ZOONOSES MONITORING

Switzerland

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 2020

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 Switzerland during the year 2020.

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

List of Contents

ANIMAL POPULATION TABLES

Table Susceptible animal population

		Population		
Animal species	**Category of animals**	**holding**	**animal**	**slaughter animal (heads)**
Cattle (bovine animals)	Cattle (bovine animals)	33,662	1,515,123	581,194
Gallus gallus (fowl)	Gallus gallus (fowl) - breeding flocks, unspecified	1,876	362,110	
	Gallus gallus (fowl) - broilers	1,063	7,263,980	82,090,476
	Gallus gallus (fowl) - laying hens	21,310	4,624,343	
Pigs	Pigs	5,600	1,348,306	2,283,145
Small ruminants	Goats	6,355	79,562	39,514
	Sheep	8,016	343,528	231,578
Solipeds, domestic	Solipeds, domestic	20,051	112,130	1,625
Turkeys	Turkeys - fattening flocks	376	83,213	

DISEASE STATUS TABLES

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

Region	Zoonotic agent	Number of animals serologically tested under investigations of suspect cases	Number of suspended herds under investigations of suspect cases	Number of seropositive animals under investigations of suspect cases	Number of animals positive to BST under investigations of suspect cases	Number of animals positive in microbiological testing under investigations of suspect cases	Number of herds with status officially free	Number of infected herds	Total number of animals	Number of herds tested under surveillance	Number of animals tested under surveillance	Total number of herds	Number of infected herds tested under surveillance	Number of herds tested under surveillance by bulk milk	Number of animals or pools tested under surveillance by bulk milk	Number of infected herds tested under surveillance by bulk milk	Number of notified abortions whatever cause under investigations of suspect cases	Number of isolations of Brucella abortus under investigations of suspect cases	Number of abortions due to Brucella infection under investigations of suspect cases	Number of animals tested in microbiological and/or molecular-biology testing under investigations of suspect cases
SWITZERLAND	Brucella	29	2	0	0	0	33,662	0	1,515,123	0	0	33,662	0	0	0	0	4,759	0	0	2

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

Region	Zoonotic agent	Number of animals serologically tested under investigations of suspect cases	Number of suspended herds under investigations of suspect cases	Number of seropositive animals under investigations of suspect cases	Number of animals positive in microbiological testing under investigations of suspect cases	Number of herds with status officially free	Number of infected herds	Total number of animals	Number of herds tested under surveillance	Number of animals tested under surveillance	Total number of herds	Number of infected herds tested under surveillance	Number of animals tested in microbiological and/or molecular-biology testing under investigations of suspect cases
SWITZERLAND	Brucella	300	0	0	0	14,351	0	423,090	1,067	14,525	14,351	0	8

DISEASE STATUS TABLES

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

Region	Zoonotic agent	Number of herds with status officially free	Number of infected herds	Total number of animals	Interval between routine tuberculin tests	Number of animals tested with tuberculin routine testing	Number of tuberculin tests carried out before the introduction into the herds	Number of animals with suspicious lesions of tuberculosis examined and submitted to histopathological and bacteriological and/or molecular-biology examinations	Number of animals detected positive in bacteriological and/or molecular-biology examination	Total number of herds
SWITZERLAND	Mycobacterium bovis	34,251	0	1,524,820	0	0	0	114	0	34,251

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
SWITZERLAND	Alpacas - farmed - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Rose Bengal plate test (RBT)/Buffered Brucella antigen test (BBAT)	animal	7	0	Brucella	0
	Camels - farmed - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Rose Bengal plate test (RBT)/Buffered Brucella antigen test (BBAT)	animal	4	0	Brucella	0
	Llamas - farmed - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Rose Bengal plate test (RBT)/Buffered Brucella antigen test (BBAT)	animal	1	0	Brucella	0
	Zoo animals, all - Zoo - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Rose Bengal plate test (RBT)/Buffered Brucella antigen test (BBAT)	animal	20	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
SWITZERLAND	Budgerigars - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	2	0	Campylobacter	0
	Camels - farmed - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	2	0	Campylobacter	0
	Cats - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological special tests	animal	454	7	Campylobacter	0
							Campylobacter jejuni	7
	Cattle (bovine animals) - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological special tests	animal	57	17	Campylobacter	4
							Campylobacter coli	2
							Campylobacter fetus	3
							Campylobacter hyointestinalis	1
							Campylobacter jejuni	7
	Chinchillas - pet animal - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	3	0	Campylobacter	0
	Dogs - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological special tests	animal	927	33	Campylobacter	18
							Campylobacter jejuni	7
							Campylobacter upsaliensis	8
	Gallus gallus (fowl) - broilers - Slaughterhouse - Switzerland - animal sample - caecum - Monitoring - Official sampling - Objective sampling	N_A	Detection method of microorganisms	herd/flock	808	247	Campylobacter	0
							Campylobacter coli	68
							Campylobacter jejuni	179
	Goats - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	4	0	Campylobacter	0
	Guinea pigs - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	5	1	Campylobacter	0
							Campylobacter jejuni	1
	Llamas - farmed - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	0	Campylobacter	0
	Mice - pet animal - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	0	Campylobacter	0
	Parrots - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	3	0	Campylobacter	0
	Pigs - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	5	0	Campylobacter	0
	Quails - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	0	Campylobacter	0
	Rabbits - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	8	0	Campylobacter	0
	Rats - pet animal - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	0	Campylobacter	0
	Reptiles - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	3	0	Campylobacter	0
	Salamander - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	0	Campylobacter	0
	Sheep - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	7	0	Campylobacter	0
	Snakes - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	2	0	Campylobacter	0
	Solipeds, domestic - horses - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	76	0	Campylobacter	0
	Zoo animals, all - Zoo - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	106	1	Campylobacter	0
							Campylobacter jejuni	1

Table Campylobacter:CAMPYLOBACTER 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
SWITZERLAND	Meat from bovine animals and pig - meat preparation - Processing plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	batch (food/feed)	25	Gram	N_A	ISO 10272-1:2017 Campylobacter	10	0	Campylobacter	0
		single (food/feed)	25	Gram	N_A	ISO 10272-1:2017 Campylobacter	5	0	Campylobacter	0
	Meat from broilers (Gallus gallus) - carcase - chilled - Slaughterhouse - Switzerland - food sample - neck skin - Surveillance - based on Regulation 2073 - HACCP and own check - Objective sampling	single (food/feed)	1	Gram	N_A	ISO 10272-2:2017 Campylobacter	130	38	Campylobacter	38
			10	Gram	N_A	ISO 10272-2:2017 Campylobacter	260	63	Campylobacter	63
			25	Gram	N_A	ISO 10272-2:2017 Campylobacter	390	82	Campylobacter	82
	Meat from broilers (Gallus gallus) - fresh - Retail - France - food sample - meat - Monitoring - Official sampling - Objective sampling	single (food/feed)	50	Gram	N_A	Detection method of microorganisms	14	6	Campylobacter	0
									Campylobacter coli	1
									Campylobacter jejuni	5
	Meat from broilers (Gallus gallus) - fresh - Retail - Germany - food sample - meat - Monitoring - Official sampling - Objective sampling	single (food/feed)	50	Gram	N_A	Detection method of microorganisms	22	7	Campylobacter	0
									Campylobacter coli	0
									Campylobacter jejuni	7
	Meat from broilers (Gallus gallus) - fresh - Retail - Hungary - food sample - meat - Monitoring - Official sampling - Objective sampling	single (food/feed)	50	Gram	N_A	Detection method of microorganisms	48	37	Campylobacter	0
									Campylobacter coli	8
									Campylobacter jejuni	29
	Meat from broilers (Gallus gallus) - fresh - Retail - Slovenia - food sample - meat - Monitoring - Official sampling - Objective sampling	single (food/feed)	50	Gram	N_A	Detection method of microorganisms	26	18	Campylobacter	0
									Campylobacter coli	3
									Campylobacter jejuni	15
	Meat from broilers (Gallus gallus) - fresh - Retail - Switzerland - food sample - meat - Monitoring - Official sampling - Objective sampling	single (food/feed)	50	Gram	N_A	Detection method of microorganisms	186	60	Campylobacter	0
									Campylobacter coli	4
									Campylobacter jejuni	56
	Meat from broilers (Gallus gallus) - fresh - skinned - Cutting plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	single (food/feed)	25	Gram	N_A	ISO 10272-1:2017 Campylobacter	45	16	Campylobacter	16
	Meat from broilers (Gallus gallus) - fresh - skinned - Processing plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	batch (food/feed)	25	Gram	N_A	ISO 10272-1:2017 Campylobacter	17	1	Campylobacter	1
		single (food/feed)	10	Gram	N_A	ISO 10272-1:2017 Campylobacter	45	11	Campylobacter	11
			25	Gram	N_A	ISO 10272-1:2017 Campylobacter	7	0	Campylobacter	0
	Meat from broilers (Gallus gallus) - fresh - with skin - Processing plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	batch (food/feed)	25	Gram	N_A	ISO 10272-1:2017 Campylobacter	25	0	Campylobacter	0
		single (food/feed)	10	Gram	N_A	ISO 10272-1:2017 Campylobacter	48	18	Campylobacter	18
			25	Gram	N_A	ISO 10272-1:2017 Campylobacter	9	2	Campylobacter	2
	Meat from broilers (Gallus gallus) - fresh - with skin - Slaughterhouse - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	single (food/feed)	25	Gram	N_A	ISO 10272-1:2017 Campylobacter	241	110	Campylobacter	85
									Campylobacter coli	6
									Campylobacter jejuni	19

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
SWITZERLAND	Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - Processing plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	batch (food/feed)	25	Gram	N_A	ISO 10272-1:2017 Campylobacter	322	0	Campylobacter	0
	Meat from broilers (Gallus gallus) - meat products - raw but intended to be eaten cooked - Processing plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	batch (food/feed)	25	Gram	N_A	ISO 10272-1:2017 Campylobacter	16	0	Campylobacter	0
	Meat from turkey - carcase - chilled - Slaughterhouse - Switzerland - food sample - neck skin - Monitoring - HACCP and own check - Objective sampling	batch (food/feed)	10	Gram	N_A	ISO 10272-1:2017 Campylobacter	26	14	Campylobacter	0
									Campylobacter coli	3
									Campylobacter jejuni	11
	Meat from turkey - fresh - skinned - Processing plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	single (food/feed)	10	Gram	N_A	ISO 10272-1:2017 Campylobacter	5	0	Campylobacter	0

Table COXIELLA in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Sampling Details	Method	Total units tested	Total units positive	N of clinical affected herds	Zoonoses	N of units positive
SWITZERLAND	Cattle (bovine animals) - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal	N_A	Staining	3033	56		Coxiella	0
								Coxiella burnetii	56
	Goats - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal	N_A	Staining	173	9		Coxiella	0
								Coxiella burnetii	9
	Llamas - farmed - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal	N_A	Staining	2	0		Coxiella	0
	Pigs - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal	N_A	Staining	4	2		Coxiella	0
								Coxiella burnetii	2
	Sheep - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal	N_A	Staining	197	9		Coxiella	0
								Coxiella burnetii	9
	Steinbock - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal	N_A	Staining	1	0		Coxiella	0
	Zoo animals, all - Zoo - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal	N_A	Staining	4	0		Coxiella	0

Table Echinococcus:ECHINOCOCCUS 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
SWITZERLAND	Beavers - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	2	2	Echinococcus	0
							Echinococcus multilocularis	2
	Cats - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	1	0	Echinococcus	0
	Cattle (bovine animals) - Slaughterhouse - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	2	0	Echinococcus	0
	Dogs - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	24	10	Echinococcus	0
							Echinococcus multilocularis	10
	Foxes - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Not Available	animal	109	54	Echinococcus	0
							Echinococcus multilocularis	54
	Pigs - Slaughterhouse - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	4	2	Echinococcus	0
							Echinococcus multilocularis	2
	Wolves - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	2	1	Echinococcus, unspecified sp.	1
	Zoo animals, all - Zoo - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	3	1	Echinococcus	0
							Echinococcus multilocularis	1

Table FLAVIVIRUS in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Vaccination status	Sampling Details	Method	Total units tested	Total units positive	Zoonoses		N of units positive
SWITZERLAND	Solipeds, domestic - horses - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal	No	N_A	Real-Time PCR (qualitative or quantitative)	13	0		West Nile virus	0
	Solipeds, domestic - horses - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal	No	N_A	Enzyme-linked immunosorbent assay (ELISA)	13	0		West Nile virus	0
	Zoo animals, all - Zoo - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal	No	all were bird species	Real-Time PCR (qualitative or quantitative)	10	0		West Nile virus	0

Table Francisella:FRANCISELLA 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
SWITZERLAND	Beavers - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Detection method of microorganisms	animal	2	0	Francisella	0
	Cats - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	2	0	Francisella	0
	Dogs - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	3	0	Francisella	0
	Foxes - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Detection method of microorganisms	animal	2	0	Francisella	0
	Hares - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Detection method of microorganisms	animal	26	12	Francisella	0
							Francisella tularensis	12
	Lynx - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Detection method of microorganisms	animal	1	0	Francisella	0
	Martens - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Detection method of microorganisms	animal	1	0	Francisella	0
	Squirrels - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Detection method of microorganisms	animal	3	0	Francisella	0
	Zoo animals, all - Zoo - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Detection method of microorganisms	animal	2	0	Francisella	0

Table Listeria:LISTERIA 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
SWITZERLAND	Cats - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	4	2	Listeria	0
							Listeria monocytogenes	2
	Deer - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	0	Listeria	0
	Dogs - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	3	0	Listeria	0
	Foxes - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	4	2	Listeria	0
							Listeria monocytogenes	2
	Goats - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Histology	animal	4	4	Listeria monocytogenes	4
	Guinea pigs - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	1	Listeria monocytogenes	1
	Hedgehogs - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	6	2	Listeria	0
							Listeria monocytogenes	2
	Pigs - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	15	0	Listeria	0
	Rabbits - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	0	Listeria	0
	Sheep - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	5	2	Listeria	0
							Listeria monocytogenes	2
	Solipeds, domestic - horses - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	16	10	Listeria	5
							Listeria monocytogenes	5
	Zoo animals, all - Zoo - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	1	Listeria monocytogenes	1

Table Listeria:LISTERIA 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	Total units tested	Total units positive	Method	Zoonoses	N of units tested	N of units positive
SWITZERLAND	Cheeses, made from unspecified milk or other animal milk - unspecified - Unspecified - Not Available - Not Available - Monitoring - Industry sampling - Selective sampling	single (food/feed)	25	Gram	N_A	710	3	detection	Listeria monocytogenes	710	3

Table Lyssavirus:LYSSAVIRUS 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
SWITZERLAND	Badgers - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence method	animal	3	0	Lyssavirus	0
	Bats - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence method	animal	11	0	Lyssavirus	0
	Cats - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence method	animal	11	0	Lyssavirus	0
	Cattle (bovine animals) - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence method	animal	9	0	Lyssavirus	0
	Deer - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence method	animal	1	0	Lyssavirus	0
	Dogs - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence method	animal	61	0	Lyssavirus	0
	Foxes - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence method	animal	15	0	Lyssavirus	0
	Martens - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence method	animal	2	0	Lyssavirus	0
	Mice - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence method	animal	2	0	Lyssavirus	0
	Raccoons - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence method	animal	1	0	Lyssavirus	0
	Rats - pet animal - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence method	animal	1	0	Lyssavirus	0

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
SWITZERLAND	Alpacas - farmed - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	3	1	Mycobacterium	0
							Mycobacterium microti	1
	Alpine chamois - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	3	0	Mycobacterium	0
	Cats - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	6	0	Mycobacterium	0
	Deer - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Visual inspection	animal	56	3	Mycobacterium	0
							Mycobacterium vaccae	3
	Dogs - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	2	0	Mycobacterium	0
	Pigs - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	1	0	Mycobacterium	0
	Sheep - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	1	0	Mycobacterium	0
	Solipeds, domestic - horses - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	1	0	Mycobacterium	0
	Wild boars - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	2	0	Mycobacterium	0
	Zoo animals, all - Zoo - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	23	0	Mycobacterium	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
SWITZERLAND	Alpacas - farmed - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	1	0	Salmonella	0
	Alpine chamois - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	1	0	Salmonella	0
	Beavers - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	2	0	Salmonella	0
	Birds - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	2	0	Salmonella	0
	Budgerigars - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	23	0	Salmonella	0
	Camels - farmed - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	3	0	Salmonella	0
	Cats - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	479	7	Salmonella	3
									Salmonella enterica, subspecies enterica	4
	Cattle (bovine animals) - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological special tests	1789	267	Salmonella	240
									Salmonella enterica, subspecies enterica	25
									Salmonella Typhimurium, monophasic	2
	Chinchillas - pet animal - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	3	0	Salmonella	0
	Deer - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	3	1	Salmonella	0
									Salmonella enterica, subspecies enterica	1
	Dogs - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	966	30	Salmonella	20
									Salmonella enterica, subspecies enterica	9
									Salmonella enterica, subspecies salamae	1
	Ducks - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	34	5	Salmonella	5
	Foxes - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	3	1	Salmonella	0
									Salmonella enterica, subspecies enterica	1
	Gallus gallus (fowl) - breeding flocks for broiler production line - adult - Farm - Switzerland - environmental sample - boot swabs - Control and eradication programmes - Official and industry sampling - Census	herd/flock	71	Y	N_A	ISO 6579:2002 Salmonella	61	0	Salmonella	0
	Gallus gallus (fowl) - breeding flocks for egg production line - adult - Farm - Switzerland - environmental sample - boot swabs - Control and eradication programmes - Official and industry sampling - Census	herd/flock	141	Y	N_A	ISO 6579:2002 Salmonella	56	0	Salmonella	0
				N	N_A	ISO 6579:2002 Salmonella	56	3	Salmonella	0
									Salmonella Anatum	1
									Salmonella Jerusalem	1
									Salmonella Rissen	1
	Gallus gallus (fowl) - broilers - before slaughter - Farm - Switzerland - environmental sample - boot swabs - Control and eradication programmes - Industry sampling - Census	herd/flock	4644	N	N_A	ISO 6579:2002 Salmonella	535	6	Salmonella	0
									Salmonella 13,23:i:-	2
									Salmonella Albany	1
									Salmonella Mbandaka	2
									Salmonella Typhimurium, monophasic	1
	Gallus gallus (fowl) - broilers - before slaughter - Farm - Switzerland - environmental sample - boot swabs - Control and eradication programmes - Official and industry sampling - Census	herd/flock	4644	Y	N_A	ISO 6579:2002 Salmonella	591	5	Salmonella	0
									Salmonella Typhimurium	2
									Salmonella Typhimurium, monophasic	3
	Gallus gallus (fowl) - broilers - before slaughter - Farm - Switzerland - environmental sample - boot swabs - Control and eradication programmes - Official sampling - Census	herd/flock	4644	N	N_A	ISO 6579:2002 Salmonella	56	10	Salmonella	0
									Salmonella Goldcoast	2

