=1	3							6							
1							1								
<=2			1										7		
2					1			1							
<=4											6				
4	1	5													
<=8						7									
8		1													
>64	3														
128												1			
>128											1				
256												3			
512												1			
1024												1			
>1024												1			

Table Antimicrobial susceptibility testing of Salmonella Haifa in Gallus gallus (fowl) - broilers - before slaughter

Sampling Stage: Farm

Sampling Type: environmental sample - boot swabs

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**14**	**14**	**14**	**14**	**14**	**14**	**14**	**14**	**14**	**14**	**14**	**14**	**14**	**14**
MIC	**N of resistant isolates**	**13**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**
<=0.015							7								
<=0.03										14					
0.03							6								
<=0.25				14										10	12
<=0.5					14				14						
0.5							1							4	2
<=1	1							14							
<=2		9											14		
<=4											12				
4		4													
<=8						14									
8											1				
16		1													
64												3			
>64	13														
128											1	6			
256												5			

Table Antimicrobial susceptibility testing of Salmonella Haifa in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: animal sample - faeces

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							3								
<=0.03										3					
<=0.25				3										2	3
<=0.5					3				3						
0.5														1	
<=1		3						3							
<=2			3										3		
<=4											3				
<=8						3									
32												2			
256												1			

Table Antimicrobial susceptibility testing of Salmonella Haifa in Meat from broilers (Gallus gallus) - carcase - chilled

Sampling Stage: Slaughterhouse

Sampling Type: food sample - neck skin

Sampling Context: Monitoring

Sampler: HACCP and own check

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
MIC	**N of resistant isolates**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							1								
<=0.03										2					
0.03							1								
<=0.25				2										2	2
<=0.5					2				2						
<=1								2							
<=2			1										2		
<=4											2				
4			1												
<=8						2									
64		1										1			
>64		1													
128												1			

Table Antimicrobial susceptibility testing of Salmonella Infantis in Gallus gallus (fowl) - broilers - before slaughter

Sampling Stage: Farm

Sampling Type: environmental sample - boot swabs

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**7**	**10**	**7**	**1**	**0**
<=0.015							5								
<=0.03										15					
0.03							3								
<=0.25				14										5	10
<=0.5					13				15						
0.5				1			6							9	3
<=1	13							14							
1					2		1								2
<=2			6										8		
2	2							1						1	
<=4											8				
4			6												
<=8						14									
8			1												
16			2			1									
64												1	3		
>64													4		
>128											7				
256												4			
512												3			
>1024												7			

Table Antimicrobial susceptibility testing of Salmonella Infantis in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: environmental sample - dust

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							2								
<=0.03										2					
<=0.25				2										1	2
<=0.5					2				2						
0.5														1	
<=1		2						2							
<=2			2										2		
<=4											2				
<=8						2									
16												1			
128												1			

Table Antimicrobial susceptibility testing of Salmonella Infantis in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: environmental sample - boot swabs and dust

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							2								
<=0.03										3					
0.03							1								
<=0.25				3										2	3
<=0.5					3				3						
0.5														1	
<=1		3						3							
<=2			1										3		
<=4											3				
4			2												
<=8						3									
128												3			

Table Antimicrobial susceptibility testing of Salmonella Infantis in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: animal sample - faeces

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							5								
<=0.03										8					
0.03							3								
<=0.25				8										1	6
<=0.5					8				8						
0.5														7	2
<=1		8						8							
<=2			5										8		
<=4											8				
4			3												
<=8						8									
64												1			
128												6			
256												1			

Table Antimicrobial susceptibility testing of Salmonella Infantis in Meat from broilers (Gallus gallus) - carcase - chilled

Sampling Stage: Slaughterhouse

Sampling Type: food sample - neck skin

Sampling Context: Monitoring

Sampler: HACCP and own check

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**3**	**3**	**0**	**0**
<=0.03										3					
<=0.25				3										3	3
<=0.5					3				3						
0.5							3								
<=1		3						3							
<=2			1												
4			2												
<=8						3									
64													3		
>128											3				
>1024												3			

Table Antimicrobial susceptibility testing of Salmonella Kedougou in Gallus gallus (fowl) - broilers - before slaughter

Sampling Stage: Farm

Sampling Type: environmental sample - boot swabs

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**
<=0.015							3								
<=0.03										2					
0.064										1					
<=0.25				3										2	2
<=0.5					3				3						
0.5														1	1
<=1		3						3							
<=2			3										3		
<=4											3				
<=8						3									
128												2			
512												1			

Table Antimicrobial susceptibility testing of Salmonella Kedougou in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: animal sample - faeces

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							1								
<=0.03										1					
<=0.25				1										1	1
<=0.5					1				1						
<=1		1						1							
<=2			1										1		
<=4											1				
<=8						1									
256												1			

Table Antimicrobial susceptibility testing of Salmonella Kentucky in Gallus gallus (fowl) - broilers - before slaughter

Sampling Stage: Farm

Sampling Type: environmental sample - boot swabs

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON pnl2

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
	Cefotaxime synergy test	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**
	Ceftazidime synergy test	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**
	ECOFF	**0.125**	**0.5**	**0.5**	**8**	**2**	**2**	**0.064**	**1**	**0.125**	**32**
	Lowest limit	**0.064**	**0.25**	**0.064**	**0.5**	**0.25**	**0.12**	**0.015**	**0.12**	**0.03**	**0.5**
	Highest limit	**32**	**64**	**64**	**64**	**128**	**128**	**2**	**16**	**16**	**128**
	N of tested isolates	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
MIC	**N of resistant isolates**	**4**	**4**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**
<=0.015								4			
<=0.03										4	
<=0.064				3							
<=0.12									4		
0.12				1							
0.25							4				
4					4	4					
8		4									4
64			3								
>64			1								

Table Antimicrobial susceptibility testing of Salmonella Kentucky in Gallus gallus (fowl) - broilers - before slaughter

Sampling Stage: Farm

Sampling Type: environmental sample - boot swabs

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**1**	**4**	**8**	**4**	**128**	**8**	**16**	**32**	**16**	**128**	**1024**	**64**	**6**	**32**
	N of tested isolates	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**
MIC	**N of resistant isolates**	**14**	**0**	**4**	**4**	**3**	**2**	**2**	**19**	**0**	**3**	**0**	**19**	**7**	**3**	**0**	**0**
<=0.015									2								
<=0.03												22					
0.03									2								
0.064												1					
<=0.25				1	18											12	18
<=0.5						17					19						
0.5																10	4
<=1		8								22							
1						2					1					1	1
<=2			13											19			
2						1				1							
<=4													4				
4			9			3								1			
>4					4												
<=8							1	20									
8		1	1						7								
>8									12								
16											2			1			
32											1		1				
64													1	2			
>64		14															
128								2					9				
>128												19					
256													5				
512													4				
>1024													3				

Table Antimicrobial susceptibility testing of Salmonella Kentucky in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: environmental sample - dust

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
MIC	**N of resistant isolates**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**2**	**2**	**2**	**0**	**0**
<=0.015							1								
<=0.03										5					
0.03							2								
<=0.25				5										3	4
<=0.5					4				3						
0.5														2	1
<=1	3							5							
1					1										
<=2			5										3		
<=4											3				
<=8						5									
8							1								
>8							1								
16									2						
32													1		
64													1		
>64	2														
>128											2				
256												3			
>1024												2			

Table Antimicrobial susceptibility testing of Salmonella Kentucky in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: environmental sample - boot swabs and dust

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							1								
<=0.03										1					
<=0.25				1										1	1
<=0.5					1				1						
<=1		1						1							
<=2													1		
<=4											1				
4			1												
<=8						1									
128												1			

Table Antimicrobial susceptibility testing of Salmonella Kentucky in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: animal sample - faeces

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
MIC	**N of resistant isolates**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**1**	**1**	**0**	**0**
<=0.03										4					
0.03							3								
<=0.25				4										1	3
<=0.5					4				3						
0.5														3	1
<=1		3						4							
<=2			1										3		
<=4											2				
4			3												
<=8						4									
8											1				
>8							1								
16									1						
64													1		
>64		1													
>128											1				
256												3			
>1024												1			

Table Antimicrobial susceptibility testing of Salmonella Kentucky in Meat from broilers (Gallus gallus) - carcase - chilled

Sampling Stage: Slaughterhouse

Sampling Type: food sample - neck skin

Sampling Context: Monitoring

Sampler: HACCP and own check

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.03										1					
0.03							1								
<=0.25				1										1	1
<=0.5					1				1						
<=1		1						1							
<=2													1		
<=4											1				
4			1												
<=8						1									
256												1			

Table Antimicrobial susceptibility testing of Salmonella Livingstone in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: environmental sample - boot swabs and dust

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							2								
<=0.03										2					
<=0.25				2										2	2
<=0.5					2				2						
<=1		2						2							
<=2			1										2		
<=4											2				
4			1												
<=8						2									
128												1			
256												1			

Table Antimicrobial susceptibility testing of Salmonella Livingstone in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: animal sample - faeces

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							2								
<=0.03										2					
<=0.25				2										2	1
<=0.5					2				2						
<=1	2							2							
1															1
<=2			1										2		
<=4											2				
4			1												
<=8						2									
128												1			
256												1			

Table Antimicrobial susceptibility testing of Salmonella Livingstone in Meat from broilers (Gallus gallus) - carcase - chilled

Sampling Stage: Slaughterhouse

Sampling Type: food sample - neck skin

Sampling Context: Monitoring

Sampler: HACCP and own check

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**
<=0.015							1								
<=0.03										1					
<=0.25				1										1	
<=0.5					1				1						
<=1		1						1							
1															1
<=2			1										1		
<=4											1				
<=8						1									
512												1			

Table Antimicrobial susceptibility testing of Salmonella Senftenberg in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: animal sample - faeces

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.03										1					
0.03							1								
<=0.25				1										1	1
<=0.5					1				1						
<=1		1						1							
<=2			1										1		
<=8						1									
8											1				
256												1			

Table Antimicrobial susceptibility testing of Salmonella Typhimurium, monophasic in Gallus gallus (fowl) - broilers - before slaughter

Sampling Stage: Farm

Sampling Type: environmental sample - boot swabs

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
MIC	**N of resistant isolates**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**3**	**0**	**0**
<=0.015							2								
<=0.03										3					
0.064							1								
<=0.25				3										1	2
<=0.5					3				3						
0.5														2	1
<=1		1						2							
<=2			1												
<=4											3				
4			2					1							
<=8						3									
>64		2											3		
256												1			
>1024												2			

Table Antimicrobial susceptibility testing of Salmonella Typhimurium, monophasic in Gallus gallus (fowl) - laying hens - adult

Sampling Stage: Farm

Sampling Type: animal sample - faeces

Sampling Context: Control and eradication programmes

Sampler: Official sampling

Sampling Strategy: Census

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.5**	**2**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
MIC	**N of resistant isolates**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**
<=0.015							1								
<=0.03										1					
<=0.25				1											1
<=0.5					1				1						
0.5														1	
<=1								1							
<=4											1				
4			1												
<=8						1									
>64		1											1		
>1024												1			

ANTIMICROBIAL RESISTANCE TABLES FOR INDICATOR ESCHERICHIA COLI

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic, unspecified in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON pnl2

Analytical Method:

Country of Origin: Italy

Sampling Details:

	AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
	Cefotaxime synergy test	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
	Ceftazidime synergy test	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
	ECOFF	0.125	0.25	0.25	8	0.5	0.5	0.064	0.5	0.125	32
	Lowest limit	0.064	0.25	0.064	0.5	0.25	0.12	0.015	0.12	0.03	0.5
	Highest limit	32	64	64	64	128	128	2	16	16	128
	N of tested isolates	15	15	15	15	15	15	15	15	15	15
MIC	N of resistant isolates	14	15	0	0	11	1	1	2	0	0
<=0.015								10			
<=0.03										14	
0.03								3			
<=0.064				12							
0.064								1		1	
<=0.12							9		5		
0.12		1		3				1			
0.25							4		7		
0.5		1				4	1		1		
1		3	1		1	1	1		2		
2		1			2	5					1
4		2			8						5
8		3	4		4	2					8
16		4	2			1					1

	AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
	Cefotaxime synergy test	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**
	Ceftazidime synergy test	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**
	ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.064**	**0.5**	**0.125**	**32**
	Lowest limit	**0.064**	**0.25**	**0.064**	**0.5**	**0.25**	**0.12**	**0.015**	**0.12**	**0.03**	**0.5**
	Highest limit	**32**	**64**	**64**	**64**	**128**	**128**	**2**	**16**	**16**	**128**
	N of tested isolates	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**
MIC	**N of resistant isolates**	**14**	**15**	**0**	**0**	**11**	**1**	**1**	**2**	**0**	**0**
32			2			1					
64			2			1					
>64			4								

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic, unspecified in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON

Analytical Method:

Country of Origin: Italy

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.25**	**0.5**	**16**	**0.064**	**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	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**
MIC	**N of resistant isolates**	**15**	**1**	**15**	**11**	**6**	**10**	**0**	**4**	**0**	**9**	**13**	**10**	**0**	**9**
<=0.015							5								
<=0.03										15					
0.12							2								
<=0.25														10	2
0.25							2								
<=0.5					4				7						
0.5							1							5	2
<=1								15							
1				1	3				3						1
<=2			3										5		
2					3				1						1
<=4											5				
4			10	1			2								
>4				13											
<=8						9						2			
8			1		2		1				1				
>8					3		2								
32			1			2							2		1
>32									4						8
64		1				1					1		2		
>64		14											6		
128						3					1				
>128											7				
1024												1			
>1024												12			

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic, unspecified in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON pnl2

Analytical Method:

Country of Origin: Malta

Sampling Details:

AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
Cefotaxime synergy test	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**
Ceftazidime synergy test	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**
ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.064**	**0.5**	**0.125**	**32**
Lowest limit	**0.064**	**0.25**	**0.064**	**0.5**	**0.25**	**0.12**	**0.015**	**0.12**	**0.03**	**0.5**
Highest limit	**32**	**64**	**64**	**64**	**128**	**128**	**2**	**16**	**16**	**128**
N of tested isolates	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**
MIC **N of resistant isolates**	**43**	**47**	**6**	**5**	**41**	**5**	**0**	**0**	**0**	**0**
<=0.015							40			
<=0.03									47	
0.03							7			
<=0.064	1		40							
<=0.12						30		19		
0.12	3		1							
0.25	5					10		25		
0.5	13		1		6	2		3		
1	6	1			6					
2	3	2		5	1					2
4	6	13	4	21	4	2				20
8	3	8	1	16	8	3				20
16	4	8		2	11					5
32	2	3		3	10					
>32	1									
64		7			1					
>64		5								

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic, unspecified in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.25**	**0.5**	**16**	**0.064**	**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	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**
MIC	**N of resistant isolates**	**47**	**3**	**46**	**40**	**35**	**34**	**0**	**10**	**0**	**27**	**43**	**34**	**0**	**28**
<=0.015							13								
<=0.03										47					
0.12							1								
<=0.25				1										40	14
0.25							8								
<=0.5					7				24						
0.5				1			6							5	5
<=1								47							
1				1	5		2		13					2	
<=2			2										11		
2				6	1										
<=4											15				
4			25	12	4								2		
>4				26											
<=8						10						2			
8			16		13		9				4				
>8					17		8								
16			1			2					1	1			
32			1			7			2			1	2		1
>32									8						27
64		4	1			8							20		
>64		43	1										12		
128						5					7				
>128						15					20				
256												1			

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.25**	**0.5**	**16**	**0.064**	**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	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**
MIC	**N of resistant isolates**	**47**	**3**	**46**	**40**	**35**	**34**	**0**	**10**	**0**	**27**	**43**	**34**	**0**	**28**
512												2			
1024												2			
>1024												38			

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic, unspecified in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON pnl2

Analytical Method:

Country of Origin: Belgium

Sampling Details:

	AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
	Cefotaxime synergy test	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**
	Ceftazidime synergy test	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**
	ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.064**	**0.5**	**0.125**	**32**
	Lowest limit	**0.064**	**0.25**	**0.064**	**0.5**	**0.25**	**0.12**	**0.015**	**0.12**	**0.03**	**0.5**
	Highest limit	**32**	**64**	**64**	**64**	**128**	**128**	**2**	**16**	**16**	**128**
	N of tested isolates	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
MIC	**N of resistant isolates**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**
<=0.015								1			
<=0.03										1	
<=0.064				1							
<=0.12							1		1		
0.5		1									
4			1		1						1
16						1					

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic, unspecified in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON

Analytical Method:

Country of Origin: Belgium

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.25**	**0.5**	**16**	**0.064**	**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	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
MIC	**N of resistant isolates**	**1**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**1**
<=0.015							1								
<=0.03										1					
0.5														1	
<=1								1							
1									1						
<=4											1				
>4				1											
8			1		1										
32						1									
>32															1
>64		1											1		
>1024												1			

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic, unspecified in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON pnl2

Analytical Method:

Country of Origin: Unknown

Sampling Details:

AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
Cefotaxime synergy test	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**
Ceftazidime synergy test	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**
ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.064**	**0.5**	**0.125**	**32**
Lowest limit	**0.064**	**0.25**	**0.064**	**0.5**	**0.25**	**0.12**	**0.015**	**0.12**	**0.03**	**0.5**
Highest limit	**32**	**64**	**64**	**64**	**128**	**128**	**2**	**16**	**16**	**128**
N of tested isolates	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
MIC **N of resistant isolates**	**2**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**
<=0.015							2			
<=0.03									2	
<=0.064			2							
<=0.12						2				
0.25								2		
0.5	1									
1	1									
4		1		2						1
8		1								
16					1					1
32					1					

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic, unspecified in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON

Analytical Method:

Country of Origin: Unknown

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.25**	**0.5**	**16**	**0.064**	**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	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
MIC	**N of resistant isolates**	**2**	**0**	**2**	**2**	**2**	**2**	**0**	**0**	**0**	**2**	**2**	**2**	**0**	**2**
<=0.03										2					
<=0.25														2	
<=0.5									1						
<=1								2							
1									1						
2				1											
4			1												
>4				1											
8					2		2								
16			1												
>32															2
64						1							1		
>64		2											1		
128						1									
>128											2				
>1024												2			

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic, unspecified in Gallus gallus (fowl) - broilers

Sampling Stage: Slaughterhouse

Sampling Type: animal sample - caecum

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: AMR MON pnl2

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
	Cefotaxime synergy test	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**
	Ceftazidime synergy test	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not Available**
	ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.064**	**0.5**	**0.125**	**32**
	Lowest limit	**0.064**	**0.25**	**0.064**	**0.5**	**0.25**	**0.12**	**0.015**	**0.12**	**0.03**	**0.5**
	Highest limit	**32**	**64**	**64**	**64**	**128**	**128**	**2**	**16**	**16**	**128**
	N of tested isolates	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**
MIC	**N of resistant isolates**	**6**	**8**	**1**	**1**	**7**	**1**	**0**	**0**	**0**	**0**
<=0.015								8			
<=0.03										8	
<=0.064		1		7							
<=0.12							7		8		
0.12		1									
<=0.25						1					
0.25		1									
0.5		3									
1		1	1		1						
2			2	1	2	1	1				1
4			2		4	2					4
8			2			1					3
16		1	1			2					
32					1	1					

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic, unspecified in Gallus gallus (fowl) - broilers

Sampling Stage: Slaughterhouse

Sampling Type: animal sample - caecum

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim		Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	8	16	0.25		0.5	16	0.064	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	1	4	8	128	8	16	32	16	128	1024	64	6	32
	N of tested isolates	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
MIC	N of resistant isolates	59	1	8	8	7	15	45	0	8	0	43	49	46	0	32
<=0.015								37								
<=0.03											84					
0.03								1								
0.064								2			1					
0.12								6								
<=0.25				15	62										83	40
0.25								17								
<=0.5						78				76						
0.5								2							2	7
<=1		14							85							
1					2	1		1		1						2
<=2			47											39		
2		9			2			1								4
<=4												39				
4		2	28		1	2		3								2
>4					3											
<=8							64						9			
8		1	6			3		6		1		2				1
>8						1		9								
16			3				6			2		1	8			
32			1				3			2		2	9	13		
>32										3						29
64							3					8	10	26		
>64		59												7		
128							8					9	3			

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.25**	**0.5**	**16**	**0.064**	**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**	**1**	**4**	**8**	**128**	**8**	**16**	**32**	**16**	**128**	**1024**	**64**	**6**	**32**
	N of tested isolates	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**
MIC	**N of resistant isolates**	**59**	**1**	**8**	**8**	**7**	**15**	**45**	**0**	**8**	**0**	**43**	**49**	**46**	**0**	**32**
>128							1					24				
256													6			
>1024													40			

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic, unspecified in Gallus gallus (fowl) - broilers

Sampling Stage: Slaughterhouse

Sampling Type: animal sample - caecum

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON pnl2

Analytical Method:

Country of Origin: Malta

Sampling Details:

AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
Cefotaxime synergy test	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
Ceftazidime synergy test	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ECOFF	0.125	0.25	0.25	8	0.5	0.5	0.064	0.5	0.125	32
Lowest limit	0.064	0.25	0.064	0.5	0.25	0.12	0.015	0.12	0.03	0.5
Highest limit	32	64	64	64	128	128	2	16	16	128
N of tested isolates	85	85	85	85	85	85	85	85	85	85
N of resistant isolates	66	85	16	16	69	16	0	0	0	0
MIC										
<=0.015							80			
<=0.03									85	
0.03							5			
<=0.064	4		69							
<=0.12						68		84		
0.12	15									
<=0.25					13					
0.25	18					1		1		
0.5	18	1			3					
1	7	7		2	3					2
2	13	19	9	33	3	4				21
4	4	22	6	25	13	11				42
8	3	12	1	9	28	1				20
16	1	8		3	18					
32	2	4		10	4					
64		7		3						
>64		5								

Table Antimicrobial susceptibility testing of Escherichia coli, non-pathogenic, unspecified in Gallus gallus (fowl) - broilers

Sampling Stage: Slaughterhouse

Sampling Type: animal sample - caecum

Sampling Context: Monitoring

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON

Analytical Method:

Country of Origin: Malta

Sampling Details:

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	8	16	0.25	0.5	16	0.064	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	6	32
	N of tested isolates	85	85	85	85	85	85	85	85	85	85	85	85	85	85
MIC	N of resistant isolates	85	0	85	70	55	68	0	19	0	54	65	46	0	42
<=0.015							16								
<=0.03										85					
0.064							1								
0.12							4								
<=0.25														81	37
0.25							31								
<=0.5					15				64						
0.5							7							4	4
<=1								84							
1				7	2		2								
<=2			57										39		
2				16	6		1	1	2						2
<=4											26				
4			24	25	11		1		1						
>4				37											
<=8						28						1			
8			2		27		17				3				
>8					24		5								
16			2			2					2	6			
32		2				17			8		2	10	9		1
>32									10						41
64		2				12					2	3	31		
>64		81											6		
128						22					6	2			
>128						4					44				

	AM substance	Ampicillin	Azithromycin	Cefotaxim	Ceftazidim	Chloramphenicol	Ciprofloxacin	Colistin	Gentamicin	Meropenem	Nalidixic acid	Sulfamethoxazole	Tetracycline	Tigecycline	Trimethoprim
	ECOFF	**8**	**16**	**0.25**	**0.5**	**16**	**0.064**	**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**	**6**	**32**
	N of tested isolates	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**	**85**
MIC	**N of resistant isolates**	**85**	**0**	**85**	**70**	**55**	**68**	**0**	**19**	**0**	**54**	**65**	**46**	**0**	**42**
1024												1			
>1024												62			

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

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

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

Latest Transmission set

Table Name	Last submitted dataset transmission date
Antimicrobial Resistance	25-Jul-2019
Animal Population	25-Jul-2019
Disease Status	25-Jul-2019
Food Borne Outbreaks	25-Jul-2019
Prevalence	25-Jul-2019

Malta, Text Forms 2018

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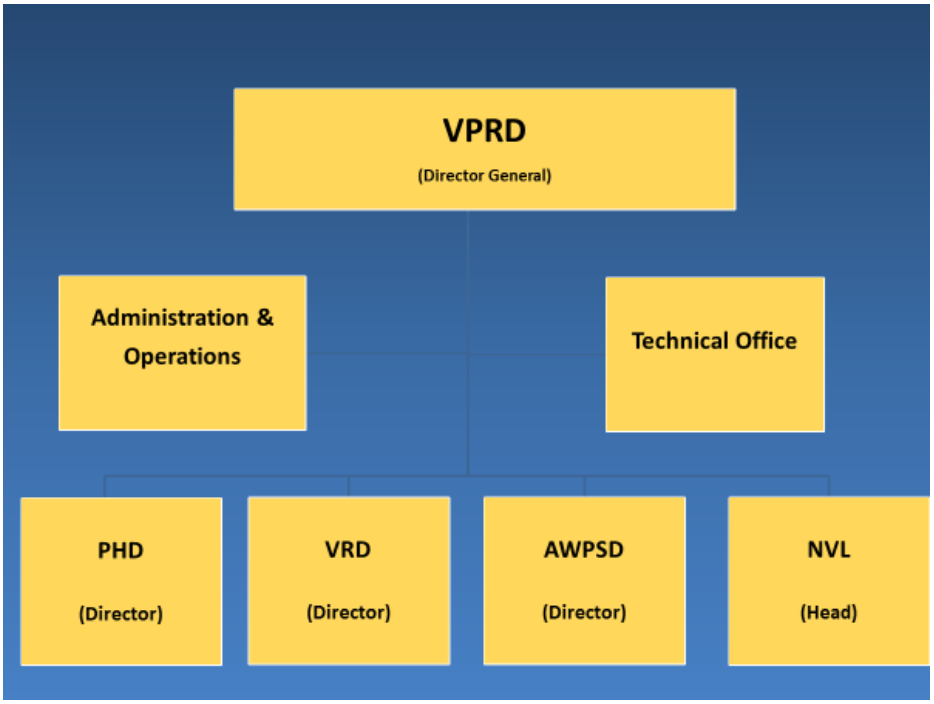
7. General evaluation*: Tubercolosis 22
8. Description of Monitoring/Surveillance/Control programmes system*: Tubercolosis 22
9. General evaluation*: Trichinellosis 30
10. Description of Monitoring/Surveillance/Control programmes system*: Trichinellosis 31
11. Food-borne Outbreaks ..... **Error! Bookmark not defined.**
12. Institutions and laboratories involved in antimicrobial resistance monitoring and reporting **Error! Bookmark not defined.**
13. General Antimicrobial Resistance Evaluation ..... **Error! Bookmark not defined.**
14. General Description of Antimicrobial Resistance Monitoring*; Please add the matrix and bacterial species ..... **Error! Bookmark not defined.**