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
SWITZERLAND	Gallus gallus (fowl) - broilers - before slaughter - Farm - Switzerland - environmental sample - boot swabs - Control and eradication programmes - Official sampling - Census	herd/flock	4644	N	N_A	ISO 6579:2002 Salmonella	56	10	Salmonella Kottbus	3
									Salmonella Llandoff	1
									Salmonella Mbandaka	1
									Salmonella Tennessee	3
	Gallus gallus (fowl) - laying hens - adult - Farm - Switzerland - environmental sample - boot swabs - Control and eradication programmes - Official and industry sampling - Census	herd/flock	893	Y	N_A	ISO 6579:2002 Salmonella	531	3	Salmonella	0
									Salmonella Enteritidis	2
									Salmonella Typhimurium	1
				N	N_A	ISO 6579:2002 Salmonella	531	25	Salmonella Albany	2
									Salmonella Braenderup	3
									Salmonella enterica, subspecies diarizonae	3
									Salmonella Enteritidis	5
									Salmonella Jerusalem	5
									Salmonella Napoli	1
									Salmonella Typhimurium	6
	Geese - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	26	1	Salmonella	0
									Salmonella enterica, subspecies enterica	1
	Goats - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	24	0	Salmonella	0
	Guinea pigs - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	6	2	Salmonella	0
									Salmonella enterica, subspecies enterica	2
	Hedgehogs - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	7	1	Salmonella	0
									Salmonella enterica, subspecies enterica	1
	Llamas - farmed - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	4	0	Salmonella	0
	Mice - pet animal - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	2	2	Salmonella enterica, subspecies arizonae	2
	Oscine birds - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	47	0	Salmonella	0
	Parrots - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	8	0	Salmonella	0
	Pigeons - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	9	5	Salmonella	0
									Salmonella enterica, subspecies enterica	2
									Salmonella Typhimurium, monophasic	3
	Pigs - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Slide agglutination according White Kauffmann Le Minor Scheme	139	3	Salmonella	1
									Salmonella Bredeney	1
									Salmonella Typhimurium, monophasic	1
	Quails - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	7	0	Salmonella	0
	Rabbits - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	73	1	Salmonella	0
									Salmonella enterica, subspecies diarizonae	1
	Rats - pet animal - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	2	0	Salmonella	0
	Reptiles - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	12	2	Salmonella	1
									Salmonella enterica, subspecies arizonae	1
	Salamander - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	1	0	Salmonella	0
	Sheep - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological special tests	64	12	Salmonella	6
									Salmonella Abortusovis	2

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
SWITZERLAND	Sheep - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological special tests	64	12	Salmonella enterica, subspecies diarizonae	3
									Salmonella enterica, subspecies enterica	1
	Snakes - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	8	7	Salmonella	3
									Salmonella enterica, subsp. houtenae	1
									Salmonella enterica, subspecies diarizonae	3
	Solipeds, domestic - donkeys - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	6	0	Salmonella	0
	Solipeds, domestic - horses - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	223	4	Salmonella	0
									Salmonella enterica, subspecies enterica	4
	Squirrels - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	1	0	Salmonella	0
	Swans - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	3	0	Salmonella	0
	Turkeys - fattening flocks - before slaughter - Farm - Switzerland - environmental sample - boot swabs - Control and eradication programmes - Industry sampling - Census	herd/flock	88	N	N_A	ISO 6579:2002 Salmonella	31	14	Salmonella	0
									Salmonella Albany	11
									Salmonella Anatum	1
									Salmonella Enteritidis	1
									Salmonella Typhimurium	1
	Turkeys - fattening flocks - before slaughter - Farm - Switzerland - environmental sample - boot swabs - Control and eradication programmes - Official and industry sampling - Census	herd/flock	88	Y	N_A	ISO 6579:2002 Salmonella	34	0	Salmonella	0
	Turkeys - fattening flocks - before slaughter - Farm - Switzerland - environmental sample - boot swabs - Control and eradication programmes - Official sampling - Census	herd/flock	88	N	N_A	ISO 6579:2002 Salmonella	3	1	Salmonella	0
									Salmonella Albany	1
	Turtles - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	4	0	Salmonella	0
	Zoo animals, all - Zoo - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	animal		N_A	N_A	Microbiological standard tests	277	41	Salmonella	3
									Salmonella enterica, subsp. houtenae	3
									Salmonella enterica, subspecies arizonae	2
									Salmonella enterica, subspecies diarizonae	16
									Salmonella enterica, subspecies enterica	16
									Salmonella Richmond	1

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
SWITZERLAND	Meat from bovine animals and pig - meat preparation - Processing plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	batch (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	10	0	Salmonella	0
		single (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	151	0	Salmonella	0
	Meat from broilers (Gallus gallus) - carcase - chilled - Slaughterhouse - Switzerland - food sample - neck skin - Surveillance - based on Regulation 2073 - HACCP and own check - Objective sampling	single (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	780	4	Salmonella	0
									Salmonella Agona	3
									Salmonella Hadar	1
	Meat from broilers (Gallus gallus) - fresh - skinned - Cutting plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	single (food/feed)	26	Gram	N_A	ISO 6579-1:2017 Salmonella	25	0	Salmonella	0
	Meat from broilers (Gallus gallus) - fresh - skinned - Processing plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	batch (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	17	0	Salmonella	0
		single (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	113	0	Salmonella	0
	Meat from broilers (Gallus gallus) - fresh - with skin - Processing plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	batch (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	25	1	Salmonella	0
									Salmonella Typhimurium	1
		single (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	107	1	Salmonella	0
									Salmonella Agona	1
	Meat from broilers (Gallus gallus) - fresh - with skin - Slaughterhouse - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	single (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	25	0	Salmonella	0
	Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - Processing plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	batch (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	322	0	Salmonella	0
	Meat from broilers (Gallus gallus) - meat products - raw but intended to be eaten cooked - Processing plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	batch (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	16	0	Salmonella	0
	Meat from broilers (Gallus gallus) - mechanically separated meat (MSM) - Cutting plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	single (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	255	1	Salmonella	0
									Salmonella Agona	1
	Meat from broilers (Gallus gallus) - minced meat - Processing plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	batch (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	3	0	Salmonella	0
		single (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	260	0	Salmonella	0
	Meat from pig - carcase - Slaughterhouse - Switzerland - food sample - carcase swabs - Surveillance - based on Regulation 2073 - HACCP and own check - Objective sampling	single (food/feed)	400	Square centimetre	N_A	ISO 6579-1:2017 Salmonella	1112	0	Salmonella	0
	Meat from turkey - carcase - chilled - Slaughterhouse - Switzerland - food sample - neck skin - Surveillance - based on Regulation 2073 - HACCP and own check - Objective sampling	single (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	125	3	Salmonella	0
									Salmonella Albany	2
									Salmonella Enteritidis	1
	Meat from turkey - fresh - skinned - Cutting plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	single (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	360	26	Salmonella	0
									Salmonella Albany	23
									Salmonella Enteritidis	2
									Salmonella Infantis	1
	Meat from turkey - meat preparation - Processing plant - Switzerland - food sample - Monitoring - HACCP and own check - Objective sampling	single (food/feed)	25	Gram	N_A	ISO 6579-1:2017 Salmonella	200	0	Salmonella	0

Table Salmonella:SALMONELLA in feed

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
SWITZERLAND	Compound feedingstuffs for cattle - final product - Feed mill - European Union - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	1	0	Salmonella	0
	Compound feedingstuffs for cattle - final product - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	135	1	Salmonella	0
									Salmonella Llandoff	1
	Compound feedingstuffs for cattle - final product - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Suspect sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	4	0	Salmonella	0
	Compound feedingstuffs for horses - final product - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	1	0	Salmonella	0
	Compound feedingstuffs for pigs - final product - Feed mill - European Union - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	1	0	Salmonella	0
	Compound feedingstuffs for pigs - final product - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	8	0	Salmonella	0
	Compound feedingstuffs for pigs - final product - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Suspect sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	9	1	Salmonella	0
									Salmonella Omuna	1
	Compound feedingstuffs for poultry (non specified) - final product - Feed mill - European Union - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	1	0	Salmonella	0
	Compound feedingstuffs for poultry (non specified) - final product - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	82	0	Salmonella	0
	Compound feedingstuffs for rabbits - final product - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	1	0	Salmonella	0
	Compound feedingstuffs for sheep - final product - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	2	0	Salmonella	0
	Feed material of cereal grain origin - maize derived - Feed mill - Non European Union - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	4	0	Salmonella	0
	Feed material of cereal grain origin - maize derived - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	2	0	Salmonella	0
	Feed material of cereal grain origin - maize derived - Feed mill - Unknown - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	2	0	Salmonella	0
	Feed material of cereal grain origin - maize derived - Feed mill - Unknown - feed sample - Monitoring - Official sampling - Suspect sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	2	0	Salmonella	0
	Feed material of cereal grain origin - wheat derived - Feed mill - European Union - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	1	0	Salmonella	0
	Feed material of cereal grain origin - wheat derived - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	2	0	Salmonella	0
	Feed material of land animal origin - dairy products - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	16	0	Salmonella	0
	Feed material of land animal origin - dairy products - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Suspect sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	1	0	Salmonella	0

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
SWITZERLAND	Feed material of oil seed or fruit origin - linseed derived - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	2	0	Salmonella	0
	Feed material of oil seed or fruit origin - linseed derived - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Suspect sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	1	0	Salmonella	0
	Feed material of oil seed or fruit origin - other oil seeds derived - Feed mill - European Union - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	1	0	Salmonella	0
	Feed material of oil seed or fruit origin - other oil seeds derived - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	3	0	Salmonella	0
	Feed material of oil seed or fruit origin - rape seed derived - Feed mill - European Union - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	4	0	Salmonella	0
	Feed material of oil seed or fruit origin - rape seed derived - Feed mill - European Union - feed sample - Monitoring - Official sampling - Suspect sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	1	0	Salmonella	0
	Feed material of oil seed or fruit origin - rape seed derived - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	4	0	Salmonella	0
	Feed material of oil seed or fruit origin - rape seed derived - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Suspect sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	11	2	Salmonella	0
									Salmonella Tennessee	2
	Feed material of oil seed or fruit origin - rape seed derived - Feed mill - Unknown - feed sample - Monitoring - Official sampling - Suspect sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	4	0	Salmonella	0
	Feed material of oil seed or fruit origin - soya (bean) derived - Feed mill - European Union - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	6	1	Salmonella	0
									Salmonella Llandoff	1
	Feed material of oil seed or fruit origin - soya (bean) derived - Feed mill - European Union - feed sample - Monitoring - Official sampling - Suspect sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	3	2	Salmonella	0
									Salmonella Mbandaka	2
	Feed material of oil seed or fruit origin - soya (bean) derived - Feed mill - Non European Union - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	2	0	Salmonella	0
	Feed material of oil seed or fruit origin - soya (bean) derived - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	11	0	Salmonella	0
	Feed material of oil seed or fruit origin - soya (bean) derived - Feed mill - Unknown - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	2	0	Salmonella	0
	Feed material of oil seed or fruit origin - soya (bean) derived - Feed mill - Unknown - feed sample - Monitoring - Official sampling - Suspect sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	6	0	Salmonella	0
	Feed material of oil seed or fruit origin - sunflower seed derived - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	3	0	Salmonella	0
	Feed material of oil seed or fruit origin - sunflower seed derived - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Suspect sampling	single (food/feed)	25	Gram	N_A	ISO 6579:2002 Salmonella	1	1	Salmonella	0
									Salmonella Tennessee	1
	Other feed material - Feed mill - Non European Union - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	Mycoprotein	ISO 6579:2002 Salmonella	1	0	Salmonella	0
	Other feed material - Feed mill - Switzerland - feed sample - Monitoring - Official sampling - Selective sampling	single (food/feed)	25	Gram	Mycoprotein	ISO 6579:2002 Salmonella	1	0	Salmonella	0

Table Toxoplasma:TOXOPLASMA 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
SWITZERLAND	Cats - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence assay tests (IFA)	animal	261	69	Toxoplasma	1
							Toxoplasma gondii	68
	Cattle (bovine animals) - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	2	0	Toxoplasma	0
	Dogs - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence assay tests (IFA)	animal	79	18	Toxoplasma	0
							Toxoplasma gondii	18
	Goats - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	5	1	Toxoplasma	1
	Lynx - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	1	1	Toxoplasma gondii	1
	Sheep - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence assay tests (IFA)	animal	44	24	Toxoplasma	24
	Zoo animals, all - Zoo - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Immunofluorescence assay tests (IFA)	animal	10	6	Toxoplasma	0
							Toxoplasma gondii	6

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
SWITZERLAND	Badgers - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Not Available	animal	1	0	Trichinella	0
	Bears - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Not Available	animal	1	0	Trichinella	0
	Lynx - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	28	4	Trichinella	0
							Trichinella britovi	3
							Trichinella spiralis	1
	Otter - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Not Available	animal	1	0	Trichinella	0
	Pigs - breeding animals - not raised under controlled housing conditions - Slaughterhouse - Switzerland - animal sample - Surveillance - Official sampling - Census	not raised under controlled housing conditions as requirements in Regulation (EU) No 216/2014 are not fully met	Magnetic stirrer method for pooled sample digestion	animal	27310	0	Trichinella	0
	Pigs - fattening pigs - not raised under controlled housing conditions - Slaughterhouse - Switzerland - animal sample - Surveillance - Official sampling - Census	not raised under controlled housing conditions as requirements in Regulation (EU) No 216/2014 are not fully met	Magnetic stirrer method for pooled sample digestion	animal	2073424	0	Trichinella	0
	Solipeds, domestic - horses - Slaughterhouse - Switzerland - animal sample - Surveillance - Official sampling - Census	N_A	Magnetic stirrer method for pooled sample digestion	animal	1286	0	Trichinella	0
	Wild boars - wild - Hunting - Switzerland - animal sample - Unspecified - Not applicable - Census	N_A	Magnetic stirrer method for pooled sample digestion	animal	7343	0	Trichinella	0
	Wolves - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Real-Time PCR (qualitative or quantitative)	animal	8	2	Trichinella	1
							Trichinella britovi	1

Table Yersinia:YERSINIA 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
SWITZERLAND	Alpacas - farmed - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	0	Yersinia	0
	Beavers - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	1	Yersinia pseudotuberculosis	1
	Budgerigars - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	2	0	Yersinia	0
	Camels - farmed - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	3	0	Yersinia	0
	Cats - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	418	2	Yersinia	1
							Yersinia enterocolitica	1
	Cattle (bovine animals) - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	27	1	Yersinia	1
	Chinchillas - pet animal - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	3	0	Yersinia	0
	Deer - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	0	Yersinia	0
	Dogs - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	844	9	Yersinia	8
							Yersinia enterocolitica - biotype 3	1
	Goats - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	6	0	Yersinia	0
	Guinea pigs - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	7	2	Yersinia	0
							Yersinia pseudotuberculosis	2
	Hares - wild - Natural habitat - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	3	2	Yersinia	0
							Yersinia pseudotuberculosis	2
	Llamas - farmed - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	0	Yersinia	0
	Mice - pet animal - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	0	Yersinia	0
	Oscine birds - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	1	Yersinia	1
	Parrots - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	4	1	Yersinia	0
							Yersinia pseudotuberculosis	1
	Pigs - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	11	1	Yersinia	0
							Yersinia enterocolitica	1
	Quails - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	2	0	Yersinia	0
	Rabbits - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	7	0	Yersinia	0
	Rats - pet animal - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	2	0	Yersinia	0
	Reptiles - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	3	0	Yersinia	0
	Salamander - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	1	0	Yersinia	0
	Sheep - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	7	0	Yersinia	0
	Snakes - pet animals - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	2	0	Yersinia	0
	Solipeds, domestic - horses - Unspecified - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	72	0	Yersinia	0
	Zoo animals, all - Zoo - Switzerland - animal sample - Clinical investigations - Not applicable - Not specified	N_A	Microbiological standard tests	animal	104	1	Yersinia	1

FOODBORNE OUTBREAKS TABLES

Foodborne Outbreaks: summarized data

when numbers referring to cases, hospitalized people and deaths are reported as unknown, they will be not included in the sum calculation

		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, unspecified sp.	Unknown						1	7	0	0
Listeria monocytogenes - serovar 4b	Cheese		1	34	34	10				
Salmonella Enteritidis	Unknown						1	5	0	0
Unknown	Crustaceans, shellfish, molluscs and products thereof		1	2	1	0				
	Mixed food		2	58	0	0				
	Unknown						7	55	1	0

Strong Foodborne Outbreaks: detailed data

Causative agent	H	AG	VT	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
Listeria monocytogenes - serovar 4b	unk	Not Available	Not Available	Not Available	N_A	General	Cheese	N_A	Detection of causative agent in food chain or its environment - Detection of indistinguishable causative agent in humans	Multiple places of exposure in one country	Not Available	Not Available	Not Available	N_A	1	34	34	10
Unknown	unk	Not Available	Not Available	Not Available	N_A	General	Mixed food	Burritos with minced meat	Product-tracing investigations	Temporary mass catering (fairs or festivals)	Not Available	Not Available	Not Available	N_A	1	10	0	0
								Mixed pasta dish with minced meat in sauce and grated cheese	Product-tracing investigations	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Not Available	Not Available	Not Available	N_A	1	48	0	0
						Household	Crustaceans, shellfish, molluscs and products thereof	Oysters	Product-tracing investigations	Household	Not Available	Not Available	Not Available	N_A	1	2	1	0

Weak Foodborne Outbreaks: detailed data

Causative agent	H	AG	VT	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, unspecified sp.	unk	Not Available	Not Available	VTEC, unspecified	N_A	General	Unknown	N_A	Unknown	Hospital or medical care facility	Not Available	Not Available	Not Available	N_A	1	7	0	0
Salmonella Enteritidis	unk	Not Available	Not Available	Not Available	N_A	General	Unknown	N_A	Unknown	Hospital or medical care facility	Not Available	Not Available	Not Available	N_A	1	5	0	0
Unknown	unk	Not Available	Not Available	Not Available	N_A	General	Unknown	N_A	Unknown	Others	Not Available	Not Available	Not Available	N_A	1	37	0	0
										Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Not Available	Not Available	Not Available	N_A	5	16	1	0
						Household	Unknown	N_A	Unknown	Household	Not Available	Not Available	Not Available	N_A	1	2	0	0