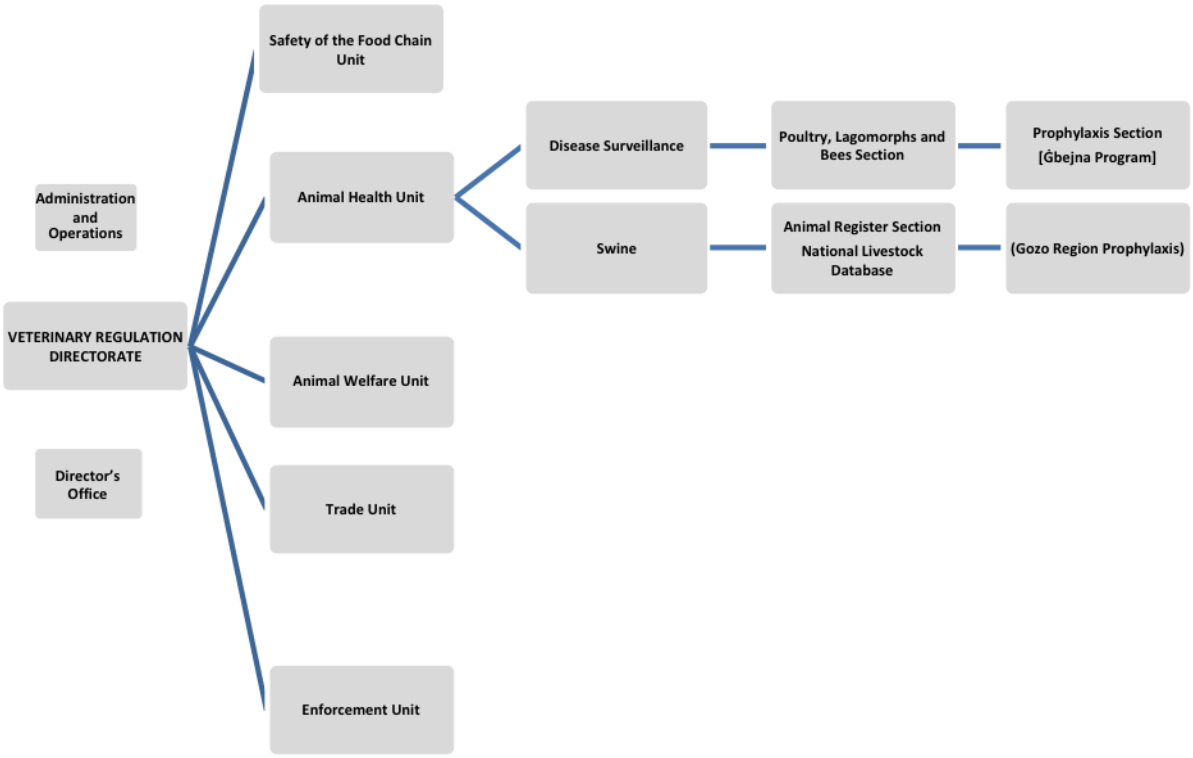
1. Institutions and Laboratories involved in zoonoses monitoring and reporting

The Veterinary Regulation Directorate, within the Veterinary and Phytosanitary Regulation Division (VPRD), is responsible for the activities related to animal health and food safety.

The chart below describes the structure of the Division



The chart below describes the structure of the Veterinary Regulation Directorate (VRD)



Within the Directorate the responsibilities of the eradication, surveillance and control programmes are divided as described hereunder:

A. Within the Animal Health Unit, the following sections work as follows:
   1- Prophylaxis - responsible for collecting the samples and carry out the inspections and controls on farms according to the eradication schemes adopted for different diseases. In particular the Section is responsible for co-ordinating the sampling teams, for making appointments with the farmers and preparing daily sampling schedules, for collecting information regarding the census, for adopting proper restriction measures in case of positive results (movement restriction, culling and cleaning measures), for collaborating and ensuring restocking with brucellosis, tuberculosis, leukosis-free animals.
   2- Animal Register- responsible for the animal Identification and Registration system (I&R), for releasing the movements permits according to the rules in place and in close connection with the Prophylaxis section, for carrying out the inspections related to I&R law and for the management of the Veterinary Information System where the animal identification and health data are stored;
   3- Disease Surveillance- responsible for developing the eradication and control programmes according to the animal health profile of the area, for the epidemiological analysis, for controlling the effectiveness of the eradication control

programmes, for organizing on farm investigations in case of suspect/confirmed positive results, for data reporting.

4- Poultry, Lagomorphs and Bees -primarily responsible for implementation of Salmonella control plan and other diseases related to bees and rabbits
5- The swine Section is mainly responsible for managing together with Animal Register, all controls in the swine sector

B. The National Veterinary Laboratory is part of the Division and it is responsible for carrying out the laboratory tests in accordance with time frame and methodology laid down in the control programmes, for supporting the Animal Health Unit for the epidemiological analysis, for giving proper training on correct sampling and samples transport procedure.

Short description of the institutions and laboratories involved in data collection and reporting

2. Animal population

1. Sources of information and the date(s) (months, years) the information relates to[(a)]

The main data sources used in relation to the reporting of zoonosis is the National Livestock Database within the VRD. All data within this report pertains to 2018.

All livestock holdings are identified by a unique herd number and they are registered with Veterinary and Phytosanitary Regulation Division. All the information pertinent to each farm and bovine animal is also kept on the National Livestock database within the Veterinary Information System.

All bovine animals are identified according to the Vet. Act. S.L. 437.84, Bovine animal identification and registration, which implement the provision of Regulation 1760/2000, regarding the system for the identification and registration of bovine animals.

The system for the identification and registration of bovine animals includes the following elements:

1) The ear tags to individually identify the animals. The ear tags are applied within a period of twenty days from animal birth and in any case before the animal leaves the holding on which it was born. Any animal from another Member State retains its original ear tags if introduced in Malta.

No ear tags are removed or replaced without the permission of the Veterinary Regulation Directorate.

The ear tags are allocated to every single holding, distributed and applied to the animals by Veterinary Support Officers (VSOs) of the Animal Register Section of the Veterinary Regulation

Directorate.

The responsibility of the identification and registration of the animals falls on the owner of the animals. The identification of the animals is carried out by the Veterinary Support Officers of the Veterinary and Phytosanitary Regulation Division who visit the farms for the routine sampling or upon the request of the owners for the identification of the new animals or in case the animals have lost their tags.

2) The computerised database, (National Livestock Database) The Veterinary Regulation Directorate has established a database in accordance with Articles 14 and 18 of Directive 64/432/EC where all data related to animal identification (id number, breed, date of birth, death) and animal movements are stored. The computerised database was declared fully operational from 1st May 2004 by the EU Commission.

3) The animal passports. The I&R system and database was recognised as fully operational and according to EU rule the passports of the animals (bovine born in Malta and not traded in other countries) are not printed anymore.

4) The herd book. A register is kept in each farm and updated with the following information regarding each animal: ear tag, date of birth, ear tag number of the mother, breed, sex, data of introduction in the farm and provenience, date of leaving from the farm and destination.

2. Definitions used for different types of animals, herds, flocks and holdings as well as the production types covered

Definitions are those found in the relevant EU legislation and under Chapter 437 subsidiary legislation.

3. National changes of the numbers of susceptible population and trends

All farm population has declined in view of the increased challenges and costs this industry faces.

4. Geographical distribution and size distribution of the herds, flocks and holdings(b)

The Republic of Malta is an archipelago composed by three main islands called Malta (246 sq km) , Gozo (67 sq km) and Comino (2.6 sq km) with a total area of 316 km² . The islands are situated in the centre of the Mediterranean Sea east of Tunisia and south of Italy (80 km south of Sicily-Italy, 300 east of Tunisia and 350 km north of Libya). The southern and south-western coasts of the island of Malta are steep and clifflike; the northern and north-eastern sections are low and flat, with harbours. The islands are mainly flat with elevations of up to 250 m that prevail on the island of Malta. The small size does not really permit the definition of rural and urban areas, although the areas around the Grand Harbor are more urban and very few farms are present. Otherwise farms are distributed evenly throughout the islands. The same even distribution applies also to the island of Gozo. No animal production activities are undertaken on the island of Comino

5. Additional information

N/A

(a): National identification and registration system(s), source of reported statistics (Eurostat, others)
(b): Link to website with density maps if available, tables with number of herds and flocks according to geographical area

3. General evaluation*: Salmonella

1. History of the disease and/or infection in the country[(a)]

Human cases of salmonellosis reported in Malta over a ten-year period (2007-2017).
One noticeable trend is that the number of human cases of S. Enteritidis and S. Typhimurium has been slightly decreasing since 2007 , coinciding with the implementation of the Salmonella control programmes in poultry farms.

In the Local Poultry Population:

Evolution of the epidemiological situation.

The prevalence of the targeted serovars amongst both broiler and layer poultry flocks has been steadily on the decrease since implementation of the SNCP since 2009. The SNCP programme has been very successful in reducing the prevalence but now that Malta has reached a low prevalence and the number of flocks are limited, fluctuation of the prevalence is easily reflected by any slight change.

Layer Flocks:
The prevalence of the targeted serovars:

- 2010 - 13.22%
- 2011 - 9%
- 2012 - 6.1%
- 2013 - 1.2%
- 2014 - 2.3% (2 positive flocks with a total of 1110 infected birds altogether)
- 2015 - 1.2%
- 2016 – 1.6%
- 2017 - 2.4% (2 flocks out of 83 flocks , one flock had a capacity of 200 birds)
- 2018- 7.37% (7 flocks out of 95)

The number of layer flocks has increased during 2018

Broiler Flocks

- 2011 - 0.71%
- 2012 - 0.35%
- 2013 - 0.58% (3 flocks out of 519)
- 2014 - 1.04% (5 flocks out of 480)
- 2015 – 0.4%
- 2016 – 1%
- 2017 – 0%
- 2018-0.68%

The number of broiler flocks has decreased slightly over the years . Having less than 100 flocks , the incidence is easily effected.

OTHER Salmonella spp.

The incidence of the targeted serovars has declined over these past years. Other serovars of Salmonella have also declined, especially between 2011 and 2014. However in 2015, there was an increase in isolates of other serovars. Over 2016, 2017 and 2018, the numbers have declined slowly. Salmonella Infantis is the most frequently isolated serovar, followed by S. Kentuky S. Haifa, and Livingstone.
2. Evaluation of status, trends and relevance as a source for humans
Refer to point 1.
3. Any recent specific action in the Member State or suggested for the European Union[(b)]
N/A
4. Additional information
N/A
* **For each zoonotic agent** (a): Epidemiological evaluation (trends and sources) over time until recent/current situation for the different relevant matrixes (food, feed, animal). If relevant: the official "disease status" to be specified for the whole country and/or specific regions within the country (b): If applicable

4. **Description of Monitoring/Surveillance/Control programmes system*: Salmonellosis**
1. Monitoring/Surveillance/Control programmes system[(a)]
The National Control Programmes for Laying Flocks of Gallus gallus and Broiler flocks of Gallus gallus 2018 – 2020 are approved by the Commission and can be found in the EU web page of National Vet programmes according to Regulation 652/2014. https://ec.europa.eu/food/funding/animal-health/national-veterinary-programmes_en
2. Measures in place[(b)]
The National Control Programmes for Laying Flocks of Gallus gallus and Broiler flocks of Gallus gallus 2018 – 2020 are approved by the Commission and can be found in the EU web page of National Vet programmes according to Regulation 652/2014. In Malta there are no commercial breeding flocks of Gallus gallus and no commercial breeding or fattening turkey flocks.
3. Notification system in place to the national competent authority[(c)]
Salmonellosis notification is mandatory in poultry under Commission Regulations : 2160/2003,1237/2007, 517/2011 and 200/2010 as part of the Salmonella National Control Programme. Moreover, under national legislation: LN 255 of 2012 titled "Measures for the Eradication of Salmonella Regulations, 2012", issued under the Veterinary Services Act Chapter 437.
4. Results of investigations and national evaluation of the situation, the trends [(d)] and sources of infection[(e)]
During epidemiological investigation conducted on positive poultry farms , lack of certain biosecurity measures and close proximity of swine herds within the same premises as possible

sources of infections.

5. Additional information

N/A

* **For all combinations of zoonotic agents and matrix (Food, Feed and Animals) for 'Prevalence' and 'Disease Status': one text form reported per each combination of matrix/zoonoses or zoonotic agent**

(a): Sampling scheme (sampling strategy, frequency of the sampling, type of specimen taken, methods of sampling (description of sampling techniques) + testing scheme (case definition, diagnostic/analytical methods used, diagnostic flow (parallel testing, serial testing) to assign and define cases. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(b): The control program/strategies in place, including vaccination if relevant. If applicable a description of how eradication measures are/were implemented, measures in case of the positive findings or single cases; any specific action decided in the Member State or suggested for the European Union as a whole on the basis of the recent/current situation, if applicable. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(c): Mandatory: Yes/No.

(d): Minimum five years.

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

5. General evaluation*: Brucellosis

1. History of the disease and/or infection in the country[(a)]

The first national programme for *Brucella abortus and Brucella melitensis* control initiated in the 50's and became compulsory in 1961. In 1973 the island of Gozo was submitted to a test and slaughter programme. The main problem was found within the sheep and goat population where 21% of goats and 5.2% of the sheep on the island were infected. Only 0.5% of the cattle on the island were positive. By 1980 Gozo had only 0.1% of goats positive while there were no cases in either bovine or ovine animals.

As limited funds were available for an eradication programme in Malta in the early 80's the Maltese Veterinary Services allowed the use of the 45/20 vaccine for cattle herds either had non active infection or were contiguous to an infected farm, during this period 8% of cattle in the island of Malta were infected. Farmers were also assisted to voluntary slaughter of infected animals.

In 1983 a survey was carried out which showed that 12% of goats and 5% of sheep were infected in the whole Country.

In 1987 funds were made available for the eradication of both Brucella abortus and Brucella melitensis and bovine tuberculosis. Another survey carried out on those farms supplying milk for pasteurization showed a prevalence of 2% of bovine animals, 9% of goats and 1% of sheep were infected.

In view of this situation a more strict approach was taken from the late 80's by the adoption of a new control scheme with the following measures:

- Legislation was amended including the compulsory registration of all dairy animals, more powers was given to the Veterinary Services and the control of movement of all dairy animals was implemented.
- A public awareness campaign had the beneficial results that over 1000 previously unknown small ruminant holdings were registered.
- No movement of animals except for slaughter was allowed in the first three months of the new control scheme.

- All animals were identified by tagging and freeze branding and tested in the first 12 months from the start of the programme.
- All farms with more than 10% positive animals were depopulated within the first 8 months of the scheme. Depopulated farms were cleaned and left empty for six months.
- Testing on infected farms was carried out at 3 months intervals.
- Reactors were slaughtered not later than 14 days following a positive test result.
- Accredited herds were tested twice yearly.
- Compensation in the form of replacement animals was given for bovine animals slaughtered within the scheme while financial compensation was given in the case of sheep and goats.

From 2005 a more strict brucellosis control plan has been implemented which included the twice yearly testing of bovine, ovine and caprine animals by the Rose Bengal test (RBT), the adoption of ELISA (from 2010) and Complement Fixation test for all RBT positive reactors, the slaughtering and tissues lifting for culture of all the positive animals and the adoption of the Milk Ring test three times a year on all dairy herds.

Due to this strict control programme adopted during the recent years based on test and culling principle, together with strict control on animal movements, the prevalence of the disease in animal was drastically reduced with a connected reduction of human cases in the islands. The detailed prevalence detected in the recent years is described in the dedicated chapter. No human case has been detected from 1999.

Malta achieved the Brucella officially free status in 2015.

2. Evaluation of status, trends and relevance as a source for humans

No cases of brucellosis in humans have been reported in Malta in 2018 or in the past 5 years. The last notified case was in 2013 and it was an imported case.

3. Any recent specific action in the Member State or suggested for the European Union[(b)]

NA

4. Additional information

NA

* **For each zoonotic agent**

(a): Epidemiological evaluation (trends and sources) over time until recent/current situation for the different relevant matrixes (food, feed, animal). If relevant: the official "disease status" to be specified for the whole country and/or specific regions within the country

(b): If applicable

6. Description of Monitoring/Surveillance/Control programmes system*: Brucellosis

1. Monitoring/Surveillance/Control programmes system[(a)]

- Active surveillance

The testing regime followed is in accordance to Council Directive 64/432. All bovine animals over one year old, with the exception of males for fattening, are subjected to two serological tests within 12 months at an interval of at least 3 months to obtain the officially brucellosis free status.

According to the EU legislation, since the prevalence of the disease within the bovine herds is <1%, all the officially brucellosis-free herds may be controlled annually for the purpose of maintaining the health status with one serological test carried out on all bovine animals over

12 months old, with the exception of males for fattening. Considering the regular presence in the Maltese dairy farms of separated units where male bovine animals are reared for fattening, a control scheme which is more strict than the requirements of Dir.64/432 to maintain the free status with the purpose to exclude any possible transmission of the disease from bovine animals reared in fattening separated units within the dairy farms. The males for fattening are not always tested on farm because of the safety of the personnel in charge for the controls.

The control scheme adopted includes:

a) The serological control every six months of all animals over 12 months old, with the exception of males for fattening if dangerous for the safety of the personnel in charge for the sampling. In the years 2008-2014 the control was extended to all animals over 6 months old;
b) The serological control at the slaughterhouse of all the bovine animals over 12 months old, including the males for fattening.
c) Bulk milk test performed three times a year, at an interval of at least three months, in the dairy herds

The Rose Bengal test (RBT) is used for the serological analysis. Following a positive result to the Rose Bengal test the sample is retested using the ELISA method and if still positive the Complement Fixation test (CFT) is used as confirmatory test. Blood samples containing 20 or more ICFT units /ml are considered as brucella positive. Those animals resulting positive to CFT are slaughtered. The brucella free status of the holding is suspended and all movement of susceptible animals are prohibited, except for slaughter under the supervision of the Veterinary Regulation Directorate.

Positive animals are slaughtered and samples are collected at the slaughterhouse for the bacteria culture. According to the EU legislation, the CVO may authorize the isolation of the positive animal and the performing of another serological control after 15 days with CFT.

The bulk milk is tested using the milk ring test. In case of positivity all the animals over 12 months old are immediately re-controlled by serological tests (Rose Bengal test).

In positive farms where the bacteria culture has identified the presence of B.abortus, the following measures are adopted: no movements of susceptible animals are allowed from/to other farms, movements to slaughterhouses are allowed with authorisation issued by VRD, milk of any positive animal is considered not fit for human consumption, manure is disinfected and used after 3 weeks of maturation, a cleaning and disinfection protocol is adopted, all the dogs present in the farm are serologically tested. An epidemiological inquiry is carried out to investigate on recent movement of animals and if deemed necessary, other herds are tested. The infected herd is not considered as officially brucellosis- free until all animals result negative to two serological consecutive tests carried out at an interval of at least three months with the first test performed 30 days after the removal of the positive animals. The Department of Public Health is immediately informed in case of positive results at confirmatory test for the necessary actions in order to prevent the possible infection of people in contact with the animals.

Protocols in case of suspicion and confirmation of the disease are described later on this document.

- Passive surveillance

The early detection system for all the notifiable diseases is based on a regular awareness programme. The Veterinary Regulation Directorate organizes regular trainings for official veterinarians, produces leaflets for farmers and holds meetings with farmer Associations with the aim of improving the awareness against the diseases with most relevant risk.

From the year 2012 an emergency service has been implemented to improve general welfare issues, to improve the passive surveillance on animal diseases and to limit the possible spread of dangerous pathogens. Animals with clinical signs of diseases are visited by Official Veterinarians and if an infectious disease is suspected the animals are tested and killed on farm. The carcasses are disposed with proper procedure to avoid the spread of infective agents. This system is strengthened by a 24/7 system of emergency service on farm. Every time a livestock keeper reports via telephone call an animal in need of slaughter, but not in a condition to be transported, or animals with clinical signs related to dangerous diseases, the emergency service is activated and the official veterinarian on duty visits the farm and carries out an inspection on the animals. The number of requests for emergency service reported, including cattle, small ruminants and pigs, is the following:

Year	Number of emergency visits on farm	Number of animals clinically examinated
2012	77	82
2013	191	238
2014	234	279
2015	221	241
2016	226	248
2017	199	212
2018	196	210

The improvements on passive surveillance allowed to detect in 2013 an outbreak of Q fever in a herds with dairy cattle, sheep and goats where the farmer notified the presence of abortions. The presence of brucellosis was escluded by the testing of placenta and foetuses and by testing the animals present. The tests detected the infection by Coxiella burnetii.

Qualifications of animals and herds

According to the Legal Notice 314/2005 Chapter 437 of the Veterinary Services Act, “Measures for the Eradication of Brucellosis, Tuberculosis and Leucosis in cattle rules” the plan for the eradication of bovine brucellosis is drawn in accordance with the European Union Council Directive 64/432/EEC.

A bovine herd is declared officially brucellosis free if:

- all the bovine animals have been free from clinical signs of brucellosis for at least six months; and
- all the bovine animals over 12 months old, with the exception of males for fattening not used for breeding (if dangerous for the safety of personnel in charge for sampling), have been subjected to two serological tests with negative results at an interval of more than three months and less then12 months ;

A bovine herd maintains the officially brucellosis free status if:

- all the bovine animals have been free from clinical signs of brucellosis; and
- all the animals entering the holding come from an officially brucellosis free herds; and
- all the bovine animals over 12 months old, with the exception of males for fattening not used for breeding (if dangerous for personnel in charge for sampling), have been controlled with negative results and according to the following protocol:

DAIRY FARMS:

a) 2 serological tests carried out at intervals of 12 months with negative results (one test every 6 months);

b) 3 milk ring tests carried out at intervals of at least 3 months

SLAUGHTERED ANIMALS:

A serological test is carried out on all the animals older than 12 months, including males for fattening, slaughtered at the civil abattoirs of Malta and Gozo. Most of the time also animals younger than 1 year are sampled and tested for brucellosis.
The tests on slaughtering animals have the purpose to check the fattening bulls which are reared in dairy herds and in non-milk producing farms that can be difficult to restrain. These animals are reared in separated units but could have been in indirect contact with reproductive animals reared in the same farm or illegally mixed with dairy animals.

Tests used and sampling schemes

Testing is carried out in accordance to the provisions laid down in Council Directive 64/432.

Serological testing. Testing is carried out by the National Veterinary Laboratory using the Rose Bengal plate test as a screening test, while the complement fixation test is carried out as a confirmatory test on all RBT positive samples. A second serological test (ELISA) was implemented in 2010 to carry out analysis on RBT positive samples before the Complementary Fixation tests. The ELISA test is carried out immediately after the positive result on RBT. Animals are considered as confirmed positive to brucella infection if the complement fixation tests results in 20 or more ICFT units / ml.

Milk testing. All herds that supply milk for human consumption are testes with bulk milk test three times a year, at an interval of at least three months. In case of any positive reaction to the milk ring test, the whole herd is tested through the Rose Bengal plate test. Any positive Rose Bengal test has to be confirmed through the complement fixation test as stated above.

Measures in case of a positive results

Once a positive animal is identified and the positive result confirmed with CFT, a ban of movements for the herd where the animal is reared is issued by the CVO. The officially brucellosis free status of the herd is suspended and any positive animal is isolated and slaughtered within 15 days. The health status of the farm is updated in the Veterinary Information System. According to the EU legislation, the CVO may authorize the isolation of the positive animal and the performing of another serological control after 15 days with CFT.

Samples are collected at the slaughterhouse from the positive animals for the bacteria culture and depending on the result two different procedures are possible:

1- Bacterial culture NEGATIVE: the officially brucellosis free status is maintained as suspended. All the animals of the herd over 12 months old are tested with a test carried out 30 days after the removal of the positive animals. If there is no evidence of other positive animals, the officially brucellosis free status of the herd is restored.

2- Bacterial culture POSITIVE: the officially brucellosis free status of the herd is withdrawn. All the animals of the herd over 12 months old are tested with two consecutive tests, the first 30 days and the second after 90 days after the removal of the positive animals. If there is no evidence of other positive animals, the status of the herd is re-established as officially brucellosis free. The herd is then tested 4 months after the removal of the positive animals to confirm the absence of infection.

In case of the presence of animals which are pregnant at the time of the outbreak, a control is carried out 30 days after the last animal has calved.

In case of isolation of Brucella abortus the following measures are adopted in the herd:

- an inspection of the holding is carried out to identify any relevant recommended measure for hygiene and proper management and to establish cleaning and disinfection measures;
- all the dogs present in the farm are controlled for brucellosis with a serological test;
- the manure is disinfected and its use authorised not earlier than 3 weeks;
- any milk from sero-positive animals present in the farm is be deemed as unfit for human consumption and destroyed;
- an investigation is carried out on recent movements of animals from the brucella-infected farm to other farms. In such cases were deemed necessary other farms are tested;
- an epidemiological enquiry is carried out to identify the source of the infection;
- a notification is immediately forwarded to the Public Health Department;

2. Measures in place[(b)]

No vaccination has been carried out on local bovine herds since 1980.

Detailed guidelines for good husbandry practices and biosecurity measures on bovine farms are not available. However, general guidelines are covered in the Code of Good Agriculture Practice (Cogap).