ANTIMICROBIAL RESISTANCE TABLES FOR CAMPYLOBACTER

Table Antimicrobial susceptibility testing of Campylobacter coli in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Slovenia

Sampling details:

	AM substance	Ciprofloxacin	Erythromycin	Gentamicin	Nalidixic acid	Streptomycin	Tetracycline
	ECOFF	**0.5**	**8**	**2**	**16**	**4**	**2**
	Lowest limit	**0.12**	**1**	**0.12**	**1**	**0.25**	**0.5**
	Highest limit	**16**	**128**	**16**	**64**	**16**	**64**
	N of tested isolates	**3**	**3**	**3**	**3**	**3**	**3**
MIC	**N of resistant isolates**	**2**	**0**	**0**	**2**	**1**	**2**
0.25		1					
<=0.5							1
<=1			3				
1				2			
2				1		2	
4					1		
16		2					
>16						1	
64					1		
>64					1		2

Table Antimicrobial susceptibility testing of Campylobacter coli in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

Sampling details:

	AM substance	Ciprofloxacin	Erythromycin	Gentamicin	Nalidixic acid	Streptomycin	Tetracycline
	ECOFF	**0.5**	**8**	**2**	**16**	**4**	**2**
	Lowest limit	**0.12**	**1**	**0.12**	**1**	**0.25**	**0.5**
	Highest limit	**16**	**128**	**16**	**64**	**16**	**64**
	N of tested isolates	**4**	**4**	**4**	**4**	**4**	**4**
MIC	**N of resistant isolates**	**3**	**0**	**0**	**3**	**2**	**1**
<=0.125		1					
<=0.5							2
0.5				1			
<=1			3				
1				3			1
2			1			1	
4						1	
8		1			1		
16		2					
>16						2	
64					2		1
>64					1		

Table Antimicrobial susceptibility testing of Campylobacter coli in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: France

Sampling details:

	AM substance	Ciprofloxacin	Erythromycin	Gentamicin	Nalidixic acid	Streptomycin	Tetracycline
	ECOFF	**0.5**	**8**	**2**	**16**	**4**	**2**
	Lowest limit	**0.12**	**1**	**0.12**	**1**	**0.25**	**0.5**
	Highest limit	**16**	**128**	**16**	**64**	**16**	**64**
	N of tested isolates	**1**	**1**	**1**	**1**	**1**	**1**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**1**
<=0.125		1					
<=1			1				
1				1			
2						1	
8					1		
>64							1

Table Antimicrobial susceptibility testing of Campylobacter coli in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Hungary

Sampling details:

	AM substance	Ciprofloxacin	Erythromycin	Gentamicin	Nalidixic acid	Streptomycin	Tetracycline
	ECOFF	**0.5**	**8**	**2**	**16**	**4**	**2**
	Lowest limit	**0.12**	**1**	**0.12**	**1**	**0.25**	**0.5**
	Highest limit	**16**	**128**	**16**	**64**	**16**	**64**
	N of tested isolates	**8**	**8**	**8**	**8**	**8**	**8**
MIC	**N of resistant isolates**	**8**	**0**	**0**	**8**	**2**	**4**
<=0.5							3
0.5				1			
<=1			6				
1				7		1	1
2			1			4	
4			1			1	
8		4					
16		3				1	
>16		1				1	
32					1		
64					4		2
>64					3		2

Table Antimicrobial susceptibility testing of Campylobacter coli in Gallus gallus (fowl) - broilers

Sampling Stage: Slaughterhouse

Sampling Type: animal sample - caecum

Sampling Context: Monitoring - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method:

Country of Origin: Switzerland

Sampling details:

	AM substance	Ciprofloxacin	Erythromycin	Gentamicin	Nalidixic acid	Streptomycin	Tetracycline
	ECOFF	**0.5**	**8**	**2**	**16**	**4**	**2**
	Lowest limit	**0.12**	**1**	**0.12**	**1**	**0.25**	**0.5**
	Highest limit	**16**	**128**	**16**	**64**	**16**	**64**
	N of tested isolates	**68**	**68**	**68**	**68**	**68**	**68**
MIC	**N of resistant isolates**	**35**	**5**	**2**	**36**	**33**	**36**
<=0.125		22		1			
<=0.25						1	
0.25		10		7			
<=0.5							28
0.5		1		24		2	
<=1			57				
1				28		11	2
2			5	6	1	15	2
4		3	1		15	6	
8		11			16	1	
16		16				3	5
>16		5		2		29	
32					1		3
64			1		21		11
>64					14		17
>128			4				

Table Antimicrobial susceptibility testing of Campylobacter jejuni in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Slovenia

Sampling details:

	AM substance	Ciprofloxacin	Erythromycin	Gentamicin	Nalidixic acid	Streptomycin	Tetracycline
	ECOFF	**0.5**	**4**	**2**	**16**	**4**	**1**
	Lowest limit	**0.12**	**1**	**0.12**	**1**	**0.25**	**0.5**
	Highest limit	**16**	**128**	**16**	**64**	**16**	**64**
	N of tested isolates	**15**	**15**	**15**	**15**	**15**	**15**
MIC	**N of resistant isolates**	**11**	**0**	**0**	**11**	**4**	**7**
<=0.125		2		5			
0.25		1		1			
<=0.5							6
0.5		1		5		2	
<=1			13				
1				4		6	2
2			1			2	
4			1		2	1	
8		2			2		
16		8					
>16		1				4	
32							1
64					2		1
>64					9		5

Table Antimicrobial susceptibility testing of Campylobacter jejuni in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

Sampling details:

	AM substance	Ciprofloxacin	Erythromycin	Gentamicin	Nalidixic acid	Streptomycin	Tetracycline
	ECOFF	**0.5**	**4**	**2**	**16**	**4**	**1**
	Lowest limit	**0.12**	**1**	**0.12**	**1**	**0.25**	**0.5**
	Highest limit	**16**	**128**	**16**	**64**	**16**	**64**
	N of tested isolates	**56**	**56**	**56**	**56**	**56**	**56**
MIC	**N of resistant isolates**	**28**	**0**	**0**	**28**	**2**	**18**
<=0.125		24		9			
0.25		4		5			
<=0.5							37
0.5				26		4	
<=1			51				
1				15		19	1
2			5	1	2	28	
4					19	3	
8		6			6	1	
16		20			1		3
>16		2				1	
32							1
64					3		
>64					25		14

Table Antimicrobial susceptibility testing of Campylobacter jejuni in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Germany

Sampling details:

	AM substance	Ciprofloxacin	Erythromycin	Gentamicin	Nalidixic acid	Streptomycin	Tetracycline
	ECOFF	**0.5**	**4**	**2**	**16**	**4**	**1**
	Lowest limit	**0.12**	**1**	**0.12**	**1**	**0.25**	**0.5**
	Highest limit	**16**	**128**	**16**	**64**	**16**	**64**
	N of tested isolates	**7**	**7**	**7**	**7**	**7**	**7**
MIC	**N of resistant isolates**	**6**	**0**	**0**	**6**	**3**	**6**
0.25		1		4			
<=0.5							1
0.5				1			
<=1			5				
1				2		3	
2			1			1	
4			1				
8		2			1		2
16		2					1
>16		2				3	
64					2		
>64					4		3

Table Antimicrobial susceptibility testing of Campylobacter jejuni in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: France

Sampling details:

	AM substance	Ciprofloxacin	Erythromycin	Gentamicin	Nalidixic acid	Streptomycin	Tetracycline
	ECOFF	**0.5**	**4**	**2**	**16**	**4**	**1**
	Lowest limit	**0.12**	**1**	**0.12**	**1**	**0.25**	**0.5**
	Highest limit	**16**	**128**	**16**	**64**	**16**	**64**
	N of tested isolates	**5**	**5**	**5**	**5**	**5**	**5**
MIC	**N of resistant isolates**	**5**	**0**	**0**	**5**	**0**	**5**
<=0.125				1			
0.25				1			
0.5				3		1	
<=1			5				
1						3	
2						1	
8		5					1
16							2
64					4		
>64					1		2

Table Antimicrobial susceptibility testing of Campylobacter jejuni in Meat from broilers (Gallus gallus) - fresh - chilled

Sampling Stage: Retail

Sampling Type: food sample - meat

Sampling Context: Monitoring - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Hungary

Sampling details:

	AM substance	Ciprofloxacin	Erythromycin	Gentamicin	Nalidixic acid	Streptomycin	Tetracycline
	ECOFF	**0.5**	**4**	**2**	**16**	**4**	**1**
	Lowest limit	**0.12**	**1**	**0.12**	**1**	**0.25**	**0.5**
	Highest limit	**16**	**128**	**16**	**64**	**16**	**64**
	N of tested isolates	**29**	**29**	**29**	**29**	**29**	**29**
MIC	**N of resistant isolates**	**29**	**0**	**0**	**29**	**11**	**22**
<=0.125				6			
<=0.25						1	
0.25				5			
<=0.5							5
0.5				17		2	
<=1			25				
1				1		9	2
2			3			6	1
4		2	1				1
8		12					
16		13				4	1
>16		2				7	
64					9		3
>64					20		16

Table Antimicrobial susceptibility testing of Campylobacter jejuni in Gallus gallus (fowl) - broilers

Sampling Stage: Slaughterhouse

Sampling Type: animal sample - caecum

Sampling Context: Monitoring - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method:

Country of Origin: Switzerland

Sampling details:

	AM substance	Ciprofloxacin	Erythromycin	Gentamicin	Nalidixic acid	Streptomycin	Tetracycline
	ECOFF	**0.5**	**4**	**2**	**16**	**4**	**1**
	Lowest limit	**0.12**	**1**	**0.12**	**1**	**0.25**	**0.5**
	Highest limit	**16**	**128**	**16**	**64**	**16**	**64**
	N of tested isolates	**179**	**179**	**179**	**179**	**179**	**179**
MIC	**N of resistant isolates**	**85**	**0**	**0**	**86**	**8**	**54**
<=0.125		87		12			
0.25		7		23			
<=0.5							123
0.5				114		13	
<=1			174				
1				29		63	2
2			3	1	12	89	
4		1	2		66	6	
8		37			15		
16		38					6
>16		9				8	
32							3
64					19		15
>64					67		30

ANTIMICROBIAL RESISTANCE TABLES FOR SALMONELLA

Table Antimicrobial susceptibility testing of Salmonella 13,23:-:- in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**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**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.03										1					
0.03							1								
<=0.25				1											1
<=0.5					1				1						
0.5														1	
<=2													1		
2		1						1							
<=4											1				
4			1												
<=8						1									
32												1			

Table Antimicrobial susceptibility testing of Salmonella Albany in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**8**	**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										7					
0.03							3								
0.064										1					
<=0.25				8										8	8
<=0.5					8				6						
<=1		7						5							
1									2						
<=2													8		
2		1						3							
<=4											8				
4			8												
<=8						8						5			
16												3			

Table Antimicrobial susceptibility testing of Salmonella Albany in Turkeys

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**8**	**32**
	N of tested isolates	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							13								
<=0.03										18					
0.03							6								
0.064										1					
<=0.25				19										16	19
<=0.5					19				18						
0.5														3	
<=1		18						11							
1									1						
<=2													19		
2		1						8							
<=4											19				
4			17												
<=8						19						11			
8			2												
16												8			

Table Antimicrobial susceptibility testing of Salmonella Anatum in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**8**	**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										1					
0.03							1								
0.064										2					
<=0.25				3										3	3
<=0.5					3				2						
<=1		3						3							
1									1						
<=2													3		
<=4											3				
4			2												
<=8						3						3			
8			1												

Table Antimicrobial susceptibility testing of Salmonella Anatum in Turkeys

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**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**	**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													
<=2													1		
2								1							
<=4											1				
<=8						1						1			
8			1												

Table Antimicrobial susceptibility testing of Salmonella Braenderup in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**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**	**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		
2								2							
<=4											2				
<=8						2									
8			2												
16												1			
32												1			

Table Antimicrobial susceptibility testing of Salmonella Bredeney in Pigs

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**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**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**
<=0.015							1								
<=0.03										1					
<=0.25				1										1	1
<=0.5					1				1						
<=2													1		
2								1							
<=4											1				
4			1												
<=8						1									
>64		1													
>1024												1			

Table Antimicrobial susceptibility testing of Salmonella Coeln in Cattle (bovine animals)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**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**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0.03							1								
0.064										1					
<=0.25				1											1
<=0.5					1				1						
0.5														1	
<=2													1		
2		1						1							
<=4											1				
4			1												
<=8						1									
32												1			

Table Antimicrobial susceptibility testing of Salmonella Enteritidis in Cattle (bovine animals)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**8**	**32**
	N of tested isolates	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							3								
<=0.03										5					
0.03							4								
0.064										2					
<=0.25				7										7	7
<=0.5					7				7						
<=1		2						1							
<=2													7		
2		5						6							
<=4											7				
4			5												
<=8						7									
8			2												
16												5			
32												2			

Table Antimicrobial susceptibility testing of Salmonella Enteritidis in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**8**	**32**
	N of tested isolates	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							5								
<=0.03										12					
0.03							8								
0.064										1					
<=0.25				13										13	13
<=0.5					13				13						
<=1		1						1							
<=2													13		
2		12						9							
<=4											13				
4			8					3							
<=8						13						3			
8			5												
16												7			
32												3			

Table Antimicrobial susceptibility testing of Salmonella Gallinarum biovar Gallinarum in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**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**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**1**	**0**	**0**	**0**	**0**
<=0.03										1					
<=0.25				1										1	
<=0.5					1										
<=1	1														
<=2		1													
2							1								1
4													1		
<=8						1									
8								1							
32									1						
>128											1				
256												1			

Table Antimicrobial susceptibility testing of Salmonella Goldcoast in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**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**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.03										1					
0.03							2								
0.064										1					
<=0.25				2										2	2
<=0.5					2				2						
<=2													2		
2		2						2							
<=4											2				
4			2												
<=8						2									
16												1			
32												1			

Table Antimicrobial susceptibility testing of Salmonella Jerusalem in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**8**	**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										1	3
<=0.5					3				3						
0.5														2	
<=1		3						2							
<=2													3		
2								1							
<=4											3				
4			1												
<=8						3									
8			2												
16												1			
32												2			

Table Antimicrobial susceptibility testing of Salmonella Kottbus in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**8**	**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										3	3
<=0.5					3				3						
<=1		2						1							
<=2													3		
2		1						2							
<=4											3				
4			1												
<=8						3									
8			2												
16												3			

Table Antimicrobial susceptibility testing of Salmonella Livingstone in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**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**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0.03							1								
0.064										1					
<=0.25				1										1	1
<=0.5					1				1						
<=1		1													
<=2													1		
2								1							
<=4											1				
4			1												
<=8						1									
32												1			

Table Antimicrobial susceptibility testing of Salmonella Llandoff in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**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**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0.03							1								
0.064										1					
<=0.25				1										1	1
<=0.5					1				1						
<=1		1													
<=2													1		
2								1							
<=4											1				
4			1												
<=8						1									
32												1			

Table Antimicrobial susceptibility testing of Salmonella Mbandaka in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**8**	**32**
	N of tested isolates	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**
<=0.015							2								
<=0.03										4					
0.03							1								
<=0.25				3										1	4
<=0.5					3				4						
0.5				1			1							3	
<=1		1						4							
1					1										
2		2													
<=4											3				
4		1											1		
<=8						3									
8			3												
16			1												
32						1						4			
>64													3		
>128											1				

Table Antimicrobial susceptibility testing of Salmonella Napoli in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**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**	**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						
<=2													1		
2		1						1							
<=4											1				
<=8						1									
8			1												
16												1			

Table Antimicrobial susceptibility testing of Salmonella Schwarzengrund in Cattle (bovine animals)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**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**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							1								
<=0.03										1					
<=0.25				1											1
<=0.5					1				1						
0.5														1	
<=2													1		
2								1							
<=4											1				
4		1													
<=8						1									
8			1												
32												1			

Table Antimicrobial susceptibility testing of Salmonella Tennessee in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**8**	**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										2					
0.03							1								
0.064										1					
<=0.25				3										2	3
<=0.5					3				3						
0.5														1	
<=1		1						1							
<=2													3		
2		2						2							
<=4											3				
4			1												
<=8						3									
8			2												
16												1			
32												1			
64												1			

Table Antimicrobial susceptibility testing of Salmonella Typhimurium in Cattle (bovine animals)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**8**	**32**
	N of tested isolates	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**
MIC	**N of resistant isolates**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
<=0.015							14								
<=0.03										17					
0.03							5								
0.064										2					
<=0.25				19										16	19
<=0.5					19				19						
0.5														3	
<=1		13						3							
<=2													18		
2		6						16							
<=4											19				
4			18										1		
<=8						19						3			
8			1												
16												12			
32												4			

Table Antimicrobial susceptibility testing of Salmonella Typhimurium in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**8**	**32**
	N of tested isolates	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
MIC	**N of resistant isolates**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**2**	**0**	**0**
<=0.015							14								
<=0.03										15					
0.03							6								
0.064										5					
<=0.25				20										17	20
<=0.5					20				20						
0.5														3	
<=1		4						5							
<=2													18		
2		14						14							
<=4											19				
4			18					1							
<=8						20						3			
8			2								1				
16												11			
32												4			
>64		2											2		
>1024												2			

Table Antimicrobial susceptibility testing of Salmonella Typhimurium in Pigs

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**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**	**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													
<=2													1		
2								1							
<=4											1				
4			1												
<=8						1									
16												1			

Table Antimicrobial susceptibility testing of Salmonella Typhimurium, monophasic in Cattle (bovine animals)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**8**	**32**
	N of tested isolates	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
MIC	**N of resistant isolates**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**7**	**0**	**0**
<=0.015							5								
<=0.03										4					
0.03							2								
0.064										3					
<=0.25				7										6	6
<=0.5					7				6						
0.5														1	1
<=1								1							
1									1						
2								6							
<=4											6				
4			5												
<=8						7									
8			2								1				
>64		7											7		
>1024												7			

Table Antimicrobial susceptibility testing of Salmonella Typhimurium, monophasic in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**8**	**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**	**0**	**0**	**0**	**0**	**0**	**13**	**14**	**0**	**0**
<=0.015							2								
<=0.03										8					
0.03							12								
0.064										6					
<=0.25				14										9	14
<=0.5					14				13						
0.5														5	
<=1	1							7							
1									1						
2								7							
<=4											14				
4		10													
<=8						14									
8		4													
16												1			
>64	13												14		
>1024												13			

Table Antimicrobial susceptibility testing of Salmonella Welikade in Gallus gallus (fowl)

Sampling Stage: Unspecified

Sampling Type: unknown

Sampling Context: Unspecified

Sampler: Not applicable

Sampling Strategy: Not specified

Programme Code: OTHER AMR MON

Analytical Method:

Country of Origin: Switzerland

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**	**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**	**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													
<=2													1		
2								1							
<=4											1				
<=8						1									
8			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 - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON pnl2

Analytical Method:

Country of Origin: Slovenia

Sampling Details:

Ceftazidime synergy test	Cefotaxime synergy test	MIC	AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
			ECOFF	0.125	0.25	0.25	8	0.5	0.5	0.06	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	25	25	25	25	25	25	25	25	25	25
			N of resistant isolates	24	25	5	5	22	7	0	0	0	0
Not Available	Not Available	<=0.015								17			
		<=0.03										21	
		0.03								5			
		<=0.064		1									
		0.064								3		4	
		<=0.125									15		
		0.25		4							7		
		0.5						3			3		
		1			1			6					1
		2		3			2	11					
		4		3			13	1					9
		8		12	2		5	1					12
		16		2	7		1	1					3
		32			8			2					

			AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
			ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.06**	**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	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
Ceftazidime synergy test	**Cefotaxime synergy test**	**MIC**	**N of resistant isolates**	**24**	**25**	**5**	**5**	**22**	**7**	**0**	**0**	**0**	**0**
Not Available	Not Available	64			5		4						
		>64			2								
	Positive/Present	<=0.064				13							
		0.12				5							
		0.25				2							
	Negative/Absent	1				1							
		4				2							
		8				1							
		16				1							
Positive/Present	Not Available	<=0.125							5				
		0.25							8				
Negative/Absent	Not Available	<=0.125							2				
		0.25							3				
		1							3				
		4							1				
		8							1				
		16							2				

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 - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON

Analytical Method:

Country of Origin: Slovenia

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	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
MIC	**N of resistant isolates**	**25**	**0**	**25**	**22**	**1**	**19**	**0**	**1**	**0**	**17**	**3**	**5**	**0**	**5**
<=0.015							6								
<=0.03										25					
0.12							4								
<=0.25														25	18
0.25							5								
<=0.5					3				17						
0.5															2
<=1								24							
1				1	6				7						
<=2			2										17		
2					12			1							
<=4											7				
4			14				1						3		
>4				24											
<=8						24						20			
8			9		2		5				1				
>8					2		4								
16												1			
32												1			
>32									1						5
64											6		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**	**4**	**8**	**128**	**8**	**16**	**32**	**16**	**128**	**1024**	**64**	**8**	**32**
	N of tested isolates	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
MIC	**N of resistant isolates**	**25**	**0**	**25**	**22**	**1**	**19**	**0**	**1**	**0**	**17**	**3**	**5**	**0**	**5**
>64		25											2		
128						1					2				
>128											9				
>1024												3			

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 - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON pnl2

Analytical Method:

Country of Origin: Switzerland

Sampling Details:

Ceftazidime synergy test	Cefotaxime synergy test	MIC	AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
			ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.06**	**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	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**
			N of resistant isolates	**16**	**19**	**9**	**9**	**19**	**8**	**0**	**0**	**0**	**0**
Not Available	Not Available	<=0.015								12			
		<=0.03										19	
		0.03								2			
		<=0.064		3									
		0.064								5			
		<=0.125									7		
		0.25		6							12		
		0.5		7									
		1			2			1					
		2			3			4					
		4		3	5		8						6
		8			2		2	3					13
		16			5		1	8					
		32			2		2	3					
		64					6						
	Positive/Present	<=0.064				9							
		0.12				1							

Ceftazidime synergy test	Cefotaxime synergy test	MIC	AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
			ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.06**	**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	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**
			N of resistant isolates	**16**	**19**	**9**	**9**	**19**	**8**	**0**	**0**	**0**	**0**
Not Available	Negative/Absent	0.5				1							
		1				1							
		2				1							
		4				2							
		8				3							
		16				1							
Positive/Present	Not Available	<=0.125							6				
		0.25							4				
Negative/Absent	Not Available	0.5							1				
		2							1				
		4							3				
		8							1				
		16							3				

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 - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON

Analytical Method:

Country of Origin: Switzerland

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	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**
MIC	**N of resistant isolates**	**19**	**0**	**19**	**19**	**0**	**11**	**0**	**0**	**0**	**8**	**5**	**4**	**0**	**4**
<=0.015							8								
<=0.03										18					
0.064										1					
<=0.25														18	15
0.25							4								
<=0.5									13						
0.5							1							1	
<=1								17							
1				2	3		2		6						
<=2			2										15		
2				3	2		1	2							
<=4											10				
4			12	5	2										
>4				9											
<=8						19						14			
8			5		2		1				1				
>8					10		2								
>32															4
64													2		
>64		19											2		
128											2				

	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	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**
MIC	**N of resistant isolates**	**19**	**0**	**19**	**19**	**0**	**11**	**0**	**0**	**0**	**8**	**5**	**4**	**0**	**4**
>128											6				
>1024												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 - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON pnl2

Analytical Method:

Country of Origin: Germany

Sampling Details:

Ceftazidime synergy test	Cefotaxime synergy test	MIC	AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
			ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.06**	**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	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
			N of resistant isolates	**11**	**12**	**1**	**1**	**11**	**1**	**0**	**0**	**0**	**0**
Not Available	Not Available	<=0.015								11			
		<=0.03										12	
		0.03								1			
		<=0.125									6		
		0.12		1									
		0.25		2							5		
		0.5		5				1			1		
		1		1	3			1					
		2		1	2		1	5					
		4		1	3		4	2					4
		8		1	2		6						8
		16					1	2					
		32			2			1					
	Positive/Present	<=0.064				7							
		0.12				4							
	Negative/Absent	1				1							

			AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
			ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.06**	**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	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
Ceftazidime synergy test	**Cefotaxime synergy test**	**MIC**	**N of resistant isolates**	**11**	**12**	**1**	**1**	**11**	**1**	**0**	**0**	**0**	**0**
Positive/Present	Not Available	<=0.125							7				
		0.25							3				
Negative/Absent	Not Available	0.5							1				
		2							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 - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON

Analytical Method:

Country of Origin: Germany

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	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
MIC	**N of resistant isolates**	**12**	**0**	**12**	**11**	**0**	**8**	**0**	**1**	**0**	**7**	**5**	**3**	**0**	**3**
<=0.015							3								
<=0.03										12					
0.03							1								
<=0.25														11	7
0.25							3								
<=0.5					1				10						
0.5							1							1	2
<=1								11							
1				3	2				1						
<=2			1										8		
2				4	5		1	1							
<=4											4				
4			6	1	1		2		1				1		
>4				4											
<=8						11						4			
8			5								1				
>8					3		1								
16						1						3			
>32															3
64											2		1		
>64		12											2		

	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	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
MIC	**N of resistant isolates**	**12**	**0**	**12**	**11**	**0**	**8**	**0**	**1**	**0**	**7**	**5**	**3**	**0**	**3**
128											1				
>128											4				
>1024												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 - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON pnl2

Analytical Method:

Country of Origin: France

Sampling Details:

			AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
			ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.06**	**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**
Ceftazidime synergy test	**Cefotaxime synergy test**	**MIC**	**N of resistant isolates**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**
Not Available	Not Available	<=0.015								1			
		<=0.03										1	
		0.25									1		
		2						1					
		4					1						
		8		1									1
		64			1								
	Positive/Present	0.12				1							
Positive/Present	Not Available	0.25							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 - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON

Analytical Method:

Country of Origin: France

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**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**
<=0.015							1								
<=0.03										1					
<=0.25														1	1
<=0.5									1						
<=1								1							
2					1										
<=4											1				
4			1												
>4				1											
<=8						1									
64													1		
>64		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 - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON pnl2

Analytical Method:

Country of Origin: Hungary

Sampling Details:

Ceftazidime synergy test	Cefotaxime synergy test	MIC	AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
			ECOFF	0.125	0.25	0.25	8	0.5	0.5	0.06	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	30	30	30	30	30	30	30	30	30	30
			N of resistant isolates	24	30	13	13	29	13	0	0	0	0
Not Available	Not Available	<=0.015								14			
		<=0.03										28	
		0.03								9			
		<=0.064		1									
		0.064								7		2	
		<=0.125									14		
		0.12		5									
		0.25		4							16		
		0.5		4				1					
		1		2	2			5					
		2			1		1	8					2
		4		10	1		12	2					12
		8		4	8		4	4					11
		16			5		1	9					4
		32			11		2						1
		64			2		5	1					
		>64					5						

			AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
			ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.06**	**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	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
Ceftazidime synergy test	**Cefotaxime synergy test**	**MIC**	**N of resistant isolates**	**24**	**30**	**13**	**13**	**29**	**13**	**0**	**0**	**0**	**0**
Not Available	Positive/Present	<=0.064				16							
		0.12				1							
	Negative/Absent	2				1							
		4				5							
		8				3							
		16				2							
		32				2							
Positive/Present	Not Available	<=0.125							4				
		0.25							9				
Negative/Absent	Not Available	<=0.125							1				
		0.25							3				
		2							1				
		4							3				
		8							5				
		16							2				
		64							2				

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 - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON

Analytical Method:

Country of Origin: Hungary

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	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
MIC	**N of resistant isolates**	**30**	**0**	**30**	**29**	**6**	**27**	**0**	**4**	**0**	**27**	**21**	**16**	**0**	**7**
<=0.015							3								
<=0.03										28					
0.064										1					
0.12										1					
<=0.25														27	17
0.25							5								
<=0.5					1				13						
0.5							1							3	5
<=1								29							
1				2	3		1		11						1
<=2													13		
2				2	11		1	1	2						
<=4											3				
4			21		1		1						1		
>4				26											
<=8						24						8			
8			8		6		17								
>8					8		1								
16			1									1			
32													1		
>32									4						7

	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	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
MIC	**N of resistant isolates**	**30**	**0**	**30**	**29**	**6**	**27**	**0**	**4**	**0**	**27**	**21**	**16**	**0**	**7**
64		1											9		
>64		29											6		
128						4					6				
>128						2					21				
>1024												21			

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 - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: AMR MON

Analytical Method:

Country of Origin: Switzerland

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	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**
MIC	**N of resistant isolates**	**41**	**1**	**0**	**0**	**1**	**86**	**0**	**3**	**0**	**84**	**35**	**27**	**0**	**25**
<=0.015							119								
<=0.03										208					
0.03							2								
0.064							1								
0.12							6								
<=0.25				208										201	156
0.25							62								
<=0.5					208				141						
0.5							7							7	26
<=1		8						198							
1							3		61						1
<=2			12										165		
2		62					3	10	3						
<=4											123				
4		92	100										16		
<=8						202						157			
8		5	82				4								
>8							1								
16			13			5			1		1	14			
32			1						2		1	1	1		
>32															25

	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	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**	**208**
MIC	**N of resistant isolates**	**41**	**1**	**0**	**0**	**1**	**86**	**0**	**3**	**0**	**84**	**35**	**27**	**0**	**25**
64											23	1	19		
>64		41											7		
128						1					39				
>128											21				
512												1			
>1024												34			

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 - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON pnl2

Analytical Method:

Country of Origin: Switzerland

Sampling Details:

Ceftazidime synergy test	Cefotaxime synergy test	MIC	AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
			ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.06**	**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	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**
			N of resistant isolates	**48**	**61**	**33**	**30**	**57**	**33**	**4**	**0**	**0**	**0**
Not Available	Not Available	<=0.015								38			
		<=0.03										57	
		0.03								19			
		<=0.064		7									
		<=0.125									19		
		0.12		6						4		4	
		<=0.25						2					
		0.25		24							38		
		0.5		5	4			2			4		
		1		5	11		2	8					
		2		4	6		8	11					3
		4		8	5		13	8					27
		8		2	19		8	7					28
		16			10		5	20					3
		32			4		7	3					
		64			2		18						

			AM substance	Cefepime	Cefotaxim	Cefotaxime + Clavulanic acid	Cefoxitin	Ceftazidim	Ceftazidime + Clavulanic acid	Ertapenem	Imipenem	Meropenem	Temocillin
			ECOFF	**0.125**	**0.25**	**0.25**	**8**	**0.5**	**0.5**	**0.06**	**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	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**
Ceftazidime synergy test	**Cefotaxime synergy test**	**MIC**	**N of resistant isolates**	**48**	**61**	**33**	**30**	**57**	**33**	**4**	**0**	**0**	**0**
Not Available	Positive/Present	<=0.064				24							
		0.12				3							
	Negative/Absent	0.25				1							
		0.5				7							
		1				3							
		2				2							
		4				6							
		8				15							
Positive/Present	Not Available	<=0.125							15				
		0.25							5				
		0.5							1				
		1							1				
Negative/Absent	Not Available	<=0.125							4				
		0.25							1				
		0.5							2				
		1							6				
		2							3				
		4							5				
		8							12				
		16							5				
		32							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 - EFSA specifications

Sampler: Official sampling

Sampling Strategy: Objective sampling

Programme Code: ESBL MON

Analytical Method:

Country of Origin: Switzerland

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	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**
MIC	**N of resistant isolates**	**61**	**0**	**61**	**57**	**2**	**38**	**0**	**3**	**0**	**34**	**12**	**19**	**0**	**8**
<=0.015							22								
<=0.03										61					
0.03							1								
0.12							8								
<=0.25														56	48
0.25							12								
<=0.5					4				44						
0.5				1			1							5	4
<=1								57							
1				13	8		11		14						1
<=2			11										40		
2				8	15		2	4							
<=4											25				
4			29	6	6		1		1				2		
>4				33											
<=8						58						45			
8			19		10		2				2				
>8					18		1								
16		1	2			1						3			
32		1				1					3	1	1		
>32									2						8

	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	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**
MIC	**N of resistant isolates**	**61**	**0**	**61**	**57**	**2**	**38**	**0**	**3**	**0**	**34**	**12**	**19**	**0**	**8**
64		1									5		15		
>64		58											3		
128											8				
>128						1					18				
>1024												12			

OTHER ANTIMICROBIAL RESISTANCE TABLES

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

Programme Code	Matrix Detailed	Zoonotic Agent Detailed	Sampling Strategy	Sampling Stage	Sampling Details	Sampling Context	Sampler	Sample Type	Sampling Unit Type	Sample Origin	Comment	Total Units Tested	Total Units Positive
CARBAMON	Gallus gallus (fowl) - broilers	Escherichia coli, non-pathogenic, unspecified	Objective sampling	Slaughterhouse	N_A	Monitoring - EFSA specifications	Official sampling	animal sample - caecum	slaughter animal batch	Switzerland	N_A	612	0
	Meat from broilers (Gallus gallus) - fresh - chilled	Escherichia coli, non-pathogenic, unspecified	Objective sampling	Retail	N_A	Monitoring - EFSA specifications	Official sampling	food sample - meat	single (food/feed)	France	N_A	14	0
										Germany	N_A	22	0
										Hungary	N_A	48	0
										Slovenia	N_A	26	0
										Switzerland	N_A	186	0

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
Animal Population	26-Jul-2022
Disease Status	26-Jul-2022
Food Borne Outbreaks	04-Aug-2022
Prevalence	26-Jul-2022

Table of contents

Institutions and Laboratories involved in zoonoses monitoring and reporting

1: Centre for Zoonoses, Bacterial Animal Diseases Antimicrobial Resistance (ZOBA) at the
Institute of Veterinary Bacteriology, Vetsuisse Faculty University of Bern
National Reference Laboratory for Brucellosis, Salmonellosis, Campylobacteriosis, Listeriosis, Yersiniosis, Tularemia, Coxiellosis, Antimicrobial Resistance
2. Institute for Food Safety and Hygiene (ILS), Vetsuisse Faculty University of Zurich,
National Reference Laboratory for STEC, enteropathogenic bacteria
3. Section of Veterinary Bacteriology (VB), Institute for Food Safety and Hygiene, Vetsuisse Faculty University of Zurich
National Reference Laboratory for Tuberculosis
4. Institute of Parasitology IPB, Vetsuisse Faculty and Faculty of Medicine University of Bern
National Reference Laboratory for Trichinellosis, Toxoplasmosis
5. Swiss Rabies Center (SRC) at the Institute of Immunology and Virology (IVI) in cooperation with Vetsuisse Faculty, University of Bern
National Reference Laboratory for Rabies
6. Institute of Parasitology (IPZ), Vetsuisse Faculty University of Zurich,
National Reference Laboratory for Echinococcosis
7. Research Station Agroscope Liebefeld-Posieux (ALP)
Official feed inspection service and Listeria Monitoring
8. Institute for Virology and Immunology (IVI)
National Reference Laboratory for West Nil Fever
9. National Reference Center for Poultry and Rabbit Diseases, University of Zurich (NRGK)
West Nile Fever data in birds

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

Animal population

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

Number of animals held in farms in Switzerland in 2020 (data status May 2021). Number of animals slaughtered in 2020.
Living animals and herds: Coordinated census of agriculture. Swiss federal office of agriculture, Swiss federal office of statistics and the animal movement database. Slaughtered animals: Official meat inspection statistics (FSVO) and monthly agricultural statistics (Swiss Farmer's Federation).

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

The indicated number of holdings is identical to the number of farms holding respective species. Agriculture census counts the number of farms.

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

In general, the number of animal holdings is decreasing slightly year by year (exception in 2020: holding with poultry, solipeds and bees).
Poultry industry: the number of holdings with laying hens increased by 4.5% and the one with broilers also increased by 2.3%. Over 90% of poultry meat is produced by 4 major meat producing companies. The number of holdings with breeders have a large fluctuation due to a large number of very small flocks on farms which are counted in agricultural census. The number of holdings with more than 250 breeders has slightly increased (44 in 2020) keeping over 90% of all breeders.

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

Average size of the farms in 2020: 45 cattle, 241 pigs, 43 sheep, 13 goats, 217 laying hens and 6'833 broilers.

5. Additional information

Hatching eggs for the meat production line are imported on a large scale to Switzerland. In 2020, the number of imported fertilized eggs of the broiler type increased by 3% to 36 million and the imported fertilized eggs of the fattening turkey type increased by 16% to 505600 hatching eggs.
Day-old-chicks are imported to Switzerland mainly from the breeding type (egg production line and meat production line are not differentiated). In total, 430'670 day-old-chicks of the breeding type were imported in 2020. Compared to 2019, the import of day-old-chicks of the breeding type decreased by 14%. There are a few imports of day-old chicks of laying hens which increased to 35'500 in 2020 (instead of 8'466 in 2019). As in 2019, no day-old chicks of the broiler type were imported to Switzerland.

(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

Considerations regarding the impact of the COVID-19 pandemic in 2020 on the Swiss zoonoses data 2020:

1) Has the COVID-19 pandemic had any impact in your country on the monitoring / surveillance (including diagnosis) and reporting of zoonoses and food-borne outbreaks for year 2020 (in the context of Dir. 2003/99/EC)?

Human: In 2020, monitoring and surveillance of zoonoses in humans continued as usual and was always ensured. However, the number of reported human zoonotic cases generally decreased. Depending on the disease, a different combination of influences is likely to have been the cause of the observed decrease in the number of cases. On the one hand, there is the possibility of under-reporting of actual case numbers due to the health care system (e.g., due to laboratory and physician workloads and individual reluctance to seek medical care), which may have led to a reduction in reported cases at the same real incidence. On the other hand, the prescribed COVID-19 measures, travel restrictions, and individual behavioral changes (e.g. increased hand hygiene, changes in eating habits) also have an impact on the transmission of other pathogens. Thus, the COVID-19 pandemic may have led to an actual decrease in zoonotic infections.

Animal: The Covid-19 pandemic had no impact on animal data. In Switzerland, the monitoring and surveillance activities on the animal side went on as usual during the year 2020.

FBO: Concerning the reporting of foodborne outbreaks, as the number of reported outbreaks has relatively been stable and generally low in Switzerland for many years, it is too difficult to describe the impact of the pandemic on this number for the year 2020 in a meaningful way.

2) How would you evaluate the level of comparability of 2020 data with the same information reported from your country for 2019, in terms of volume and representativeness of data provided for a. the EU harmonized control and eradication programmes (for which data reporting is mandatory) and b. other non-harmonised monitoring and control activities?

Human: As described above, the number of cases of reported zoonoses in humans have decreased significantly due to the above-mentioned reasons. Therefore, the comparability with the data from 2019 is questionable.

Animal: There is a high comparability (little or no discrepancies expected due to the impact of COVID-19) regarding the monitoring and surveillance animal data 2020 in Switzerland.

FBO: Concerning the reporting of foodborne outbreaks, the number of cases in 2020 is lower than in the previous year, but within the range of annual fluctuations over the last 10 years.

General evaluation: *Brucella*

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

Brucellosis in humans is notifiable (ordinance of the Federal Department of Home Affairs (FDHA) on notification of observations on communicable diseases). The number of detections of *Brucella* (B.) spp. in humans has been rare for many years.
Brucellosis in animals is notifiable (TSV, Article 3: disease to be eradicated: bovine brucellosis since 1956, in sheep and goats since 1966; Article 4: disease to be controlled: brucellosis in rams). Government measures are applied to control brucellosis in sheep and goats (*B. melitensis*, TSV, Articles 190-195), in cattle (*B. abortus*, TSV, Articles 150-157), in pigs (*B. suis* as well as *B. abortus* and *B. melitensis*, TSV, Articles 207 – 211) and in rams (*B. ovis*, TSV, Articles 233-236). Cattle, pigs, sheep and goats must be tested for brucellosis in cases where the causes of abortion are being investigated (TSV, Article 129). Vaccination is prohibited since 1961. Switzerland is officially recognized as free of brucellosis in cattle, sheep and goats by the EU (Bilateral Agreement on Agriculture, Veterinary Annex). Requirements of section 3.2.1.5 of the OIE International Animal Health Code are fulfilled since 1963.

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

In 2020, 3 brucellosis cases in humans were reported (2019: 7 cases). In 2 cases *B. melitensis* was identified. Affected were 3 men between the age of 2 and 54 years. In the last 10 years, the notified cases ranged from 1 to 14 cases per year.
In 2020, no cases of zoonotic brucellosis in animals were reported by the cantonal veterinarians. In the annual national survey of 2020, all blood samples from sheep and goats tested negative for *B. melitensis.*
Information, on how many animals were tested in veterinary diagnostic laboratories in the context of clinical investigation is available in the data tables in the annexes.

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

National surveys on an annual basis are carried out to document freedom from brucellosis in sheep and goat.

4. Additional information

See previous national reports for additional information and website of the FSVO.

Description of Monitoring/Surveillance/Control programmes system: Cattle and *Brucella abortus*

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

Switzerland is officially acknowledged as free from bovine brucellosis since 1959. Bovine brucellosis is notifiable since 1956. Requirements of section 3.2.1.5 of the OIE International Animal Health Code are fulfilled since 1963. Free status is recognized by EU (Bilateral Agreement on Agriculture, Veterinary Annex).

2. Measures in place[(b)]

Vaccination is prohibited. Actions to be taken in suspicious farms are the ban of all animal traffic and investigation of the whole herd as well as the placenta of calving cows. In confirmed cases (herds) all diseased cattle have to be killed. All placentas, abortion material and the milk of diseased and suspicious cows have to be disposed of. The barn has to be disinfected. Official meat inspection includes each carcass, its organs and lymphatic tissues on the prevalence of abnormal alterations. Whole carcasses need to be destroyed if lesions typical for brucellosis are confirmed by a laboratory test. Without lesions or in case of unclear laboratory results, the udder, genitals and the blood must be destroyed (VHyS, Annex 7).

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

Notification of suspicious cases and outbreaks is mandatory. Brucellosis in bovine animals is regulated as zoonosis to be eradicated (TSV, Art. 150 - Art. 157).

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

In 2020, no cases of *Brucella abortus* were reported to the FSVO by cantonal veterinarians.
There are no observations that would challenge the freedom of Swiss cattle population from brucellosis.

5. Additional information

None.

Description of Monitoring/Surveillance/Control programmes system: Sheep and Goats and *Brucella melitensis*

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

Switzerland is officially acknowledged as free from ovine and caprine brucellosis.

2. Measures in place[(b)]

Vaccination is prohibited. Actions to be taken in suspicious farms are ban of all animal traffic and the investigation of the whole herd. In confirmed cases the whole herd has to be killed immediately. All placentas, abortion material and the milk of diseased and suspicious animals have to be disposed of. The barn has to be disinfected. Official meat inspection is investigating each carcass, its organs and lymphatic tissues on the prevalence of abnormal alterations. Whole carcasses need to be destroyed if lesions typical for brucellosis could be confirmed by a laboratory test. Without lesions or in case of unclear laboratory results, the udder, genitals and the blood must be destroyed (VHyS, Annex 7).

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

Notification of suspicious cases and outbreaks is mandatory. Brucellosis in sheep and goats is regulated as zoonosis to be eradicated (TSV, Art. 190 - Art. 195).

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

In the annual national survey of 2020, a randomized sample of 762 sheep farms (11789 blood samples) and 311 goat farms (2736 blood samples) tested negative for *Brucella melitensis* using serological tests.
In addition, no cases of *Brucella melitensis* in sheep and goats were reported to the FSVO by cantonal veterinarians in 2020.
There are no observations that would challenge the freedom of Swiss sheep and goat population from brucellosis.

5. Additional information

None.

General evaluation: *Mycobacterium*

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

Tuberculosis in humans is notifiable (ordinance of the Federal Department of Home Affairs (FDHA) on notification of observations on communicable diseases). Human tuberculosis cases transmitted by infected cattle respectively the consumption of raw milk are very rare nowadays. They correspond to less than 2% of all reported human tuberculosis cases.
In animals, tuberculosis is notifiable (TSV, Article 3: disease to be eradicated and 158 – 159). Vaccination is prohibited. Requirements of section 3.2.3.10 of the OIE International Animal Health Code are fulfilled. Free status is recognized by EU (Bilateral Agreement on Agriculture, Veterinary Annex).

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

In 2020, 2 human cases in which the consumption of raw milk can be assumed to be the origin of infection were reported (1x *M. bovis, 1x M. caprae*). *M. bovis* and *M. caprae* are reported on a low scale (not more than 15 cases per year since 2005, 2019: 4 cases). The two persons were Swiss and over 75 years. It is most likely that they got infected in their childhood in Switzerland by the consumption of unpasteurized milk. At that time the disease in Swiss cattle was more frequent.
As Swiss livestock is recognized free of bovine tuberculosis today, human cases otherwise are anticipated to be mainly attributable to stays abroad or to the consumption of foreign food products.
In 2020, no tuberculosis outbreaks in animals were reported to the FSVO by the cantonal veterinarians. Tuberculosis cases in animals are reported extremely rarely (not more than 2 cases per year). In the years 2013 and 2014, more cases (in total 11) were reported due to two unusual outbreaks in cattle (one due to *M. bovis*, the other due to *M. caprae*). Risk factors for the incursion of the disease are international trade with animals and summer grazing of Swiss cattle in risk areas such as the border areas with Austria and Germany where contact with infected cattle or wildlife cannot be excluded.
In addition, one alpaca tested positive for *M. microti* in 2020, which is not an unusual result. *M. microti* is found in Switzerland rarely but regularly in other animals than bovines, mainly in cats and camelids. Information, on how many animals were tested in veterinary diagnostic laboratories in the context of clinical investigation is available in the data tables in the annexes.
At slaughterhouses, 9 lymphatic tissue and organ material of cattle suspicious for bovine TB were taken during meat inspection in 2020. All samples tested negative by real-time PCR and culture.
Within the framework of the LyMON monitoring program in 2020, lymphatic tissue with unspecific alterations of 105 cattle were analyzed using a graduated diagnostic scheme (pathological investigation, Ziehl-Neelsen staining, genus-specific mycobacterial real-time PCR, MTBC culture and histology). All samples were negative for bacteria of the *M. tuberculosis*-complex.
In addition, lymphatic tissue and rarely unspecific alterations of organs of 151 wild animals (mainly red deer) were investigated in 2020. There was no evidence of tuberculosis infections in wildlife in 2020. In five red deer and one chamois culture revealed growth of non-tuberculous mycobacteria (*M. vaccae, M. nonchromogenicum, M. diernhoferi*), which are known to be in the majority of cases nonpathogenic for humans or animals. These non-tuberculous mycobacteria are mainly found in the environment, in the soil and water.

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

The detection of suspect cases during meat inspection in slaughterhouses is a challenge in a country with a very low disease prevalence. The special monitoring program LyMON at the slaughterhouses continues to keep awareness at slaughterhouses high.

4. Additional information
[1] See previous national reports for additional information and website of the FSVO. [2] Ghielmetti, G., Friedel, U., Hilbe, M., Menegatti, C., Bacciarini, L., Stephan, R., Bloemberg, G. Mycobacterial infections in wild boars (*Sus scrofa*) from southern Switzerland, 2020: Diagnostic improvements, epidemiological situation and zoonotic potential. Transboundary and Emerging Diseases

Description of Monitoring/Surveillance/Control programmes system: Cattle and *M. bovis* / *M. caprae* / *M. tuberculosis*

1. Monitoring/Surveillance/Control programmes system[a]
Switzerland is officially acknowledged as free from bovine tuberculosis since 1959.
2. Measures in place[b]
Actions to be taken in suspicious farms are ban of all animal traffic and investigation of the whole herd. In confirmed cases (herds) all diseased or suspicious cattle has to be slaughtered and the milk of them is disposed. The barn has to be disinfected.
3. Notification system in place to the national competent authority[c]
Bovine tuberculosis (*M. bovis*, *M. caprae* and *M. tuberculosis*) is notifiable (TSV, Art. 3: disease to be eradicated and Art. 158 - Art. 165). Notifications of suspicious cases are mandatory.
4. Results of investigations and national evaluation of the situation, the trends [d] and sources of infection[e]
In 2020, no cases of tuberculosis in cattle were reported to the FSVO by cantonal veterinarians. There were no further outbreaks in cattle since the last two unusual outbreaks in 2013 and 2014.
5. Additional information
None.

General evaluation: *Campylobacter*

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

Human campylobacteriosis is notifiable (ordinance of the Federal Department of Home Affairs (FDHA) on notification of observations on communicable diseases). Campylobacteriosis is the most commonly reported food borne infectious disease in humans.
In animals, campylobacteriosis is also notifiable (TSV, Article 5: disease to be monitored).

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

The number of notified human campylobacteriosis cases decreased from 7'223 in 2019 to 6'200 confirmed cases in 2020, probably multifactorially influenced by the COVID-19 pandemic. Slightly more men (55%) than women (45%) were affected. In accordance with previous years, most cases were caused by *C. jejuni* (64% of all cases, in 25% of cases no distinction was made between *C. jejuni* and *C. coli*). In 2020, the typical summer peak occurred in the months of July and August accounting for 1'811 cases.
137 cases of campylobacteriosis were reported in animals to the FSVO by cantonal veterinarians in 2020, which were slighty lower than in the previous year with 149 cases. As usual, dogs, cattle and cats were affected mainly.
Healthy broilers are often carriers of *Campylobacter jejuni* and carcasses might become contaminated during slaughter. The occurrence of this pathogen in broiler chicken farms is studied as part of the antimicrobial resistance monitoring program. Broilers are sampled every second year (since the year 2015) by collecting caecal samples at the slaughterhouse level. In the years, when broilers are not tested, pigs are tested for *Campylobacter* by examining caecal samples.
In 2020, 247 of 808 broilers (30.6%) were *Campylobacter*-positive (179x *C. jejuni*, 68x *C. coli)*. The prevalence of 30% was within the range of the previous years (28% in 2018 (95CI 25% - 32%) and 38% in 2013 (95CI 33% - 42%)). In each year, a typical summer peak can be observed.
There are no pig data for the year 2020. In the year 2019, 231 (66%) of 350 pigs were *Campylobacter*-positive (*2x C. jejuni*, 229x *C. coli)*. Compared to the year 2017 (57%) the percentage of positive samples increased slightly, but was not higher than in the years 2009, 2011 and 2013. In pigs, mainly *C. coli* are detected.
Mainly the handling of raw poultry meat and the following cross-contamination of other foods leads to human cases of campylobacteriosis. Cattle and the contact to pets were shown to be less important as sources of human campylobacteriosis. It is assumed that the high rate of disease in young adults aged 15 to24 years is attributable to less regard for kitchen hygiene at this age and increased travel. Infections above average in summer (July/August) could possibly be related to the higher infection rate in poultry flocks, higher barbecue activities and travels abroad, the peak around New Year Eve to increased consumption of meat dishes such as "Fondue Chinoise" (with resulting cross-contaminations) and travelling abroad.

3. Additional information

See previous national reports for additional information and website of the FSVO.

Description of Monitoring/Surveillance/Control programmes system: Fresh poultry meat, poultry meat preparations and poultry meat products and *Campylobacter*

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

The industry takes responsibility for the monitoring of the poultry meat production in a system of self-auditing following the HACCP (Hazard Analysis and Critical Control Points) principles. Results of the *Campylobacter* monitoring of the largest poultry slaughterhouses and poultry meat producers are available, covering more than 92% of the poultry meat production. Samples are taken several times a year at random. Carcasses, fresh poultry meat, poultry meat preparations and poultry meat products were tested at different stages, such as slaughterhouses, cutting plants, and processing plants. No data of imported poultry meat were included in the analysis. In addition, a random sample of broiler meat was investigated at retail in the framework of the antimicrobial resistance monitoring program in 2020.

2. Measures in place[(b)]

The Ordinance on Hygiene (SR 817.024.1) lays down a process hygiene criterion for broiler carcasses. At the slaughterhouse level, a certain number of broiler carcasses must be tested quantitatively for *Campylobacter* after chilling. *Campylobacter* counts must thereby not exceed a certain limit too frequently. Otherwise, the slaughterhouse must implement measures (improvement of hygiene, review of process control etc.) to ensure adequate *Campylobacter* counts on the broiler carcasses.

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

None.

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

Within the framework of the self-auditing system of the poultry meat industry, a total of 1’601 examinations including samples from broiler and turkey meat (carcasses and meat) were performed in 2020. Of them, 355 (22.2%) proved to be positive for *Campylobacter* spp. (2019: 21.8%): 65x *C. jejuni* (18.3%), 12x *C. coli* (3.4%), and 278x unspecified (78.3%), see also *Campylobacter* poultry meat table.

Of all 1’570 broiler meat samples (carcasses and meat), 341 (21.7%) proved to be positive for *Campylobacter*. Thereby, 183 (23.5%) of the 780 tested broiler carcass samples and 158 (20.0%) of the 790 tested broiler meat samples were positive. Moreover, 14 (45.2%) of all 31 turkey meat samples (carcasses and meat) proved to be positive for *Campylobacter*. Thereby, 14 (53.8%) of the 26 tested turkey carcass samples were positive, whereas *Campylobacter* were not found among the five tested turkey meat samples.

In order to verify the correct implementation of the process hygiene criterion for *Campylobacter* on broiler carcasses by the food business operators, 780 samples from broiler carcasses were analyzed quantitatively in 2020. Overall, 65 (8.3%) of the 780 tested samples from broiler carcasses exceeded 1'000 CFU/g. In addition, 118 (15.1%) of the 780 tested samples from broiler carcasses showed *Campylobacter* counts above the detection limit but counts were ≤1'000 CFU/g. Of all *Campylobacter*-positive samples (below and above 1’000 CFU/g), 54 samples showed counts ≤100 CFU/g, 64 samples were in the range from >100 to ≤1'000 CFU/g, 57 samples were in the range from >1'000 to ≤10'000 CFU/g and 8 samples exceeded 10'000 CFU/g.

In addition, broiler meat was also investigated at retail in the framework of the antimicrobial resistance monitoring program in 2020. 128 of 296 meat samples (43%) were *Campylobacter*-positive (112x *C. jejuni*, 16x *C. coli)*. In samples from Switzerland the prevalence was lower (32.2%) compared to samples originating from other countries (61.8%).

5. Additional information

The poultry industry encourages farmers to lower the *Campylobacter* burden by incentives for *Campylobacter*-free herds at slaughter. No immunoprophylactic measures are approved.

General evaluation: *Coxiella*

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

Coxiellosis in humans is notifiable (ordinance of the Federal Department of Home Affairs (FDHA) on notification of observations on communicable diseases). The number of detections of *C. burnetii* in humans has been stable for the past years.
Coxiellosis in animals is notifiable (TSV, Article 5: disease to be monitored). Cumulative abortions in cattle after three months of pregnancy and every abortion in sheep, goats and pigs have to be reported to a veterinarian. If more than one animal in a holding of ruminants aborts within the space of four months, or if an abortion occurs in a dealer's stable or during alpine pasturing, cattle, sheep and goats undergo laboratory investigation. If clinically suspected cases are confirmed by a laboratory, the cantonal veterinarian is notified.
The seroprevalence of the pathogen in cases of abortion is estimated about 16% in cattle. The seroprevalence of *C. burnetii* in small ruminants was determined in a study in 2017 by commercial ELISA from a representative sample of 100 sheep flocks and 72 goat herds. Herd-level seroprevalence was 5.0% (95% CI: 1.6-11.3) for sheep and 11.1% (95% CI: 4.9-20.7) for goats. Animal-level seroprevalence was 1.8% (95% CI: 0.8-3.4) for sheep and 3.4% (95% CI: 1.7-6) for goats.