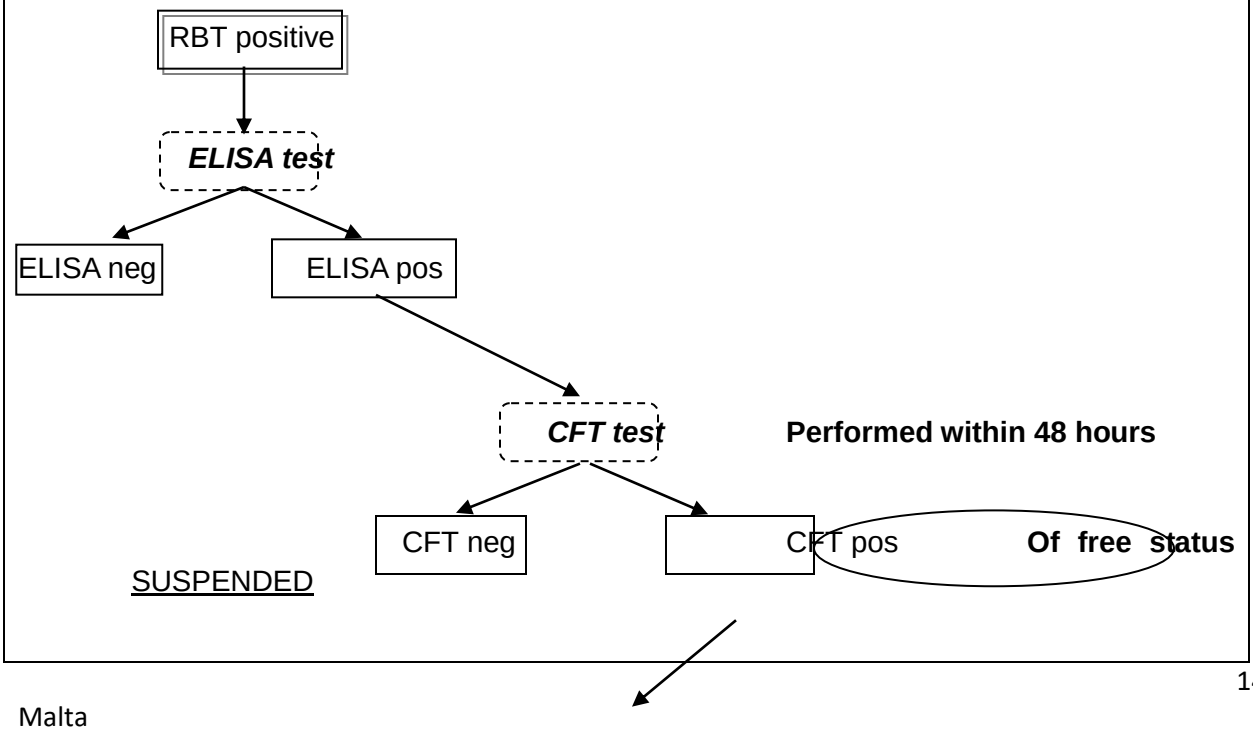
It covers certain practices such as:

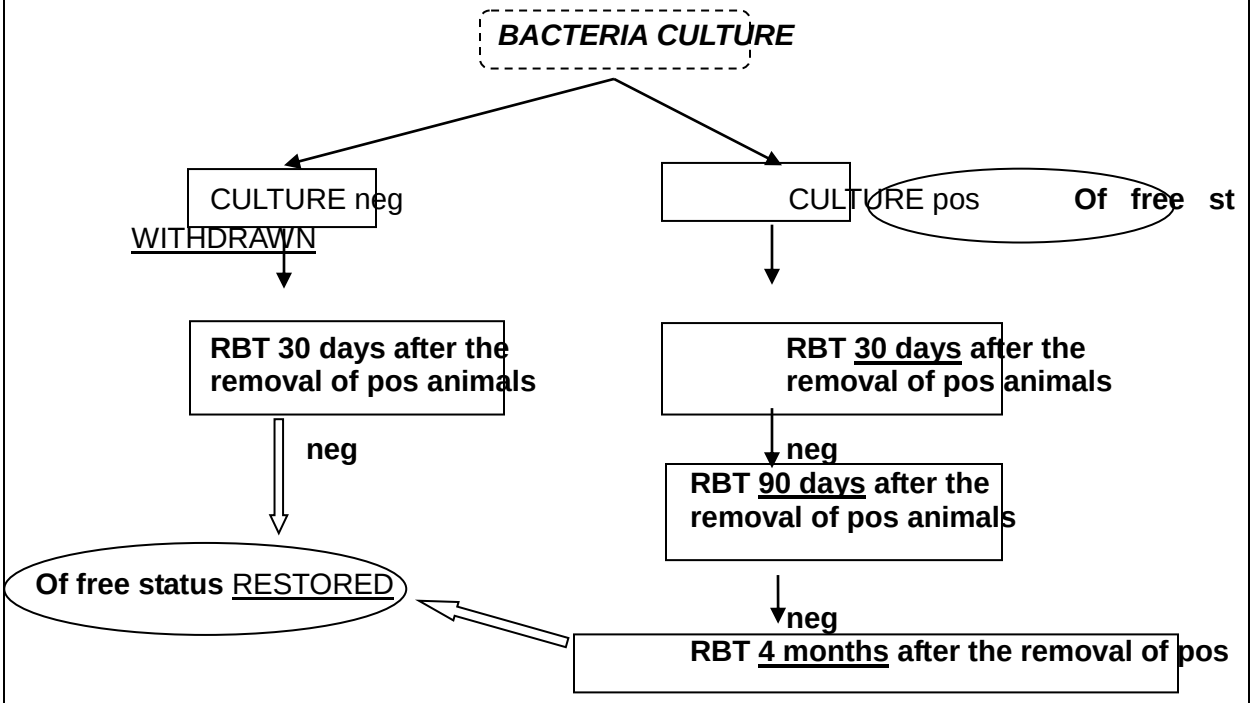
- the guidelines for storage of feed
- the quality of building material
- need for a vehicle disinfection pits
- necessity of a manure clamp

All farms producing manure have to store solid manure in an enclosed place known as the manure clamp, for six months a year (from the 15th October to 15th March). All farms are to have a leak proof cesspit, to collect foul water arising from cleaning etc. The manure clamp is to be connected to the cesspit. The water is kept for 15 days then collected by a bowser. These regulations serve to reduce the environmental pollution and the nitrate level in fields fertilised with manure. However, they also provide a tool to permit biosecurity measures to limit spread of diseases.

The biosecurity level of the dairy farms has been improved in recent years due to an informative campaign performed by the VRD staff and during the inspections performed on farms for controlling milk hygiene, animal health, feed hygiene, drugs use practice, and animal welfare.

PROTOCOL in CASE of POSITIVITY





3. Notification system in place to the national competent authority[(c)]

Yes

4. Results of investigations and national evaluation of the situation, the trends [(d)] and sources of infection[(e)]

Positive results in the past 6 years

In 2009 the officially brucellosis free status has been withdrawn in one herd following a positive result obtained to RBT and CFT. The herd was submitted to a testing regime to identify the possible presence of infection with favourable results and the health status was re-assigned during the year.

In 2009 a sample had been found positive in a control carried out on 09.03.2009 in a dairy farm of 439 bovine animals (1 positive out of 326 animals tested). The sample was submitted to CFT test on 15.03.2009 and the positivity confirmed. Because of a communication problem the samples for bacteria culture were not collected at the slaughterhouse and thus no culture results were available. The animals of the herd were submitted to two further controls before the health status was restored.

National legislation

The relevant legislation is mentioned below, and is the legislation that provides the legal basis for all the measures included in the brucellosis control programme. All the regulations are available in the Justice Service of the Maltese Government at the following link http://www.justiceservices.gov.mt

A) Veterinary Services Act Cap.437 of 1st February 2002 (*ACT XXIII of 2001, as amended by Act XVIII of 2002; Legal Notice 426 of 2007; and Act XXIII of 2009.*).
The regulation establishes and consolidates the general requirements in the veterinary field, veterinary medicinal products, feeding stuffs and zootechnical requirements and the regulation of the veterinary profession. It gives the power to the VPRD to prescribe the general rules concerning the prevention and control of diseases, the health conditions to be observed in relation to the movement of live animals and germinal products, the identification of the animals, the importing condition of animals and animal products, the veterinary inspections, the financial and compensatory measures in connection with national schemes for eradication of animal diseases, the obligations of animal keepers, the certifications.

According to the rules laid down in the Veterinary Services Act the bovine brucellosis is included in the list of the diseases for which the owner, the keeper, the dealer or the importer, the consignee, the carrier, the retailer or any other person authorised to dispose of live animals, products of animal origin, animal feedingstuffs or veterinary medicinal products or the representative of such persons, or any person in charge of a private veterinary activity must observe any obligation imposed and implement the rules mentioned hereunder:
- co-operate and assist in the control of the disease;
- observe the obligations imposed by the veterinary services, in the case of a suspected outbreak including any obligation concerning the restriction of movement of animals and humans, the slaughtering of animals, the destruction of animal products, feeding stuffs and equipment, and the cleaning and disinfection of premises, material and equipment;
- identify and register animals and declare the movements of animals for which they are responsible;
- keep individual registers for each holding for which they are responsible;
- observe the health conditions in connection with the movements of live animals;
- produce, at the request of any officer of the veterinary services, the necessary certificates or documents;
- declare and notify to the veterinary services any suspected outbreak of the disease;
- shall not place in a holding or on the market, recognised as being officially free of brucellosis, any animal which is not covered by the proper guarantees;
- shall not accept in a holding, centre or organisation, or on the market, recognised as being officially brucellosis free, any animal which is not covered by guarantees, to show that such animal is free from brucellosis;

B) Veterinary Act- Subsidiary Legislation 437.86 *(Legal notice 314 of 2005 as amended by LN 2008 of 2009)*: measures for the eradication of brucellosis, tuberculosis and leucosis in cattle rules.
The regulation implements the rules contained in the European Union Council Directive 77/391/EEC concerning the introduction of Community measures for the eradication of brucellosis, tuberculosis and leucosis in cattle and lays down rules to improve the animal health status of cattle. For the purpose of these rules the Competent Authority shall draw up plans for accelerating the eradication of brucellosis. The plan for accelerating the eradication

of bovine brucellosis are devised by the competent authority so that herds may be classed as "officially brucellosis-free", in accordance with community law, and in particular European Union Council Directive 64/432/EEC on animal health problems affecting intra-Community trade in bovine animals and swine, as last amendments. The plan lists the measures to be taken to accelerate and intensify the eradication of bovine brucellosis and specifies the measures to combat and prevent this disease.
According to this legislation the programme drowned and implemented includes:
- the description of herds subject to control measures, and of herds with confirmed bovine brucellosis;
- the total numbers i) of animals subject to control measures; ii) of animals with suspected brucellosis or considered to be infected; iii) of infected animals; iv) of animals slaughtered within the programme;
- the scheduled duration of the initial eradication programmes and of the accelerated plans;
- the method applied for checking on the effective application of the accelerated plans;
- the national budgetary allocation for the eradication of bovine brucellosis and the breakdown by items of these allocations

C) Prevention of Disease Ordinance, Chapter 36 of the laws of Malta, section 68, *(Enacted by ORDINANCE VIII of 1908 and following amendments)* states that every person having in his possession or under his charge an animal affected with brucellosis shall:
- as far as practicable keep that animal separate from other animals not so affected; and
- with all practicable speed, give notice of the fact of the animal being so affected, to an officer for the district wherein the animal so affected is.

The officer, to whom any such notice is given, shall forthwith give the information to the Competent Authority.

Identification of animals and registration of holdings:

The rules for animal identification and registration of herds and animals are stated in the following regulations:

- Veterinary Services Act, section 7 (*ACT XXIII of 2001, as amended by Act XVIII of 2002; Legal Notice 426 of 2007; and Act XXIII of 2009);*
- Vet. Serv. Act. 437.78, identification and registration of animals rules, (*Legal Notice 292 of 2005);*
- Milking Animals Regulation S.L. 36.32 section 3 (*Legal Notice 151 of 1989);*
- European Union Act, Chapter 460 of the laws of Malta, section 3-4 (*ACT V of 2003, as amended by Act III of 2006; Legal Notice 427 of 2007; and Act VII of 2012);*
- Regulation (EC) No 1760/2000 of the European Parliament and of the Council of 17 July 2000 establishing a system for the identification and registration of bovine animals and regarding the labelling of beef and beef products and repealing Council regulation (EC) No 820/97;
- Council Directive 92/102/EEC of 27 November 1992 on the identification and registration of animals (*amended by OJ L 005 09.01.2004 p.8*);
- Control of marking of animals regulation S.L. 36.17 sections 2-3, (*Government Notice*

563 of 1957, as amended by Legal Notice 35of 1964);

- Undulant fever (prevention) regulation S.L. 36.04 section 4, (*Government Notice 50 of 1924*)

All livestock holdings are identified by an unique herd number and they are registered with Veterinary and Phytosanitary Regulation Department. All the information pertinent to each farm and bovine animal is also kept on the National Livestock database within the Veterinary Information System.

All bovine animals are identified according to the Vet. Act. S.L. 437.84, Bovine animals identification and registration, which implement the provision of Regulation 1760/2000, regarding the system for the identification and registration of bovine animals.

The system for the identification and registration of bovine animals includes the following elements:

1) The ear tags to individually identify the animals. The ear tags are applied within a period of twenty days from animal birth and in any case before the animal leaves the holding on which it was born. Any animal from another Member State retains its original ear tags if introduced in Malta.

No ear tags are removed or replaced without the permission of the Veterinary Regulation Directorate.

The ear tags are allocated to every single holding, distributed and applied to the animals by Veterinary Support Officers (VSOs) of the Animal Register Section of the Veterinary Regulation Directorate.

The responsibility of the identification and registration of the animals falls on the owner of the animals. The identification of the animals is carried out by the Veterinary Support Officers of the Veterinary and Phytosanitary Regulation Department who visit the farms at least every month or upon the request of the owners for the identification of the new animals or in case the animals have lost their tags.

2) The computerised database. The Veterinary Regulation Directorate has established a database in accordance with Articles 14 and 18 of Directive 64/432/EC where all data related to animal identification (id number, breed, date of birth, death) and animal movements are stored. The computerised database was declared fully operational from 1st May 2004 by the EU Commission.

3) The animal passports. The I&R system and database was recognised as fully operational and according to EU rule the passports of the animals (bovine born in Malta and not traded in other countries) are not printed anymore.

4) The herd book. A register is kept in each farm and updated with the following information regarding each animal: ear tag, date of birth, ear tag number of the mother, breed, sex, data of introduction in the farm and provenience, date of leaving from the farm and destination.

In case of the finding of a not identified animal in a farm, a blood sample is collected and tested for brucellosis and leukosis and an intradermal tuberculosis test is performed. A

notification is immediately sent to the Animal register Section of VRD for further actions.

In order to verify the compliance with I&R rules, inspections on farms are regularly carried out according to the provisions of Reg.1760/00. The outcomes are reported in the annual reports of the VPRD.

Rules on the animal movements

Movement rules are established for the prevention of the spread of diseases among animal population. The national legislation for this purpose is the following:

- Prevention of Disease among animals, S.L. 36.20 sections 16-17 (*LEGAL NOTICE 63 of 1967, as amended by: Legal Notice 52 of 1972;Act XIII of 1983; and Legal Notices 59 of 1998 and 407 of 2007);*
- Measures for the Eradication of Brucellosis, Tuberculosis and Leucosis in cattle rules – Sl 437.86 (*LEGAL NOTICE 314 of 2005, as amended by Legal Notice 208 of 2009);*
- Foot and Mouth Disease regulation -S.L. 36.05, section 4 (*GOVERNMENT NOTICES 103 of 1932 and 457 and 554 of 1937);*
- Control of Foot and Mouth disease regulation- S.L. 36.27 section 2 (*LEGAL NOTICE 74 of 1975*);
- Undulant fever (prevention) regulation -S.L. 36.04 section 7 (*GOVERNMENT NOTICE 50 of 1924);*

No bovine and ovi-caprine animals on the Islands can be moved without a permit issued by the Animal Health Unit of the Veterinary Regulation Directorate. According to Legal Notice 314/2005 Chapter 437 of the Veterinary Services Act, “Measures for the Eradication of Brucellosis, Tuberculosis and Leucosis in cattle rules” no movement of male animals are allowed from non-dairy farms to dairy farms irrespective of disease status.

All animal movements including farm to farm, farm to abattoir and temporary movements such as movements to shows have been prohibited without a movement permit obtained from the official competent authority (Veterinary Regulation Directorate) and based on the health status of the holding. Movements from herds of male for fattening only to dairy farms are not allowed according to the national legislation (*LEGAL NOTICE 314 of 2005, amended by Legal Notice 208 of 2009*).

If an animal results positive to both the screening test Rose Bengal test (RBT) and ELISA and to the confirmatory test (CFT), the holding is declared as brucella-infected and no movement is permitted from the holding without the permission of the CVO. The only permits issued would be to allow movement of brucella-positive animals and other animals from the holding to the civil abattoirs of Malta or Gozo for slaughter. The civil abattoirs are the only abattoirs in the country.

The herd is considered as officially brucella- free only until measures taken according a specific protocol have excluded the presence of the infection in the herd (see annex 1 and 2). Once this is the case, movement restrictions are lifted.

A file is kept for each farm at the VRD level with all the permits issued and all animal movements are registered in the National Livestock Database. On request of any sort of movement or purchase transfer the file is brought up.

Target animals and animal population:

The animal population present in the Maltese islands susceptible to Brucella abortus infection in 2018 is composed by 14,208 bovine animals in 266 farms.

- 98 dairy farms with 12,846 animals
- 168 farms of fattening animals with 1,362 animals.
- Around 4.000 bovine animals are slaughtered every year (3,975 during 2018).

The target population for the brucellosis control programme is composed by bovine animals over 12 months old reared for breeding present in dairy and non-dairy farms.

Description of the brucellosis eradication programme

Even though the absence of the disease has been confirmed by controls performed during the recent years, during the last 5 years it was decided to maintain a high level of testing to assure an earlier detection of the possible incursion of the disease in the herds and maintain a high level of confidence in disease freedom.

The main objective of the programme is to maintain the officially brucellosis free status of the herds in order to guarantee the safety of the dairy productions and of the human health. The programme covers the islands of Malta and Gozo which are considered as one region for the purpose of this programme. In the Island of Comino animal herds are not present.

MEASURES in POSITIVE HERDS

Suspicion

Complementary Fixation Test. In case of positive result (20 or more ICFT units / ml) the following measures are adopted on the herd:

- the positive animal is isolated and slaughtered (possibly within 15 days) and tissues lifted for bacteria culture and PCR.
- no movements of susceptible animals are allowed from/to other farms
- movements to the slaughterhouses are allowed with the authorization issued by CVO. The Veterinary officer of the slaughterhouse is informed for the proper collection of tissue from sero-positive animals;
- milk of any positive animal present on farm is considered not fit for human consumption

The officially brucellosis free status of the herd is SUSPENDED. The health status of the farm is updated in the Veterinary Information System.

According to the EU legislation, the CVO may authorize the isolation of the positive animal and the performing of another serological control after 15 days with CFT.

The date of slaughtering is agreeded between the farmer and the VRD and the movement certificate is issued by a veterinary officer of the Animal Health Unit who informs the veterinary in charge for the post mortem inspection at the slaughterhouse.

At the slaugherhouse proper samples are collected (mammary and genital lymph nodes and

spleen) and sent to the Veterinary Laboratory for the bacteria culture.

Confirmation

Samples are collected at the slaughterhouse from the positive animals for the bacteria culture and depending on the result two different procedures are possible:

1- Bacterial culture NEGATIVE: the officially brucellosis free status is maintained as suspended. All the animals of the herd over 12 months old are tested with a test carried out 30 days after the removal of the positive animals. If there is no evidence of other positive animals, the officially brucellosis free status of the herd is restored.

2- Bacterial culture POSITIVE: the officially brucellosis free status of the herd is WITHDRAWN. All the animals of the herd over 12 months old are tested with two consecutive tests, the first 30 days and the second after 90 days after the removal of the positive animals. If there is no evidence of other positive animals, the status of the herd is re-established as officially brucellosis free. The herd is then tested 4 months after the removal of the positive animals to confirm the absence of infection.

In case of the presence of animals which are pregnant at the time of the outbreak, a control is carried out 30 days after the last animal has calved.

In case of positive bacteria culture/PCR the following measures are implemented:

- no movements of susceptible animals are allowed from/to other farms;
- movements to slaughterhouses are allowed with authorisation issued by VRD;
- milk of any other positive animal is considered not fit for human consumption;
- manure is disinfected and used after 3 weeks of maturation;
- a cleaning and disinfection protocol is adopted;
- all the dogs present in the farm are serologically tested;
- epidemiological enquiry is carried out;
- the Public Health Department is informed.

An order is issued to the farmer to guarantee the respect of the above measures.

5. Additional information

N/A

* **For all combinations of zoonotic agents and matrix (Food, Feed and Animals) for 'Prevalence' and 'Disease Status': one text form reported per each combination of matrix/zoonoses or zoonotic agent**

(a): Sampling scheme (sampling strategy, frequency of the sampling, type of specimen taken, methods of sampling (description of sampling techniques) + testing scheme (case definition, diagnostic/analytical methods used, diagnostic flow (parallel testing, serial testing) to assign and define cases. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(b): The control program/strategies in place, including vaccination if relevant. If applicable a description of how eradication measures are/were implemented, measures in case of the positive findings or single cases; any specific action decided in the Member State or suggested for the European Union as a whole on the basis of the recent/current situation, if applicable. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(c): Mandatory: Yes/No.

(d): Minimum five years.

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

7. General evaluation*: Tuberculosis

1. History of the disease and/or infection in the country[(a)]

The last reported case was in 2001, however in 2017 , one bovine farm was found positive at intradermal test and confirmed positive on cultural examination.

No cases of tuberculosis in humans have been reported in Malta in 2018 or in the past 5 years.

2. Evaluation of status, trends and relevance as a source for humans

Refer to point 1

3. Any recent specific action in the Member State or suggested for the European Union[(b)]

Eradication programme implemented in 2017 following Commission Legislation.

4. Additional information

N/A

* **For each zoonotic agent**

(a): Epidemiological evaluation (trends and sources) over time until recent/current situation for the different relevant matrixes (food, feed, animal). If relevant: the official "disease status" to be specified for the whole country and/or specific regions within the country

(b): If applicable

8. Description of Monitoring/Surveillance/Control programmes system*: Tuberculosis

1. Monitoring/Surveillance/Control programmes system[(a)]

Description of the tuberculosis eradication programme

Even though the absence of the disease has been confirmed by controls performed during the recent years, during the last 6 years it was decided to maintain a high level of testing to assure an earlier detection of the possible incursion of the disease in the herds and maintain a high level of confidence in disease freedom.
The main objective of the programme is to maintain the officially tuberculosis free status of the herds in order to guarantee the safety of the dairy productions and of the human health.
The programme covers the islands of Malta and Gozo which are considered as one region for the purpose of this programme. In the Island of Comino animal herds are not present.

Active surveillance

The testing regime followed is in accordance to Council Directive 64/432. All bovine animals over 6 weeks old, with the exception of males for fattening, are subjected to two intradermal comparative tuberculin tests within 12 months at an interval of at least 6 months to obtain the officially free status.
Considering the regular presence in the Maltese dairy farms of separated units where male bovine animals are reared for fattening, it was adopted from 2009 to 2014 a control scheme that is more strict than the requirements of Dir.64/432 to maintain the free status of the herds with the purpose to exclude any possible transmission of the disease from bovine animals reared in fattening separated units within the dairy farms. The scheme included controls on

dairy farms every 6 months carried out on animals over 6 weeks old. The males for fattening are not tested on farm because of the safety of the personnel in charge for the controls.

The control scheme of the bovine tuberculosis eradication programme includes:

a) The intradermal comparative tuberculin test performed every six months on all animals over 6 weeks old (with the exception of males for fattening);
b) 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.
The skin test used as routine test is the intradermal comparative test with one injection of bovine tuberculin and one injection of avian tuberculin given simultaneously. This test is regularly used in all the controls performed on farms.
If goats are reared together with bovine, all the animals over 6 weeks older are submitted to an intradermal comparative tuberculin test.

Qualifications of animals and herds

According to the Legal Notice 314/2005 Chapter 437 of the Veterinary Services Act, "Measures for the Eradication of Brucellosis, Tuberculosis and Leucosis in cattle rules" the plan for the eradication of bovine tuberculosis is drawn in accordance with the European Union Council Directive 64/432/EEC.
A bovine herd is declared officially tuberculosis free if:
- all the bovine animals are free from clinical signs of tuberculosis; and
- all the bovine animals over 6 weeks old, with the exception of males for fattening not used for breeding, have been subjected to two intradermal tuberculin tests with negative results at an interval of six months;

A bovine herd maintains the officially tuberculosis free status if:
- all the bovine animals are free from clinical signs of tuberculosis; and
- no visible lesion is detected at the post mortem inspection on animals of the herd;
- all the animals entering the holding come from herds with officially tuberculosis free status; and
- all the bovine animals over 6 weeks old, with the exception of males for fattening not used for breeding, are subjected to two intradermal tuberculin tests with negative results and according to the following protocol:

DAIRY FARMS
a) 2 intradermal comparative tuberculin tests carried out at intervals of 6 months with negative results.

SLAUGHTERED ANIMALS

A post mortem inspection is carried out on all the animals, including males for fattening, slaughtered at the civil abattoirs of Malta and Gozo, in order to detect the presence of tuberculosis visible lesions.

Tests used and sampling schemes

Testing is carried out in accordance to the provisions laid down in Council Directive 64/432. Intradermal tuberculin test. Testing is carried out by the Animal Health Unit, Prophylaxix Section of the Veterinary Regulation Directorate. For safety reasons the intradermal

tuberculin test is not carried out on male for fattening. The test procedure used is in line with the procedures described in Annex B of Dir. 64/432.
The skin test used as routine test is the intradermal comparative tuberculin test with one injection of bovine tuberculin and one injection of avian tuberculin given simultaneously.