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

In 2020, 51 human cases were reported with a notification rate of 0.6 per 100'000 inhabitants. Compared to the previous year, the number of cases halved again. In the year 2019 the higher number of cases was mainly due to an outbreak in spring 2019 in Ticino. The outbreak was most likely related to two infected goat herds in the most affected area.
In 2020, 148 cases of coxiellosis, mainly in ruminants, were reported to the FSVO by cantonal veterinarians. As usual, mainly cases in cattle (83%) were reported. In sheep and goats underreporting is estimated to be higher than in cattle. The number of notifications in animals in 2020 is higher than in the year 2019 due to more cases in cattle.
Information, on how many animals were tested in veterinary diagnostic laboratories in the context of clinical investigation is available in the data tables in the annexes.
Coxiella burnetii as a cause of abortions is much more often reported in cattle. However, infected cattle are less important as source of infection for humans than infected sheep and goats. This could also be seen in the outbreak in Ticino in spring 2019, where two infected goat herds were most likely the source of human infection. Especially during lambing of small ruminants the risk of human infection is higher.

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

Q-Fever in humans is again notifiable since 2012. Disease awareness and knowledge how to avoid infections must be improved. Farmers need to be motivated to send abortion material to the laboratories for further investigation.

4. Additional information

[1] See previous national reports for additional information and website of the FSVO.
[2] Sara Vidal, Kristel Kegler, Gilbert Greub, Sebastien Aeby, Nicole Borel, Mark P Dagleish, Horst Posthaus, Vincent Perreten, Sabrina Rodriguez-Campos: Neglected zoonotic agents in cattle abortion: tackling the difficult to grow bacteria. BMC Vet Res . 2017 Dec 2;13(1):373.

[3] Magouras I, Hunninghaus J, Scherrer S, Wittenbrink MM, Hamburger A, Stärk KD, Schüpbach-Regula G.: *Coxiella burnetii* Infections in Small Ruminants and Humans in Switzerland. Transbound Emerg Dis 2017; 64(1): 204-212.

General evaluation: *Cysticercus*

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

Cysticercosis in animals and humans is not notifiable. Cattle, small ruminants, and swine are inspected at slaughter for cysticerci. According to the ordinance on hygiene during slaughter (VHyS; SR 817.190.1), all cattle older than 6 weeks must be checked for cysticerci by incisions into the jaw muscles (*M. masseter* and *M. pterygoideus* on both sides) and incisions into the heart. Carcasses with few cysticerci must be frozen before the carcasses can be used for human consumption. Carcasses with generalized infection of the musculature are condemned.

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

Taenia saginata cysticerci in cattle remain a parasitic disease of food safety (zoonotic) and economic significance. Based on routine slaughterhouse reports, the prevalence is probably underestimated in the cattle population. Data from carcasses with generalized cysticercosis have been documented in Fleko (Swiss meat inspection statistics) for many years, however without systematic molecular confirmation of the species. Since implementation of the "new Fleko" (01.01.2020), it is also possible to document carcasses with few cysticerci and to collect the respective data.
In 2020, 15 cattle carcasses with generalized cysticercosis of the musculature (*Taenia saginata*) were recorded in Fleko (2019: 14 cattle carcasses with generalized cysticercosis). In addition, 3 sheep carcasses were recorded in Fleko with generalized cysticercosis (*Taenia* spp. not confirmed; 2019: 2 sheep carcasses). Furthermore, due to the implementation of a new system for the generation of the meat inspection statistics, it was also possible to document for the first time carcasses with few cysticerci. In 2020, 1'058 cattle carcasses with few cysticerci were recorded. In addition, few cysticerci were reported in 14 sheep carcasses (*Taenia* spp. not confirmed).

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

None.

4. Additional information

See previous national reports for additional information and website of the FSVO.

General evaluation: *Echinococcus*

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

Echinococcus granulosus sensu lato, the causative agent of Cystic Echinococcosis has nearly been extinct in Switzerland, sporadically imported cases are diagnosed in humans or animals (dogs or cattle and sheep, probably infected from imported infected dogs).
Alveolar echinococcosis (AE) is caused by the fox tapeworm *Echinococcus multilocularis*. An infection results in disease with severe consequences for the person concerned.
In animals, echinococcosis is notifiable (TSV, Article 5: disease to be monitored).

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

The hospitalization rate of human AE-cases (patients who were hospitalized for the first time due to AE) rose since the year 2009 and was 0.78 cases per 100'000 inhabitants in the year 2019 (hospital-based data). Albeit the increased risk of infection, an infection of humans with *E. multilocularis* is rare.
In 2020, 10 cases in animals were reported to the FSVO by cantonal veterinarians in 3 dogs, 5 wild animals (2 foxes, 2 beavers, 1 lynx) and 2 zoo animals (1 beaver, 1 beaver rat). The reported cases were within the range of previous years.
No systematic monitoring of wild animals is established and therefore, the cases reported do not represent the real endemic situation. The prevalence of *E. multilocularis* in foxes, the main reservoir, is estimated to lie between 20% and 70%, with lower prevalence in the alpine regions and higher prevalence in the Swiss Plateau and Jura. The Institute of Parasitology of the University of Zurich tested in a small study since 2016 526 hunted foxes from the Zurich region (2020: 108 foxes, 2019: 74, 2018: 64, 2017: 201, 2016: 79). All in all, 43% were positive for *E. multilocularis* (2020: 53 foxes, 2019: 31, 2018: 29, 2017: 93, 2016: 20). Of hunted foxes from Eastern Switzerland in the years 2012 and 2013 53% (105 of 200) and 57% (57 of 100) were positive for *E. multilocularis.* Fox tapeworm eggs can be found in fresh foodstuff (outdoor cultivation). The scientific literature provides several reports on microscopic findings of taeniid eggs in vegetables (Alvarez Rojas et al., 2018) and in fresh produce (lettuce) (Guggisberg et al., 2020). In a field study in 2020, 2 of 157 (1.2%) lettuce samples DNA of *E. multilocularis* was detected.
A research project on the prevalence of *E. multilocularis* in slaughter pigs and associated risk factors was conducted between 2016 and 2018. In total, 456 pig livers with lesions suggestive of *E. multilocularis* infection were submitted of which 200 livers were confirmed as *E. multilocularis*-positive. Related to the number of slaughtered pigs during the study period the prevalence was below 0.1%. No geographical clusters were observed. Livers are destroyed at slaughterhouse as they are not fit for human consumption. Pigs are - like humans - an incidental host for *E. multilocularis*. Thus, infected pigs are no source of infection for humans. Host densities (red foxes and rodent species) and predation rates are key drivers for infection with parasite eggs.

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

Owners from dogs which are hunting mice are encouraged to deworm their dogs regularly. The public is advised, not to feed or tame foxes and to keep at a distance. The monthly distribution of anthelmintic baits (Praziquantel) for foxes proved to be effective.

4. Additional information

See previous national reports for additional information and website of the FSVO.
[1] Alvarez Rojas, C.A. C, Mathis A, Deplazes P 2018. Assessing the contamination of food and the environment with *Taenia* and *Echinococcus* eggs and their zoonotic transmission. Current Clinical Microbiology Reports https://doi.org/10.1007/s40588-018-0091-0
[2] Information on fox tapeworm: www.paras.uzh.ch/infos, Expert group ESCCP_CH and guidelines for deworming of dogs and cats: http://www.esccap.ch

[3] Guggisberg, A., R., Alvarez Rojas, C., A., Kronenberg, P., A., Miranda, N., Deplazes, P.: A sensitive, one-way sequential sieving method to isolate helminths' eggs and protozoal oocysts from lettuce for genetic identification. Pathogens 9, 0624 (2020):
In 2020, a project developed and validated a simple and practical method for the simultaneous detection of parasite stages from fresh produce (lettuce) for human consumption by a one-way isolation test kit followed by genetic identification (PCR, sequencing). The detection limits in the recovery experiments was 4 *Toxocara* eggs, 2 *E. multilocularis* eggs and 18 *T. gondii* oocysts. In a field study, helminth DNA was detected in 14 of 157 lettuce samples including *Hydatigenia taeniaeformis* (4 samples), *T. polyacantha* (3), *T. martis* (1), *E. multilocularis* (2, 1.2%) and *Toxocara cati* (4). *Toxoplasma gondii* was detected in 6 of 100 samples. The developed diagnostic strategy is highly sensitive for the isolation and genetic characterization of a broad range of parasite stages from lettuce.

General evaluation: *Francisella*

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

Tularemia in humans is a notifiable disease (ordinance of the Federal Department of Home Affairs (FDHA) on notification of observations on communicable diseases). Positive test results have to be declared to the Federal Office of Public health (FOPH) and the cantonal physicians. Physicians have to fill in a form concerning information on manifestation and exposure and to send it to the cantonal physician who forwarded this form to the Federal Office of Public Health. Tularemia is also notifiable in animals (TSV, Article 5: disease to be monitored).

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

117 cases of tularemia were registered at the Federal Office of Public Health in 2020. The case numbers doubled between 2016 and 2017 but stabilized since then. The notification rate was 1.4 cases per 100'000 inhabitants. 64 cases were men and 52 women, aged between 1 and 82 years old. The cases cluster in the canton of Zurich, Aargau, Bern and St. Gallen.

The reasons for the increase of reported cases are unclear. Tick bite was the most frequent single source of infection. Other reported sources of infection for humans are contact to wild animals (mainly mice and hares), bites of insects as well as the inhalation of dust/aerosol and contaminated water or food. Those at risk are mainly gamekeepers, hunters, people who work in agriculture or forestry, wild animal veterinary practitioners and laboratory staff.

Tularemia affects mainly wild animals, especially hares and rodents but also zoo animals. In 2020, 12 cases in animals were reported to the FSVO by cantonal veterinarians, all in hares. After the increase in reported numbers in the year 2018 the number of reported cases dropped again. The increase in the year 2018 was probably due to much more tested hares rather than an increase in the positivity rate. Laboratory data show, that the positivity rate was in 2019 and 2020 (46%) even higher than in the year 2018 (38%).

In the year 2019*, Francisella tularensis subsp. holarctica* was detected in Switzerland in urine of a cat with urinary tract infection (see case report). This is a very rare event. Published cases of *F. tularensis* in cats so far were related to North America (Baldwin et al., 1991; Woods et al., 1998; Farlow et al., 2001; DeBey et al., 2002; Staples et al., 2006). *F. tularensis subsp. holarctica* seems to be of minor importance, in North America mainly *F. tularensis subsp. tularensis* were found.

In 2020, no monitoring in ticks was conducted. In the year 2019, between April and August ticks were collected in a specific area in the canton of Bern. The ticks were homogenized in pools and analyzed by PCR. Two samples were positive for *F. tularensis subsp. holarctica*. In a study from 2018 the prevalence of *F. tularensis* in ticks in Switzerland was estimated to be around 0.02%.

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

None.

4. Additional information

[1] See previous national reports for additional information and website of the FSVO or website of the FOPH.

[2] Wittwer et al, 2018: Population Genomics of *Francisella tularensis subsp. holarctica* and its implication on the eco-epidemiology of Tularemia in Switzerland; Frontiers in Cellular and Infection Microbiology, Volume 8, Article 89.

[3] Publication in the FOPH Bulletin 18/18 from 30.04.2018.

[4] Sonja Kittl, et al.: First European report of *Francisella tularensis subsp. holarctica* isolation from a domestic cat. Vet Res . 2020 Aug 31;51(1):109.

[5] Peterhans, S., Ghielmetti, G., Botta, C., Friedel, U., Hilbe, M., Schneeberger, M., Stephan, R. (2018). Case of the month: Tularemia in a European brown hare (*Lepus europaeus*): a disease with an increasing veterinary public health relevance. Schweizer Archiv für Tierheilkunde 160, 673–675.

General evaluation: *Listeria*

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

Listeriosis in humans is notifiable (ordinance of the Federal Department of Home Affairs (FDHA) on notification of observations on communicable diseases). People mainly affected are adults aged over 60.
Listeriosis in animals is notifiable (TSV, Article 5: disease to be monitored).

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

In 2020, 58 human cases were reported (notification rate: 0.7 per 100'000 inhabitants). Thus, the number of notifications was within the range of normal annual fluctuations. Persons over 65 years of age remained the most affected age group. In the first half of the year, there was an outbreak with 22 cases of listeriosis. Food, mainly cheese products, from a certain cheese dairy was identified as the probable source of infection.
In 2020, 16 cases of animal listeriosis were reported to the FSVO by cantonal veterinarians. The reported cases were within the range of previous years. Affected are mainly ruminants: cattle (55%), goats (21 %) and sheep (17%). Information, on how many animals were tested in veterinary diagnostic laboratories in the context of clinical investigation is available in the data tables in the annexes.
Listeria monocytogenes is repeatedly leading to disease in humans. Even if the number of cases is relatively small, the high lethality makes it very significant. Monitoring the occurrence of *Listeria* spp. at different stages in the food chain is extremely important to prevent infections due to contaminated food. Dairy products such as cheeses made from unpasteurized milk or soft cheeses that are eaten with the rind on are potential sources of infection. With regard to *Listeria* spp. in the dairy industry, the situation has remained on a constantly low level for many years. In animals, the reported listeriosis cases have remained stable at a low level over the last years.

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

None.

4. Additional information

See previous national reports for additional information and website of the FSVO.

Description of Monitoring/Surveillance/Control programmes system: dairy products and *Listeria monocytogenes*
1. Monitoring/Surveillance/Control programmes system[(a)]
Agroscope Food Microbial Systems (MSL) is running a *Listeria* monitoring program (LMP) for early detection of *Listeria* spp. in production facilities. Products are tested for *Listeria* spp. as part of the quality assurance programs.
2. Measures in place[(b)]
The concerned food has to be confiscated and destroyed. Depending on the situation, the product is recalled and a public warning is submitted. The implementation of a hygiene concept in order to control the safety of the products is in the responsibility of the producers. All larger cheese producers have a certified quality and hygiene management system in place.
3. Notification system in place to the national competent authority[(c)]
None.
4. Results of investigations and national evaluation of the situation, the trends [(d)] and sources of infection[(e)]
In the framework of the *Listeria* Monitoring Program (LMP), 710 samples (environmental and cheese samples) were tested for the presence of *Listeria* spp. in 2020. *Listeria monocytogenes* were detected 3 times (0.4%). Other species of *Listeria* were found in 14 samples (2.0%).
5. Additional information
None.

General evaluation: *Salmonella*

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

Salmonellosis in humans is notifiable (ordinance of the Federal Department of Home Affairs (FDHA) on notification of observations on communicable diseases).
Salmonellosis in animals is notifiable (TSV, Article 4: disease to be controlled).

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

In 2020, 1'270 human cases were reported representing a notification rate of 15 cases per 100'000 inhabitants (2019: 1'546 cases or 18/100'000), which is a slight decrease, probably multifactorially influenced by the COVID-19 pandemic. As in previous years, the most affected age group was children under 5 years. The typical seasonal increase of notifications during summer and autumn was also observed in 2020. The most frequently reported serovars remained *S.* Enteritidis (29%), *S.* Typhimurium (16%) and monophasic *S.* Typhimurium (1,4,[5],12,i:-) (12%).
The longstanding *S.* Enteritidis control program showed its effect in the decline of human cases in the years around 2000. However, salmonellosis is still the second most frequent zoonosis in Switzerland. Stepping up and expanding the national control program might be needed in order to further reduce human salmonellosis cases.

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

Control measures were implemented according to Commission Regulations (EC): No. 200/2010 (breeding flocks), No. 517/2011 (laying hen flocks), No. 200/2012 (broilers) and No. 1190/2012 (turkeys).
The Hygiene Ordinance lays down limits for *Salmonella* in various foods. If these limits are exceeded, the cantonal laboratories are required to report this to the FSVO. The foods affected are confiscated and destroyed. Depending on the situation, the products may be recalled, and a warning is issued to the population. All larger manufacturers have a certified quality and hygiene management system in place.

4. Additional information

See previous national reports for additional information and website of the FSVO.

Description of Monitoring/Surveillance/Control programmes system: All animals and *Salmonella* spp.

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

Salmonellosis is notifiable in all animals (passive surveillance). Animal keepers, livestock inspectors, AI technicians, animal health advisory services, meat inspectors, slaughterhouse personnel, police and customs officers have to report any suspected case of salmonellosis in animals to a veterinarian. If *Salmonella* are confirmed by a diagnostic laboratory, this must be reported to the cantonal veterinarian. Cases in cows, goats or dairy sheep must be reported to the cantonal health and food safety authorities.

2. Measures in place[(b)]

If biungulates are affected, the sick animals must be isolated and the whole herd and the environment must be tested. Healthy animals from this herd may be slaughtered with a special official permit and subject to appropriate precautions at the slaughterhouse. Milk from animals that are excreting *Salmonella* must not be used for human consumption and may only be used as animal feed after pasteurization or boiling. If the disease occurs in animals other than biungulates, appropriate action must likewise be taken to prevent any risk to humans.

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

Salmonellosis in animals is notifiable (TSV, Art. 4: diseases to be controlled and Article 222-227).

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

Salmonellosis in all animals is regularly registered.
In 2020, 99 salmonellosis cases in animals were reported to the FSVO by cantonal veterinarians. As usual mainly cows, reptiles and dogs/cats were affected. After a peak of reported cases in the year 2016 (127 cases) the number of cases declined slightly again in the recent years to the level of about 100 cases per year. Reported cases mainly declined in cattle and dogs.
Information, on how many animals were tested in veterinary diagnostic laboratories in the context of clinical investigation is available in the data tables in the annexes.

5. Additional information

See previous national reports for additional information and website of the FSVO.

Description of Monitoring/Surveillance/Control programmes system: Poultry and *Salmonella* spp.

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

There is a control program in place based on Commission Regulation (EC) No. 200/2010 regarding breeding flocks with more than 250 places, Commission Regulation (EC) No. 517/2011 regarding laying hen flocks with more than 1'000 places, Commission Regulation (EC) No. 200/2012 regarding broilers with more than 333 m^2 floor space and Commission Regulation (EC) No. 1190/2012 regarding fattening turkeys with more than 200 m^2 floor-space. Subject to state control measures are *S.* Enteritidis, *S.* Typhimurium and monophasic *S.* Typhimurium (1,4,[5],12,i:-); for breeding flocks additionally *S.* Hadar, *S.* Infantis and *S.* Virchow.

2. Measures in place[(b)]

Control measures are taken according to the Swiss ordinance of epizootics (TSV, Article 255-261). If *Salmonella* serotypes subject to control measures are detected in the environment, there is a suspicion of *Salmonella* infection. In the event of a suspected infection, the official veterinarian samples 20 killed animals or fallen stock per flock and submits them to bacteriological testing for *Salmonella*. If *S.* Enteritidis, *S.* Typhimurium or monophasic *S.* Typhimurium (1,4,[5],12,i:-) are detected in the animal samples, or in the case of breeding flocks *S.* Hadar, *S.* Infantis and/or *S.* Virchow, a case of *Salmonella* infection is reported.
In this case, animal movements from this holding are prohibited (Article 69 TSV) in order to prevent spread of disease. The flocks must not be changed either by moving animals to other flocks or by introducing animals from other flocks.
In breeding flocks, the animals are culled and the eggs are no longer allowed to be used for breeding purposes. If laying hens, broilers or fattening turkeys are affected, the flocks can be culled or slaughtered. Fresh meat and eggs either have to be disposed of or subjected to treatment in order to destroy the *Salmonella* before being marketed as food.
The animal movement ban is lifted when all animals have been culled or slaughtered and the premises were cleaned and disinfected. Freedom of the premises from *Salmonella* should be proven by means of bacteriological testing. Vaccination is prohibited.

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

Salmonella infection in poultry is notifiable (TSV, Art. 4 and Article 255-261).

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

In 2020, 7 cases were reported in the framework of the control program in laying hens (2x *S.* Enteritidis, 1x *S.* Typhimurium) and broilers (1x *S*. Typhimurium, 2x monophasic *S.* Typhimurium (1,4,[5],12,i:-)), 1x double infection with *S.* Typhimurium and monophasic *S.* Typhimurium (1,4,[5],12,i:-)). Further 13 suspect cases (positive environmental samples not confirmed in animal samples) were detected:
10 in laying hens >1'000 places (*S.* Enteritidis (5x), *S.* Typhimurium (5x)),
1 in broilers > 333m^2 floor space (monophasic *S.* Typhimurium (1,4,[5],12,i:-)) (1x), and 2 in turkeys *(S.* Typhimurium (1x), *S.* Enteritidis (1x)) .
In addition, several serovars not covered in the control program were detected in environmental samples.
Outside from the control program, 4 smaller flocks were tested positive: in laying hens (*S.* Typhimurium (3x), *S.* Enteritidis (1x)). Furthermore, there were 4 suspect cases (*S*. Typhimurium (3x), *S.* Enteritidis (1x)) in small laying hen flocks in 2020.

The results of the control program show that the *Salmonella* prevalence in Switzerland is low. The target of max. 1% *Salmonella*-positive flocks regarding the controlled serovars in broilers, turkeys and breeding flocks as well as max. 2 % in laying hens could be reached each year according to Swiss law. Most cases occurred in laying hens. Switzerland wants to maintain the current situation by applying the aforementioned control measures.
5. Additional information
See previous national reports for additional information and website of the FSVO.

Description of Monitoring/Surveillance/Control programmes system: Poultry meat and *Salmonella*

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

The industry takes responsibility for the monitoring of the poultry meat production in a system of self-auditing following the HACCP principles. In addition, the Ordinance on Hygiene (SR 817.024.1) lays down limits for *Salmonella* in various foods (food safety criteria and process hygiene criteria). Results of the *Salmonella* monitoring of the largest poultry slaughterhouses and poultry meat producers are available, covering more than 92% of the poultry meat production. Samples are taken several times a year at random. Carcasses, fresh poultry meat, poultry meat preparations and poultry meat products were tested at different stages such as slaughterhouses, cutting plants, and processing plants. No data of imported poultry meat was included in the analysis.

2. Measures in place[(b)]

If the limits of the Ordinance on Hygiene (food safety criteria) are exceeded, the cantonal laboratories are required to report this to the FSVO. The foods affected are confiscated and destroyed. Depending on the situation, the products may be recalled and a warning is issued to the population.

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

None.

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

Within the framework of the self-auditing system of the poultry meat industry, a total of 2'794 examinations including samples from broiler and turkey meat (carcasses and meat) were performed in 2020. Of them, 36 (1.3%) proved to be positive for *Salmonella* spp. (2019: 0.5%).
The *Salmonella*-positive samples comprised: 25x *Salmonella* Albany, 5x *Salmonella* Agona, 3x *Salmonella* Enteritidis, 1x *Salmonella* Typhimurium, 1x *Salmonella* Hadar and 1x *Salmonella* Infantis, see also *Salmonella* poultry meat table. *Salmonella* Albany, *Salmonella* Infantis and *Salmonella* Enteritidis originated from turkey carcasses and turkey meat. *Salmonella* Agona was found on broiler carcasses, in fresh broiler meat (with skin) and in mechanically separated broiler meat. *Salmonella* Hadar originated from broiler carcasses and *Salmonella* Typhimurium from fresh broiler meat (with skin).
Of all 2'109 broiler meat samples (carcasses and meat), 7 (0.3%) proved to be positive for *Salmonella*. Thereby, 4 (0.5%) of the 780 tested broiler carcass samples and 3 (0.2%) of the 1'329 tested broiler meat samples were positive for *Salmonella*.
Furthermore, 29 (4.2%) of all 685 turkey meat samples (carcasses and meat) proved to be positive for *Salmonella*. Thereby, 3 (2.4%) of the 125 tested turkey carcass samples and 26 (4.6%) of the 560 tested turkey meat samples were positive.

5. Additional information

None.

General evaluation: Rabies virus

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

Rabies in humans is a notifiable disease (ordinance of the Federal Department of Home Affairs (FDHA) on notification of observations on communicable diseases).
Rabies in animals is a disease to be eradicated (TSV, Art. 3 and Art. 142-149). Government action is taken to control the disease. An animal is rabies diseased if the analytical method (see additional information) gives a positive result. Anyone who sees a wild animal or stray pet that behaves in a way that appears suspiciously like rabies is required to report this to the police, hunting authorities or a veterinarian. Also animal keepers must report pets that behave in a way that is suspiciously like rabies to a veterinarian.

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

According to the definitions of the OIE and WHO (no cases for at least two years) the territory of Switzerland is considered to be free of rabies. In 2020, no cases of rabies were registered in Switzerland neither in humans nor in animals. The last imported human rabies case in Switzerland occurred in the year 2012. Travelling to countries with rabies can pose a threat to people, especially if they are unaware of this risk. Human infections of tourists (who usually are not vaccinated against rabies) in rabies countries were reported in the past.
In 2020, 769 sera from humans were tested for neutralizing antibodies at the national reference laboratory for rabies (Swiss Rabies Center). 459 times (52%) antibody titers were controlled after pre-expositional immunization, 288 times (46%) the blood was checked after post exposure prophylaxis (PEP), 4 times the person was a clinical suspect case and in 18 cases no reason for the investigation was given. This amount of testing is lower than in previous years. This might be a side-effect of lower travel activities during the Corona pandemic 2020.
Vaccination of dogs is recommended (and common) in Switzerland, but not mandatory, if the dog does not travel abroad. (Re-)Import conditions for cats, dogs and ferrets are implemented according to the EU regulation 998/2003/EC. 1393 sera of dogs and cats were tested in the context of travelling procedures in order to detect the level of neutralizing antibodies. This was also lower than in recent years.
Regularly dogs and cats are illegally imported from rabies risk countries. In Switzerland, 31 dogs and 6 cats were detected in in 2020. None of these 37 animals were rabies cases. In total, 110 animals were tested for rabies at the national reference laboratory (Swiss Rabies Center) in 2020. The samples originated mainly from dogs (55%), cats (10%), bats (10%) and foxes (14%). All tests were negative.
Illegally imported animals pose a certain risk for pets and their owners in the EU and Switzerland and lead to timely investigations, euthanisation of contact animals, post exposure prophylaxis (PEP) and prophylactic vaccinations.
Rabies in bats in Switzerland is a very rare event. In the last 40 years 4 bats were tested positive for rabies. Thus, bat rabies remains a source, albeit little, of infection for animals and humans in Switzerland.

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

The situation in neighboring countries and the EU is closely monitored. In addition, close collaboration with neighboring countries is important especially with regards to control measures in wild animals. People are instructed to be cautious in the handling of diseased and abnormally behaving wild animals.
Animals with suspect symptoms originating from countries with urban rabies are tested for rabies.

4. Additional information

See previous national reports for additional information and website of the FSVO.
[1] Diagnostic/analytical methods used: All tests concerning rabies are carried out in the reference laboratory, the Swiss Rabies Center http://www.ivv.unibe.ch/Swiss_Rabies_Center/swiss_rabies_center.html. It is authorized by the EU for rabies testing, see http://ec.europa.eu/food/animal/liveanimals/pets/approval_en.htm. For rabies virus detection immunfluorescence (FAT) and virus isolation using murine neuroblastoma cell culture (RTCIT) is used and the rabies antibody detection is carried out using the rapid fluorescent focus inhibition test (RFFIT) as described in the OIE manual, see http://www.oie.int/eng/normes/mmanual/a_00044.htm.
[2] Swiss Rabies Center: http://www.ivv.unibe.ch/content/diagnostics/swiss_rabies_center/_
[3] http://www.who-rabies-bulletin.org/ Queries/
[4] Nouveau schéma de vaccination contre la rage pour les voyageurs 2018- Forum Médical Suisse (medicalforum.ch)

General evaluation: *Toxoplasma*

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

Toxoplasmosis in humans is not notifiable. Thus, no data on the frequency of human toxoplasmosis are available. Some sporadic human cases have however been reported.
In animals, toxoplasmosis is notifiable (TSV, Article 5: disease to be monitored and Article 291). Veterinarians and diagnostic laboratories must report any suspected case of toxoplasmosis to the cantonal veterinarian, who may issue an order for the suspected case to be investigated.

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

In 2020, 6 cases in animals (3 in cats and 1 each in a lynx, a goat and a monkey) were reported to the FSVO by cantonal veterinarians. In these cases, the parasite was confirmed by molecular methods. Only serologic evidence of infection was not reported. The reported cases were within the range of previous years. In the past ten years never more than 7 cases per year were recorded. Affected animals were mainly cats (26%), goats (19%), sheep (14%) and monkeys (10%). In non-immune sheep and goats (first-time infection) *T. gondii* is regarded as a major cause of abortion and loss of lambs. Information, on how many animals were tested in veterinary diagnostic laboratories in the context of clinical investigation is available in the data tables in the annexes. In addition, each year, over 1000 routine coprology of cats are carried out.
While infections with *T. gondii* are widespread in some meat-producing animals such as small ruminants and South American camelids, in which high seroprevalences (50-80%) were observed, low seroprevalences were observed in pigs under conventional management systems (1-6%) during the last years in Switzerland.
Cats are the main contaminators of the environment. Caution is generally called for when faced with cat faeces.
A project in 2020 developed and validated a simple and practical method for the simultaneous detection of parasite stages from fresh produce (lettuce) for human consumption. *Toxoplasma gondii* was detected in 6 of 100 samples (6%), see also additional information below.
Humans become infected by the oral route, through the uptake of infectious oocysts from the environment (i.e. vegetables / lettuce contaminated with oocysts) or by means of tissue cysts from the consumption of raw or undercooked meat from infected animals.
Pregnant women are informed about the recommendations from the FOPH to disclaim on raw or insufficient cooked meat and that caution is generally called for when faced with cat faeces (and potentially contaminated surroundings).

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

None.

4. Additional information

[1] See previous national reports for additional information and website of the FSVO.
[2] Guggisberg, A., R., Alvarez Rojas, C., A., Kronenberg, P., A., Miranda, N., Deplazes, P.: A sensitive, one-way sequential sieving method to isolate helminths' eggs and protozoal oocysts from lettuce for genetic identification. Pathogens 9, 0624 (2020): In 2020 a project developed and validated a simple and practical method for the simultaneous detection of parasite stages from fresh produce (lettuce) for human consumption by a one-way isolation test kit followed by genetic identification (PCR, sequencing). The detection limits in the recovery experiments were 4 *Toxocara* eggs, 2 *E. multilocularis* eggs and 18 *T. gondii* oocysts. In a field study, helminth DNA was detected in 14 of 157 lettuce samples including *Hydatigenia taeniaeformis* (4 samples), *T. polyacantha* (3), *T. martis* (1), *E. multilocularis* (2, 1.2%) and *Toxocara cati* (4). *Toxoplasma gondii* was detected in 6 of 100 samples.

The developed diagnostic strategy is highly sensitive for the isolation and genetic characterization of a broad range of parasite stages from lettuce.
[3] Master thesis of Fabienne Holenweger, 2020, at the Institute of Parasitology Bern: *Toxoplasma gondii* and *Neospora caninum* infections in sheep and goats in Switzerland. (not yet published)
[4] Basso W. et al.: *Toxoplasma gondii* and *Neospora caninum* infections in South American camelids in Switzerland and assessment of serological tests for diagnosis. Parasites and Vectors. 2020;13(1):256.
[5] Lucien Kelbert et al.: Seroprevalence of *Toxoplasma gondii*, hepatitis E virus and *Salmonella* antibodies in meat juice samples from pigs at slaughter in Switzerland. Journal of Food Protection, submitted.
In a study in 2020, diaphragm muscles of Swiss fattening pigs were collected in three Swiss abattoirs from a total of 188 farms. Two randomly chosen pig carcasses per farm were selected. On the basis of the slaughter data, the production system and the canton of origin were noted, comparing indoor (n=120) and free-range farming (n=68), and regional allocation. The meat juice of these samples was analyzed for pathogen-specific antibodies using commercial enzyme-linked immunosorbent assay (ELISA) kits. The seroprevalence for *T. gondii* was 1.3%.

General evaluation: *Trichinella*

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

Trichinellosis is notifiable in humans (ordinance of the Federal Department of Home Affairs (FDHA) on notification of observations on communicable diseases) and in animals (TSV, Article 5: disease to be monitored).
The testing of slaughter pigs (as well as wild boars and horses) for trichinellosis is mandatory (Commission Regulation (EC) No. 2075/2005). Exceptions are made for slaughterhouses of small capacity, which do not export to the EU. Pig meat not being tested for trichinellosis and originating from these small slaughterhouses is labeled with a special stamp and cannot be exported.

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

In 2020, four human cases were reported. The FOPH receives very few reports of human trichinellosis, there were never more than 4 human cases notified per year. Usually, the *Trichinella* species is not known as cases are only tested by serology. Thus, trichinellosis in humans is very rare in Switzerland and often associated with infections acquired abroad.
In 2020, 2'100'734 slaughter pigs were tested for *Trichinella*. All results were negative. For many decades*, Trichinella* infections have not been detected in domestic pigs. Due to the extensive testing over the last years with only negative results, Swiss slaughter pigs are projected to be free of *Trichinella.* In addition, 1'286 horses and 7'343 wild boars were also tested for trichinellosis. All results were negative.
Trichinella are sporadically detected in the wild animal population other than wild boars. In 2020, 6 cases of *Trichinella* infections were reported in wild animals to the FSVO by the cantonal veterinarians (4x in lynx, 2x in wolves). Never more than 6 cases were reported per year in carnivorous wild animals, mainly in lynx (about 90%). Up to the year 2020, the nematodes involved were always *Trichinella britovi.* In 2020, *T. spiralis* was detected for the first time in a wild animal (a lynx) in Switzerland.
T. britovi circulates in the wild animal population since decades. The year 2020 showed that also *T. spiralis* can be detected, although this still is estimated to be a rare event. So far, no wild boar was tested positive for *Trichinella*. However, a research study found antibodies against *Trichinella* in a few wild boars, showing that also wild boars can have contact to *Trichinella*.
Thus infections in wild boars in Switzerland cannot be completely excluded. Therefore, meat especially from wild boars should not be consumed raw. Although the risk of transmission from wild animals to domestic pigs is negligible, the surveillance of trichinellosis in wild animals is crucial.

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

None.

4. Additional information

See previous national reports for additional information and website of the FSVO.

Description of Monitoring/Surveillance/Control programmes system: Horses and *Trichinella*
1. Monitoring/Surveillance/Control programmes system[(a)]
The investigation of horses is mandatory (Swiss ordinance of slaughter and meat control, VSFK, Art. 31). Slaughtered horses are tested during or immediately after the slaughter process. A piece of tongue is used to detect *Trichinella* spp. larvae using the artificial digestion method according to Commission Regulation (EC) No. 2075/2005.
2. Measures in place[(b)]
A positive tested animal would be traced back and the contaminated carcass would be disposed.
3. Notification system in place to the national competent authority[(c)]
Trichinellosis in animals is notifiable (TSV, Article 5).
4. Results of investigations and national evaluation of the situation, the trends [(d)] and sources of infection[(e)]
In 2020, 1'286 horses (79.1% of all slaughtered horses) were tested for *Trichinella*. All results were negative. There are no observations that would challenge the freedom of Swiss horses from trichinellosis.
5. Additional information
None.

Description of Monitoring/Surveillance/Control programmes system: Pigs and *Trichinella*

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

The investigation of slaughter pigs and wild boars is mandatory (Swiss ordinance of slaughter and meat control, VSFK, Art. 31). All pigs slaughtered in slaughterhouses that are approved to export to the EU are tested for *Trichinella*. Exceptions are made for small slaughterhouses of the national market, which do not export to the EU.
Census sampling with the exception of pigs slaughtered in small slaughterhouses and only produced for the local market, is done during or immediately after the slaughter process.
A piece of pillar of the diaphragm is taken at slaughter in order to detect *Trichinella* spp. larvae using the artificial digestion method or the latex agglutination test according to Commission Regulation (EC) No. 2075/2005.

2. Measures in place[(b)]

A positive tested batch at a slaughterhouse would be traced back and contaminated carcasses would be disposed.

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

Trichinellosis in animals is notifiable (TSV, Article 5).

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

In 2020, 2'100'734 slaughter pigs (92.0% of all slaughtered pigs) were tested for *Trichinella*. All results were negative. Although the risk of the parasite cycle crossing from the wild animal population into the conventional domestic pig population can be regarded as negligible, the risk has to be categorized differently or higher with regard to the special situation of grazing pigs. As all results were negative since many years in domestic pigs, it is highly unlikely that *Trichinella* infections acquired from domestic pig meat originating from Switzerland will occur in humans.

5. Additional information

None.