The reading of the results is performed after 72 hours according to the following rules:
a) Positive: bovine reaction more than 4mm greater than the avian reaction;
b) Inconclusive: bovine reaction between 1-4mm greater than the avian reaction
c) Negative: no reaction can be seen or bovine reaction equal to the avian reaction

Post mortem inspection. All the animals slaughtered are submitted to a post mortem inspection in accordance with the procedure of the Reg. 854/04 of 29 April 2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption
In case of presence of visible lesions samples are collected from abnormal lymph nodes and organs with lesions. In case that animals with positive intradermal reaction are slaughtered and no visible lesions are present, samples from retropharyngeal, bronchial, mediastinum, supramammary, mandibular, mesenteric lymph nodes ad liver are collected and submitted to bacterial culture and PCR.
Measures in case of positive or inconclusive results
In case of inconclusive result to the intradermal comparative tuberculin test, the reactor is submitted to another comparative skin test after 42 days. The animal cannot move from the holding but the officially tuberculosis free status of the herd it is not suspended. If at the second intradermal tuberculin test the animal continues to give inconclusive result or if it gives positive result, the animal is considered positive, it is slaughtered and tissues are lifted for bacteria culture and PCR.
Once an animal has a positive reaction to the intradermal comparative test, the officially tuberculosis free status of the herd is suspended and the positive animal is isolated, the milk produced by the animal is deemed as unfit for human consumption, no movement of susceptible animals are allowed from the farm and the reactor is isolated and possibly slaughtered within 30 days. The health status of the farm is immediately updated in the Veterinary Information System.
According to the EU legislation, the CVO may authorize the isolation of the positive animal and the performing of another intradermal comparative test after 60 days.
The officially tuberculosis free status is suspended also if visible lesions are detected during the normal post-mortem inspection at the slaughterhouses.
Tissues are lifted from positive reactors for the bacteria culture and PCR at the post-mortem inspection.

Depending on the result two different procedures are possible:

1- PCR NEGATIVE: the officially tuberculosis free status is maintained as suspended. All the animals of the herd over 6 weeks old are tested with a intradermal comparative tuberculin test carried out 60 days after the removal of the positive animals. If there is no evidence of other positive animals, the officially tuberculosis free status of the herd is restored.

2- PCR POSITIVE: the officially tuberculosis free status of the herd is withdrawn. All the animals of the herd over 6 weeks old are tested with two consecutive intradermal tuberculin tests, the first 60 days and the second 4 months after the removal of the positive animals to confirm the absence of infection. If there is no evidence of other positive animals, the status

of the herd is re-established as officially tuberculosis free.

In case of isolation of Mycobacterium bovis the following measures are adopted in the herd:
- an inspection of the holding is carried out to identify any relevant recommended measure for hygiene and proper management and to establish cleaning and disinfection measures;
- the calves of the positive reactors are isolated and tested after 42 days;
- the manure is disinfected and its use authorised not earlier than 5 months;
- an investigation is carried out on recent movements of animals from the tuberculosis-infected farm to other farms. In such cases were deemed necessary other farms are tested;
- an epidemiological enquiry is carried out to identify the source of the infection;
- a notification is immediately forwarded to the Public Health Department;

Fattening units. If visible lesions are detected during post mortem examination on male for fattening and the presence of M.bovis is confirmed, the holding where the animals are reared must be emptied within 6 months from the positive result in order to carry out cleaning and disinfection procedure or in alternative submitted to two intradermal tuberculin tests with an interval of at least 60 days.
Protocols in case of suspicion and confirmation of the disease are described in annexes 1 and 2.

Information and assessment on bio-security measures, management and infrastructure in place in the holdings under control:
Detailed guidelines for good husbandry practices and biosecurity measures on bovine farms are not available. However, general guidelines are covered in the Code of Good Agriculture Practice (Cogap).

It covers certain practices such as:
- the guidelines for storage of feed
- the quality of building material
- need for a vehicle disinfection pits
- necessity of a manure clamp

All farms producing manure have to store solid manure in an enclosed place known as the manure clamp, for six months a year (from the 15th October to 15th March). All farms are to have a leak proof cesspit, to collect foul water arising from cleaning etc. The manure clamp is to be connected to the cesspit. The water is kept for 15 days then collected by a bowser. These regulations serve to reduce the environmental pollution and the nitrate level in fields fertilised with manure. However, they also provide a tool to permit biosecurity measures to limit spread of diseases.

A programme of inspections on farms is implemented on risk basis in order to control: animal welfare, biosecurity, animal identification and registration, veterinary medicine, feed hygiene.

2. Measures in place[(b)]

The animal population present in the Maltese islands susceptible to Mycobacterium bovis infection is composed by 14427 bovine animals in 266 farms.

- 98 dairy farms with 10912 animals
- 168 farms of fattening animals with 3515 animals.

- Around 4.000 bovine animals are slaughtered every year (4,313 during 2017).

The target population for the tuberculosis control programme is composed by bovine animals over 6 weeks old reared for breeding purpose and present in dairy and non-dairy farms.

Description of the measures in place for the tuberculosis eradication programme

National legislation

Hereunder is mentioned the legislation that provides the legal basis for all the measures included in the tuberculosis control programme. All the regulations are available in the Justice Service of the Maltese Government at the following link http://www.justiceservices.gov.mt

A) Veterinary Services Act Cap.437 of 1st February 2002 (*ACT XXIII of 2001, as amended by Act XVIII of 2002; Legal Notice 426 of 2007; and Act XXIII of 2009.*). The regulation establishes and consolidates the general requirements in the veterinary field, veterinary medicinal products, feeding stuffs and zootechnical requirements and the regulation of the veterinary profession. It gives the power to the VPRD to prescribe the general rules concerning the prevention and control of diseases, the health conditions to be observed in relation to the movement of live animals and germinal products, the identification of the animals, the importing condition of animals and animal products, the veterinary inspections, the financial and compensatory measures in connection with national schemes for eradication of animal diseases, the obligations of animal keepers, the certifications.

According to the rules laid down in the Veterinary Services Act the bovine tuberculosis is included in the list of the diseases for which the owner, the keeper, the dealer or the importer, the consignee, the carrier, the retailer or any other person authorised to dispose of live animals, products of animal origin, animal feeding stuffs or veterinary medicinal products or the representative of such persons, or any person in charge of a private veterinary activity must observe any obligation imposed and implement the rules mentioned hereunder:

- co-operate and assist in the control of the disease;
- observe the obligations imposed by the veterinary services, in the case of a suspected outbreak including any obligation concerning the restriction of movement of animals and humans, the slaughtering of animals, the destruction of animal products, feeding stuffs and equipment, and the cleaning and disinfection of premises, material and equipment;
- identify and register animals and declare the movements of animals for which they are responsible;
- keep individual registers for each holding for which they are responsible;
- observe the health conditions in connection with the movements of live animals;
- produce, at the request of any officer of the veterinary services, the necessary certificates or documents;
- declare and notify to the veterinary services any suspected outbreak of the disease;
- shall not place in a holding or on the market, recognised as being officially free of tuberculosis, any animal which is not covered by the proper guarantees;
- shall not accept in a holding, centre or organisation, or on the market, recognised as being

officially tuberculosis free, any animal which is not covered by guarantees, to show that such animal is free from tuberculosis;

B) Veterinary Act- Subsidiary Legislation 437.86 *(Legal notice 314 of 2005 as amended by LN 2008 of 2009)*: measures for the eradication of brucellosis, tuberculosis and leucosis in cattle rules. The regulation implements the rules contained in the European Union Council Directive 77/391/EEC concerning the introduction of Community measures for the eradication of brucellosis, tuberculosis and leucosis in cattle and lays down rules to improve the animal health status of cattle. For the purpose of these rules the Competent Authority shall draw up plans for accelerating the eradication of tuberculosis. The plan for accelerating the eradication of bovine tuberculosis are devised by the competent authority so that herds may be classed as "officially tuberculosis -free", in accordance with community law, and in particular European Union Council Directive 64/432/EEC on animal health problems affecting intra-Community trade in bovine animals and swine, as last amendments. The plan lists the measures to be taken to accelerate and intensify the eradication of bovine tuberculosis and specifies the measures to combat and prevent this disease

According to this legislation the programme drowned and implemented includes:

- the description of herds subject to control measures, and of herds with confirmed bovine tuberculosis;
- the total numbers i) of animals subject to control measures; ii) of infected animals; iii) of animals slaughtered within the programme;
- the scheduled duration of the initial eradication programmes and of the accelerated plans;
- the method applied for checking on the effective application of the accelerated plans;
- the national budgetary allocation for the eradication of bovine tuberculosis and the breakdown by items of these allocations

C) Prevention of Disease Ordinance, Chapter 36 of the laws of Malta, section 68, *(Enacted by ORDINANCE VIII of 1908 and following amendments)* states that every person having in his possession or under his charge an animal affected with tuberculosis shall:

- as far as practicable keep that animal separate from other animals not so affected; and
- with all practicable speed, give notice of the fact of the animal being so affected, to an officer for the district wherein the animal so affected is.

The officer, to whom any such notice is given, shall forthwith give the information to the Competent Authority.

Identification of animals and registration of holdings:

The rules for animal identification and registration of herds and animals are stated in the following regulations:

- Veterinary Services Act, section 7 (*ACT XXIII of 2001, as amended by Act XVIII of 2002; Legal Notice 426 of 2007; and Act XXIII of 2009);*
- Vet. Serv. Act. 437.78, identification and registration of animals rules, (*Legal Notice 292 of 2005);*
- Milking Animals Regulation S.L. 36.32 section 3 (*Legal Notice 151 of 1989);*

- European Union Act, Chapter 460 of the laws of Malta, section 3-4 (*ACT V of 2003, as amended by Act III of 2006; Legal Notice 427 of 2007; and Act VII of 2012);*
- Regulation (EC) No 1760/2000 of the European Parliament and of the Council of 17 July 2000 establishing a system for the identification and registration of bovine animals and regarding the labelling of beef and beef products and repealing Council regulation (EC) No 820/97;
- Council Directive 92/102/EEC of 27 November 1992 on the identification and registration of animals (*amended by OJ L 005 09.01.2004 p.8*);
- Control of marking of animals regulation S.L. 36.17 sections 2-3, (*Government Notice 563 of 1957, as amended by Legal Notice 35of 1964);*
- Undulant fever (prevention) regulation S.L. 36.04 section 4, (*Government Notice 50 of 1924*)

All livestock holdings are identified by an unique herd number and they are registered with Veterinary and Phytosanitary Regulation Department. All the information pertinent to each farm and bovine animal is also kept on the National Livestock database within the Veterinary Information System.

All bovine animals are identified according to the Vet. Act. S.L. 437.84, Bovine animal identification and registration, which implements the provision of Regulation 1760/2000, regarding the system for the identification and registration of bovine animals.

The system for the identification and registration of bovine animals includes the following elements:

1) The ear tags to individually identify the animals. The ear tags are applied within a period of twenty days from animal birth and in any case before the animal leaves the holding on which it was born. Any animal from another Member State retains its original ear tags if introduced in Malta.

No ear tags are removed or replaced without the permission of the Veterinary Regulation Directorate.

The ear tags are allocated to every single holding, distributed and applied to the animals by Veterinary Support Officers (VSOs) of the Animal Register Section of the Veterinary Regulation Directorate.

The responsibility of the identification and registration of the animals falls on the owner of the animals. The identification of the animals is carried out by the Veterinary Support Officers of the Veterinary and Phytosanitary Regulation Department who visit the farms at least every month or upon the request of the owners for the identification of the new animals or in case the animals have lost their tags.

2) The computerised database. The Veterinary Regulation Directorate has established a database in accordance with Articles 14 and 18 of Directive 64/432/EC where all data related to animal identification (id number, breed, date of birth, death) and animal movements are stored. The computerised database was declared fully operational from 1st May 2004 by the EU Commission.

3) The animal passports. The I&R system and database was recognised as fully operational and according to EU rule the passports of the animals (bovine born in Malta and not traded in other countries) are not printed anymore.

4) The herd book. A register is kept in each farm and updated with the following information regarding each animal: ear tag, date of birth, ear tag number of the mother, breed, sex, data of introduction in the farm and provenience, date of leaving from the farm and destination.

In case of the finding of a not identified animal in a farm, a blood sample is collected and tested for brucellosis and leucosis and a intradermal tuberculosis test is performed. A notification is immediately sent to the Animal register Section of VRD for further actions.

In order to verify the compliance with I&R rules, inspections on farms are regularly carried out according to the provisions of Reg.1760/00. The outcomes are reported in the annual reports of the VPRD.

Rules on the animal movements

Movement rules are established for the prevention of the spread of diseases among animal population. The national legislation for this purpose is the following:

- Prevention of Disease among animals, S.L. 36.20 sections 16-17 (*LEGAL NOTICE 63 of 1967, as amended by: Legal Notice 52 of 1972;Act XIII of 1983; and Legal Notices 59 of 1998 and 407 of 2007);*
- Measures for the Eradication of Brucellosis, Tuberculosis and Leucosis in cattle rules – Sl 437.86 (*LEGAL NOTICE 314 of 2005, as amended by Legal Notice 208 of 2009);*
- Foot and Mouth Disease regulation -S.L. 36.05, section 4 (*GOVERNMENT NOTICES 103 of 1932 and 457 and 554 of 1937);*
- Control of Foot and Mouth disease regulation- S.L. 36.27 section 2 (*LEGAL NOTICE 74 of 1975*);
- Undulant fever (prevention) regulation -S.L. 36.04 section 7 (*GOVERNMENT NOTICE 50 of 1924);*

No bovine and ovi-caprine animals on the Islands can be moved without a permit issued by the Animal Health Unit of the Veterinary Regulation Directorate. According to Legal Notice 314/2005 Chapter 437 of the Veterinary Services Act, “Measures for the Eradication of Brucellosis, Tuberculosis and Leucosis in cattle rules” no movement of male animals are allowed from non-dairy farms to dairy farms irrespective of disease status.
All animal movements including farm to farm, farm to abattoir and temporary movements such as movements to shows have been prohibited without a movement permit obtained from the official competent authority (Veterinary Regulation Directorate) and based on the health status of the holding. Movements from herds of male for fattening only to dairy farms are not allowed according to the national legislation (*LEGAL NOTICE 314 of 2005, amended by Legal Notice 208 of 2009*).
If a positive reaction is detected, the holding is declared as tuberculosis-suspected and no movement is permitted from the holding without the permission of the CVO. The only permits issued would be to allow movement of tuberculosis-positive animals and other animals from the holding to the civil abattoirs of Malta or Gozo for slaughter. The civil abattoirs are the only

abattoirs in the country.
The herd is not considered as officially tuberculosis- free only until measures taken according a specific protocol have excluded the presence of the infection in the herd (see annex 1 and 2). Once this is the case, movement restrictions are lifted.

A file is kept for each farm at the VRD level with all the permits issued and all animal movements are registered in the National Livestock Database. On request of any sort of movement or purchase transfer the file is brought up.

3. Notification system in place to the national competent authority(c)

Yes

4. Results of investigations and national evaluation of the situation, the trends (d) and sources of infection(e)

The origin of the source of infection in animals may be related to trade of livestock from EU countries as freedom is achieved at 99.8% and there is no absolute certainty that animals traded have not come in contact with the disease. This is especially true for trade of ruminants other than dairy/beef breed cows that are rarely tested (e.g. buffalo, deer).

5. Additional information

N/A

* **For all combinations of zoonotic agents and matrix (Food, Feed and Animals) for 'Prevalence' and 'Disease Status': one text form reported per each combination of matrix/zoonoses or zoonotic agent**

(a): Sampling scheme (sampling strategy, frequency of the sampling, type of specimen taken, methods of sampling (description of sampling techniques) + testing scheme (case definition, diagnostic/analytical methods used, diagnostic flow (parallel testing, serial testing) to assign and define cases. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(b): The control program/strategies in place, including vaccination if relevant. If applicable a description of how eradication measures are/were implemented, measures in case of the positive findings or single cases; any specific action decided in the Member State or suggested for the European Union as a whole on the basis of the recent/current situation, if applicable. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(c): Mandatory: Yes/No.

(d): Minimum five years.

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

9. General evaluation*: Trichinellosis

1. History of the disease and/or infection in the country(a)

Malta has no history of disease notification. Monitoring for trichinella was first performed using the Trichinoscope in the early 90`s. After which the digestion method was introduced and performed according to the relevant Commission Regulation 2075/2005 and later on 1137/2015. The Test method was accredited in 2015 and the laboratory participates in PT`s organised by the EURL and VETQAS. Trichinella larvae have never been detected in the samples tested.

2. Evaluation of status, trends and relevance as a source for humans

No cases of Trichinellosis have been reported in Malta in 2018 or in the past 5 years.

3. Any recent specific action in the Member State or suggested for the European Union(b)

N/A

4. Additional information

N/A

* **For each zoonotic agent**

(a): Epidemiological evaluation (trends and sources) over time until recent/current situation for the different relevant matrixes (food,

feed, animal). If relevant: the official "disease status" to be specified for the whole country and/or specific regions within the country
(b): If applicable

10. Description of Monitoring/Surveillance/Control programmes system*: Trichinellosis

1. Monitoring/Surveillance/Control programmes system[(a)]

In Malta there are no holdings which are officially recognized as applying controlled housing conditions in accordance with the requirements laid down in Annex IV of Regulation (EU) 2015/1375.
Monitoring and surveillance schemes are implemented at slaughterhouse level.
Therefore, all carcasses of domestic swine are systematically sampled during post-mortem inspection and examined for Trichinella. All carcasses of equine animals are sampled during post-mortem inspection and examined for Trichinella. No other susceptible species are slaughtered in Malta.

Sampling for Trichinella monitoring is carried out by officers under the supervision of the official veterinarians employed with the Veterinary Regulation Directorate (VRD) within the Safety of the Food Chain Unit during the slaughtering process of swine and equine animals at the two slaughterhouses, located in Malta (Marsa) and Gozo (Xewkija). The samples are taken in accordance to Commission Implementing Regulation (EU) 2015/1375. The procedure to be followed is described in detail in the dedicated standard operating procedure. Furthermore, an internal agreement is available between the National Veterinary Laboratory (NVL) and the Safety of the Food Chain Unit as an acknowledgement of the procedures to be put in place.

Description of the sampling techniques:
Sampling in carcasses of domestic swine is carried out in accordance to Annex I Chapter I of Regulation (EU) 2015/1375. A specimen weighing at least 1g is taken from the pillar of the diaphragm of each carcass at the transition to the sinewy part. In case of breeding sows and boars, the weight of the specimen is at least 2g. In the event the pillar of the diaphragm is not available, as indicated in the Regulation, a specimen weighing at least 2g (at least 4g for breeding sows and boars) is taken from the rib part or the breastbone part of the diaphragm, or from the jaw muscle.
Sampling on carcasses of equine animals is performed in accordance to Annex III of Regulation (EU) 2015/1375. A specimen larger than 10g is taken from the pillar of the diaphragm at the transition to the sinewy part or else a sample weighing at least 10g is taken from the jaw muscle or from the tongue.
In the relevant SOP all precautions to be taken during sampling procedures are described: the muscle must be cleaned from connective tissue and fat; special attention must be paid when collecting muscle samples from the tongue in order to avoid contamination with the superficial layer of the tongue, which is indigestible and can prevent reading of the sediment.

The sample collected at the Marsa Public Abattoir are submitted to the National Veterinary Laboratory in batches of 100 samples progressively during the slaughtering process, taken into consideration the proximity of the Laboratory to the slaughterhouse. The samples collected at the Gozo Civil Abattoir are submitted to the National Veterinary Laboratory within 30 hours from sampling and are kept refrigerated until submission. In the event of emergency

slaughtered animals on the holding, carcasses are immediately transported to the slaughterhouse; sampling and subsequent examination are carried out as soon as possible. The batches of samples are accompanied by the relevant Submission Form.

Testing scheme:
With regard to the testing scheme, the diagnostic method used the detection of Trichinella larvae in animal muscle tissue is the magnetic stirrer method for pooled sample digestion performed in accordance to Annex I Chapter I of Regulation (EU) 2015/1375. However, point 1(m) is not applied. The entire procedure of testing and the apparatus and reagents required are described in the dedicated internal SOP.

Trichinella analysis is carried out and finalised on the same day of the submission of samples, with the exception of late submissions. In the latter case, samples are kept refrigerated at NVL facilities.
Once the results of the Trichinella analysis are ready, the National Veterinary Laboratory informs via email the official veterinarian responsible for the slaughterhouse about the outcome of the analysis. Carcasses are released for human consumption.
All test reports are issued within three working days from the date of the analysis and submitted to the official veterinarian responsible of the red meat slaughterhouses within the Safety of the Food Chain Unit of the VRD.

2. Measures in place[(b)]

In Malta there are no holdings which are officially recognized as applying controlled housing conditions in accordance with the requirements laid down in Annex IV of Regulation (EU) 2015/1375.
With regard to the life cycle of the parasite and the etiology, in Malta the sylvatic cycle may not occur due to the absence of animals which are normally associated as sources of infection, such as foxes, wild boars, birds of prey and corvids.
Preventive measures are put in place through the adoption of bio-security measures at farm level. Farmers are encouraged to implement adequate and effective waste management and to undertake to observe all the necessary activities in order to ensure pest control against rodents.

3. Notification system in place to the national competent authority[(c)]

Notification is not mandatory .

4. Results of investigations and national evaluation of the situation, the trends [(d)] and sources of infection[(e)]

All carcasses of domestic swine and equidae are systematically sampled during post-mortem inspection and examined for Trichinella.
The following are the number of animals slaughtered and sampled for Trichinella from 2014 to 2018:

YEAR	SWINE	EQUIDAE
2018	53261	4
2017	55407	3
2016	56312	17
2015	60948	17
2014	70050	20

The data reported are referred to the animals regularly slaughtered in the two

slaughterhouses and the animals subjected to emergency slaughter on the holding of provenance.
No cases of detection of Trichinella larvae are reported for the entire period.

No monitoring programme in wild animals is put in place since susceptible species are not present in the Maltese Islands.

5. Additional information

N/A

* **For all combinations of zoonotic agents and matrix (Food, Feed and Animals) for 'Prevalence' and 'Disease Status': one text form reported per each combination of matrix/zoonoses or zoonotic agent**

(a): Sampling scheme (sampling strategy, frequency of the sampling, type of specimen taken, methods of sampling (description of sampling techniques) + testing scheme (case definition, diagnostic/analytical methods used, diagnostic flow (parallel testing, serial testing) to assign and define cases. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(b): The control program/strategies in place, including vaccination if relevant. If applicable a description of how eradication measures are/were implemented, measures in case of the positive findings or single cases; any specific action decided in the Member State or suggested for the European Union as a whole on the basis of the recent/current situation, if applicable. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(c): Mandatory: Yes/No.

(d): Minimum five years.

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

Food-borne Outbreaks

1. System in place for identification, epidemiological investigations and reporting of food-borne outbreaks

The Infectious Disease Prevention and Control Unit (IDCU) within the Health Promotion and Disease Prevention Directorate is responsible for the surveillance of infectious diseases including those caused by food-borne pathogens. The unit also investigates all reported sporadic as well as outbreaks of food-borne illness. IDCU reports data on food-borne illness to competent authorities on a regular bases and issues rapid alerts in case of outbreaks of concern through international platforms such as EWRS and EPIS. IDCU also publishes via monthly, quarterly and annual reports on infectious diseases including those caused by food-borne pathogens and reports data regularly to international platforms such as TESSy.

<u>Surveillance of Food-borne illness</u>

Surveillance is mainly passive and based on notifications from general practitioners, hospitals and medical diagnostic laboratories (both public and private) either via telephone, mail, e-mail or through an online platform. IDCU also receives direct notifications from the public. Deaths attributed to food-borne illness are also notified to the IDCU through the Department of Health Information and Research, which processes all death certificates. The unit also works closely with the Environmental Health Directorate and is notified of any

complaints related to food-borne illness, for further investigation.

IDCU also has direct access to positive test results of infectious diseases of note, including food-borne illness, from the only main state hospital on the Island. Every case is contacted and investigated by IDCU staff using a disease-specific questionnaire.

Data is recorded in the internal database as either individual case-based data (sporadic case) or in aggregated form if considered part of an outbreak. Case-definitions are based on latest EU case definitions.

The unit collaborates closely with other directorates and ministries in outbreak investigations and surveillance, namely, the Environmental Health Directorate, Veterinary Department, the Pathology Department and the Public Health Laboratory (which processes all environmental and food samples as well as human samples related to investigation of food-borne illness).

As Whole Genome Sequencing is not yet available in Malta, outbreak samples are sent abroad for further sequencing whenever necessary.

In March 2018 PCR was introduced in the Pathology Department thus enhancing the detection of food-borne pathogen and timeliness of reporting and investigations.

2. Description of the types of outbreaks covered by the reporting

IDCU investigates all reported cases and outbreaks of food-borne illness (see above)

3. National evaluation of the reported outbreaks in the country[(a)]

Salmonella

Salmonella	2013	2014	2015	2016	2017	2018	Total
No. Of Outbreaks	5	7	7	10	3	10	**42**
Cases involved	13	48	56	58	7	30	**212**

Total of 42 outbreaks of Salmonella were reported between 2013 and 2017 affecting 212 people. The overall number of outbreaks remained stable with a peak in 2016 attributable to a large outbreak of Salmonella Give linked to a local food manufacturer. The lowest number of outbreaks and people affected were reported in 2017. Most of the outbreaks throughout the period are linked mainly to households and restaurants.

Campylobacter

Campylobacter	2013	2014	2015	2016	2017	2018	Total
No. Of Outbreaks	6	11	3	7	8	11	46
Cases involved	21	32	12	18	17	29	129

46 outbreaks of Campylobacter were reported between 2013 and 2018 affecting a total of

129 people. Overall, the number of clusters/outbreaks and people affected remained relatively stable throughout period. The lowest number of outbreaks and people affected were reported in 2015. Most of the outbreaks throughout the period are linked mainly to households and restaurants.

4. Descriptions of single outbreaks of special interest

NA

5. Control measures or other actions taken to improve the situation

In 2018 the pathology laboratory at MDH introduced PCR analysis for enteric pathogens in human samples, thus facilitating and enhancing the detection of such pathogens and improving timeliness of the investigation of cases of food-borne illness.

An online platform was also created for clinicians to promptly notify cases of infectious diseases to IDCU. Work is ongoing to improve reporting of infectious diseases by health care professionals across the board.

6. Any specific action decided in the Member State or suggested for the European Union as a whole on the basis of the recent/current situation

NA

7. Additional information

NA

(a): Trends in numbers of outbreaks and numbers of human cases involved, relevance of the different causative agents, food categories and the agent/food category combinations, relevance of the different type of places of food production and preparation in outbreaks, evaluation of the severity of the human cases.