General evaluation: Shiga toxin-producing *E. coli* (STEC)

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

Detection of STEC in humans is notifiable (ordinance of the Federal Department of Home Affairs (FDHA) on notification of observations on communicable diseases). Children under 5 years were the age group mostly affected, ranging between 3 and 9 reports per 100'000 inhabitant.
Ruminants are an important reservoir for STEC. Shiga toxin genes are frequently found in (young) Swiss cattle at slaughter, but isolation of STEC strains may be a significant challenge.
Recent studies investigating the occurrence of STEC in food samples comprised raw milk cheeses, raw meat products, raw milk, fresh herbs and flour.
In the year 2017, 51 raw milk cheeses and 53 raw meat products from 63 different farms in 9 different Swiss cantons were tested. STEC were isolated from 2.0% (1 out of 51) of the raw milk cheeses and in 1.9% (1 out of 53) of the raw meat products.
In the same year (2017), 73 samples from raw milk sold directly from farms to consumers were tested for their microbiological quality. STEC were thereby not found in any of the 73 raw milk samples (61 from raw milk vending machines and 12 pre-filled bottles).
With regard to fresh herbs collected at retail level, a study (master thesis P. Kindle, 2017) examining the occurrence of selected bacterial pathogens did not find STEC in 70 samples (16 of them imported from foreign countries).
In the year 2018, 70 flour samples tested for STEC. The reason for this was that dough made from wheat flour had led to STEC infections in the USA. Nine of the 70 flour samples tested positive for genes encoding shiga toxin (*Stx*). In an additional study, 93 flour samples collected at Swiss retail markets, 10 (10.8%) tested positive for stx_1 and/or stx_2 by PCR assay. 10 STEC strains were isolated and further characterized by PCR assays and Whole Genome Sequencing (WGS).

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

In 2020, 728 laboratory confirmed cases of human STEC infections were registered. The notification rate was 8.4 per 100'000 inhabitants (2019: 999 cases, 11.6/100'000). The slight decrease since last year was probably multifactorially influenced by the COVID-19 pandemic. There were more women (56%) than men (44%) affected. No source of infection could be identified. The number of HUS is slightly reduced with 17 cases in 2020 (21 cases in 2019), thereof 7 were children under 5 years of age and 5 were adults over 65 years of age.
Reported STEC cases in humans are on the rise since the year 2014. As most of the laboratories did not routinely test for STEC until then, it is very likely that the impact of STEC was underestimated. New diagnostic tools might have led to more samples being analyzed for STEC. An emergence of STEC O80:H2, an uncommon hybrid pathotype, was seen in Switzerland over the last years.
In view of the low infectious dose of STEC (<100 microorganisms) an infection via contaminated food or water is easily possible. Strict maintenance of good hygiene practices at slaughter and in the context of milk production is of central importance to ensure both public health protection and meat quality. In addition, thorough cooking of critical foods prevents infection with STEC originally present in raw products.

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

Several studies relating to shiga toxin-producing *E. coli* in foodstuffs, in humans and animals were performed by the national reference laboratory to generate new information in the past years.

4. Additional information

[1] See previous national reports for additional information and website of the FSVO.

[2] Master thesis “Detection of STEC, *Salmonella*, MRSA, ESBL-producing Enterobacteriaceae in Swiss animal petting zoos”, 2020, at the Institute for Food Safety and Hygiene (ILS), Vetsuisse Faculty University of Zurich:
Animal petting zoos and farm fairs provide the opportunity for children and adults to interact with animals, but contact with animals carries a risk of exposure to zoonotic pathogens and antimicrobial-resistant bacteria. The aim of this study was to assess the occurrence of Shiga toxin-producing *Escherichia coli* (STEC), *Salmonella*, extended-spectrum β-lactamase (ESBL)-producing Enterobacteriaceae and methicillin-resistant Staphylococcus aureus (MRSA) in animal faeces from six animal petting zoos and one farm fair in Switzerland. Furthermore, hygiene facilities on the venues were evaluated. Of 163 faecal samples, 75 contained stx1, stx2 or stx1/stx2 genes, indicating the presence of STEC. Samples included faeces from sika deer (100%), sheep (92%), goats (88%), mouflons (80%), camels (62%), llamas (50%), yaks (50%), pigs (29%) and donkeys (6%), whereas no *stx* genes were isolated from faeces of calves, guinea pigs, hens, ostriches, ponies, zebras or zebus. *Salmonella enterica* subsp. *enterica* serovar Stourbridge (*S.* Stourbridge) was detected in faecal samples from camels. A total of four ESBL-producing *E. coli* strains were isolated from faeces of goats, camels and pigs. PCR and sequencing identified the presence of $bla_{CTX\text{-}M\text{-}15}$ in three and $bla_{CTX\text{-}M\text{-}65}$ in one *E. coli*. Antimicrobial resistance profiling using the disk diffusion method revealed two multidrug-resistant (MDR) *E. coli* with resistance to ciprofloxacin, gentamicin and azithromycin, all of which are critically important drugs for human medicine. Multilocus sequence typing identified *E. coli* ST162, *E. coli* ST2179, extraintestinal high-risk *E. coli* ST410 and *E. coli* ST4553, which belongs to the emerging extraintestinal clonal complex (CC) 648. No MRSA was detected. On all animal petting venues, there were inadequacies with regard to access to hygiene information and handwashing hygiene facilities. This study provides data that underscore the importance of hygiene measures to minimize the risk of transmission of zoonotic pathogens and MDR, ESBL-producing *E. coli* to visitors of animal petting venues.
[3] 2020 a master thesis “Prevalence of Shigatoxin-producing *E. coli* in fecal samples of Llama (*Lama glama*) and Alpaca (*Vicugna pacos*) in Switzerland” was conducted at the Institute for Food Safety and Hygiene (ILS), Vetsuisse Faculty University of Zurich: A total of 96 pooled fecal samples were collected from 22 different farms in different regions of Switzerland. For the occurrence of STEC, 9.4% (9/96) of the fecal samples were positive for *stx*1 only, 41.7% (40/96) for *stx*2 only and 3.1% (3/96) for both *stx*1 and *stx*2. Five STEC strains were isolated and further characterized by Whole Genome Sequencing, resulting in two strains of the serotype O166:H28, two others belonging to the serotype O76:H19, and one of serotype O150:H2. All five strains harbored *stx*1 and *ehx*A genes, while only three strains were positive for *stx*2 as well. Only in the O150:H2 strain the *eae* gene could be detected.

General evaluation: West Nile virus

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

WNF in humans is notifiable (ordinance of the Federal Department of Home Affairs (FDHA) on notification of observations on communicable diseases) and in animals (TSV, Article 5: disease to be monitored).

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

Up to date no autochthonous cases in humans or animals were reported in Switzerland. Since 2010 four confirmed human cases were reported in Switzerland, all acquired their infection abroad (2012: 1x Kosovo; 2013: 1x Croatia, 2019: 1x Egypt, 2020: 1x Spain).
In 2020, 13 horses were tested negative for WNV. In general horse should only be examined for WNV if they show neurological symptoms of unknown origin and if they were not vaccinated.
In 2020 10 birds, all originating from zoos, were tested for WNV using RT-qPCR at the National Reference Center for Poultry and Rabbit Diseases, University of Zurich.
40 FTA-cards which were placed in mosquito traps, in the canton Ticino from July until September 2020, and in which in total 1296 mosquitos were catched, were screened for Flavivirus, all negative for WNV. In 2019 62 FTA-cards and in the year 2018 72 FTA-cards were tested negative for WNV.
The FTA-cards contain a sugar solution. If consumed by the mosquitoes, the saliva, which might contain virus, of the mosquitos gets into the FTA-cards. In the saliva contained virus is inactivated and fixed on the FTA-card In one FTA-card from 2020 Usutu-Virus was found, as in 2019.
In addition, further 1117 mosquitoes were catched in a different type of mosquito traps (so called CDC traps). All mosquitoes tested negative for WNV.
Up to date there were no autochthonous cases of WNF reported. However, it cannot be excluded that WNV is circulating in Switzerland, especially in wild birds and mosquito populations.

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

Disease awareness in Switzerland was strengthened. The WNF situation - with a special focus on neighboring countries – is evaluated regularly. If cases in animals or humans appear, the Federal Food Safety and Veterinary Office and the Federal Office of Public Health will inform themselves immediately. A vaccine for horses was approved in 2011.

4. Additional information

See previous national reports for additional information and website of the FSVO.

General evaluation: *Yersinia*

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

Yersiniosis in humans is not notifiable. In animals, yersiniosis is notifiable (TSV, Article 5: disease to be monitored and Article 291).

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

No official data for human case reports are available because, in Switzerland, yersiniosis is not a notifiable disease. However, the number of human samples sent to the national reference laboratory NENT are at least an indicator for the recent situation. In 2020, NENT tested 72 human samples positive for *Yersinia* which was within the range of the usual annual fluctuation. They found 70 *Y. enterocolitica,* 1 *Y. intermedia and* 1 *Y. fredericksenii.*

In 2020 17 cases of yersiniosis in animals were reported to the FSVO by cantonal veterinarians (8 in dogs, 2 in antelopes, 2 in guinea pigs and 1 each in cattle, pigs, hares and cats). In the last 10 years never more than 17 cases per year were reported: affected were mainly dogs (49%), cattle (10%), cats (6%), pigs (6%) and guinea pigs (6%).

Information, on how many animals were tested in veterinary diagnostic laboratories in the context of clinical investigation is available in the data tables in the annexes.

In a countrywide survey conducted in 2013 the overall prevalence of *Y. enterocolitica* in Swiss slaughter pigs was 56% using PSB enrichment and alkaline treatment for isolation. Other isolation methods are significantly less sensitive. Y. enterocolitica bioserotype 4/O:3 (74%) was the most common bioserotype in this study, followed by bioserotype 3/O:5,27 (17%). Data on contamination rates of Swiss pig and beef meat are not available.

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

None.

4. Additional information

[1] See previous national reports for additional information and website of the FSVO.

[2] Katharina Meidinger, 2013: Countrywide survey on the detection and biotype distribution of *Yersinia enterocolitica* from slaughter pigs in Switzerland, Inaugural Dissertation to be rewarded the Doctoral Degree of the Vetsuisse Faculty University of Bern.

[3] M Schneeberger et al., 2015: Virulence-associated gene pattern of porcine and human *Yersinia enterocolitica* biotype 4 isolates. Int J Food Microbiol, 2015, 198:70-4.

Food-borne Outbreaks

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

The Swiss Federal Office of Public Health (FOPH) coordinates the national surveillance of communicable diseases. Notifications of physicians and laboratories are made to cantonal (regional) health authorities and to the FOPH under the provisions of the public health legislation, namely the Ordinance on Disease Notification of December 1 2015. Under this scheme, data provided for each notification depend on its supplier: (i) laboratories report diagnostic confirmations (subtype, method, material) while for selected diseases (ii) physicians additionally cover the subsidiaries of clinical diagnosis, exposition, development and measures. Besides the case-oriented reporting, physicians also have to report observations of unexpected clusters of any communicable disease. At the FOPH, the combined notifications of laboratories and physicians are analyzed and published in the weekly Bulletin.

The surveillance of food-borne infectious agents follows the mandatory system. The laboratories are required to report identifications of *Salmonella* causing gastroenteritis, *Salmonella* Typhi, *Salmonella* Paratyphi, *Campylobacter spp., Shigella* spp., verotoxin-producing *Escherichia coli*, *Listeria monocytogenes*, *Clostridium botulinum* and hepatitis A virus. A complementary notification by physicians is required for typhoid/paratyphoid fever, diseases associated with verotoxin-producing *Escherichia coli*, botulism, hepatitis A. Following a modification of the Ordinance on Disease Notification, laboratories are additionally required to report identifications of *Trichinella* spp. since January 1 2009 and hepatitis E virus since January 1 2018.

Basically, the responsibility for outbreak investigations lies with the cantonal authorities. Relevant data of food-borne outbreaks are reported to the Federal Food Safety and Veterinary Office (FSVO) in a standardized format as soon as the investigations are accomplished. On request, the FSVO and FOPH offer the cantons their expertise in epidemiology, infectious diseases, food microbiology, risk assessment and risk management. However, under the Federal Law on the Control of Human Communicable Diseases of Man and the Federal Law on Food-Stuffs and Utility Articles, the central government, respectively the FSVO and FOPH, have the duty to supervise the enforcement of the concerned legislations. In cases of outbreaks which are not limited to the territory of one canton, the federal authorities have the competence to coordinate, and if necessary, to direct control actions and information activities of the cantons. In such a situation, the concerned federal offices can conduct their own epidemiological investigations in cooperation with national reference laboratories. In the field of food-borne diseases the Federal Offices are supported by the National Centre for Enteropathogenic Bacteria and *Listeria* (NENT). This reference laboratory disposes of the facilities, techniques and agents required not only to confirm results from other laboratories but also for epidemiological typing (serotyping and molecular typing) of various bacterial pathogens.

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

The outbreaks were categorized according to the Manual for reporting on food-borne outbreaks in accordance with Directive 2003/99/EC.

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

In 2020, 13 outbreaks have been reported throughout Switzerland by the supervisory authorities. In total, more than 161 people became ill, at least 36 people were hospitalized and 10 deaths occurred. The number of outbreaks reported in Switzerland is relatively stable and remains very low.

In most cases, it was not possible to identify the infectious agent that caused the outbreaks. And in more than half of the cases, the evidence implicating a particular food vehicle was not strong. Restaurants and similar settings for collective catering were the most frequent settings of outbreaks.

The available clinical data are not very good since investigations in this field are not in the main focus of the competent authorities.
In general, it is well known that systematic underestimation is made when monitoring food-borne illness (for example, not all patients consult a doctor and are not subject to biological fluid analysis). The announcement of the cases depends among other things on the number of patients, the severity of the disease, the possible hospitalizations associated with it as well as the collaboration of the various actors involved (patients, doctors, control authorities). Finally, outbreaks with a short incubation period are often detected faster than those with a longer incubation time.
We think that the number of cases reported to the federal authorities is too low to correspond to reality. The FSVO continues to raise awareness of the importance of reporting cases among the various authorities concerned and is setting up projects to provide them with the necessary investigative tools during such events.

4. Descriptions of single outbreaks of special interest

The nationwide outbreak of human listeriosis is noteworthy because, on the one hand, it is rather rare to be able to establish a link between a food consumed and sick people; on the other hand, 34 people were affected and the occurrence of 10 deaths underlines the serious nature of the case.
As early as January 2020, an unusual increase in listeriosis cases was reported and an investigation began to try to identify the source. In April, a cheese manufacturer reported to the cantonal laboratory the detection of *Listeria monocytogenes* from a sample of his soft cheese (Brie) made from pasteurized milk. The analysis was performed as part of the manufacturer's routine quality control practices, which are mandatory in Switzerland (Swiss Foodstuffs Act, Article 23). The genetic analysis performed, Whole Genome Sequencing (WGS), showed a link between the cheese isolate and the strain from the patient outbreak. The cantonal authorities started tracing the distribution chain of the cheese factory. The producer supplied several buyers who provide cheese to retailers throughout Switzerland. The buyers were requested to stop supplying products from this specific producer immediately.
Subsequent testing in the establishment then showed persisting environmental contamination throughout the cheese factory by this *Listeria monocytogenes* serotype 4b, sequence type 6, cluster type 7488. These results then led to a recall in early May of a range of different potentially contaminated cheeses. Production was immediately stopped. The last known case caused by this outbreak strain was sampled in mid-May 2020.
WGS played a key role in showing close relatedness between *Listeria* in cheese and in the environment and in linking cases of listeriosis from 2018 to the 2020 outbreak, for which no suspect food could be found despite investigations at that time. It should be noted that the collaboration of the various actors involved in the surveillance, such as the Federal Office of Public Health, the National Centre for Enteropathogenic Bacteria and *Listeria*, and the cantonal and federal food control authorities, played a crucial role and made it possible to clearly identify the source of infection in this outbreak.
In a rehabilitation clinic, 7 residents became ill within a few days. The symptoms consisted mainly of diarrhea and in 2 cases accompanied by vomiting. Analysis of the patients' stools showed the presence of *Campylobacter* and enterohaemorrhagic *Escherichia coli* (EHEC). No food could be directly implicated, but the investigation revealed that risky food, such as tartar, is distributed to patients in the clinic without ensuring good kitchen hygiene practices.
Following a meal served at a festive event, 48 out of 84 people became ill with the same symptoms: abdominal cramps, diarrhea, accompanied in some cases by headaches and nausea. A single dish was served: minced meat in sauce with pasta and grated cheese. No pathogens could be identified in the leftover sauce, cooked the day before the event, and the grated cheese, the other components of the

dish were no longer available. *Clostridium perfringens was* suspected by the investigators as well as an inadequate cooling process of the pre-prepared dish.
5. Control measures or other actions taken to improve the situation
In Switzerland, the number of outbreaks settled down on low level and it is therefore difficult to get a further decrease.
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
None.
7. Additional information
None.
(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.

Institutions and laboratories involved in antimicrobial resistance monitoring and reporting

The department of Animal Health of the Federal Food Safety and Veterinary Office (FSVO) is the competent authority to design, coordinate and report the AMR-Monitoring Program according to EFSA specifications. The competent cantonal veterinary offices are responsible for taking the caecal samples at slaughterhouses and sending them to the NRL. The competent cantonal chemists are responsible for taking the meat samples in retail stores and sending them to the NRL. The Centre for Zoonoses, Bacterial Animal Diseases and Antibiotic Resistance, University of Bern, Switzerland (ZOBA) is the NRL and responsible for the isolation of the bacteria and the AMR testing. All results are transmitted periodically to the Federal Laboratory Database Alis.

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

General Antimicrobial Resistance Evaluation

1. Situation and epidemiological evolution (trends and sources) regarding AMR to critically important antimicrobials[(a)] (CIAs) over time until recent situation

Overall, increasing and decreasing trends in antimicrobial resistance in zoonotic and indicator bacteria isolated from broiler and meat thereof were detected in comparison to 2018.
Antimicrobial resistance rates of *Campylobacter coli* from poultry showed an increase for all tested antimicrobials. *Campylobacter jejuni* showed no significant changes in resistance rates. Antimicrobial resistance rates of *Campylobacter coli* from chicken meat showed an increase in resistance rates for fluoroquinolones and a slightly decrease in tetracycline and streptomycin resistance rates. For *Campylobacter jejuni,* a striking increase in resistance rates for fluoroquinolones, streptomycin and tetracyclines were detected.
Antimicrobial resistance rates of indicator *E. coli* from poultry showed in general – except for fluoroquinolones- lower resistance rates compared to 2018. Resistance to cefotaxime, ceftazidime, meropenem and colistin was not detected.
With selective enrichment the detection rate of ESBL-producing *E. coli* in poultry decreased significantly from 30.6% in 2018 to 9.9% in 2020. ESBL-producing isolates showed a very high resistance rate to fluoroquinolones. Moreover, the overall detection rate of ESBL-producing *E. coli* in chicken meat decreased slightly from 34.9% in 2018 to 29.4% in 2020. ESBL-producing isolates showed very high resistance rate to fluoroquinolones, too.
With selective enrichment the detection rate of Carbapenemase-producing *E. coli* was zero (0%) for broilers and meat thereof.
In total 138 *Salmonella* isolates were tested, no isolate was confirmed as ESBL-producing strain. No carbapenemase-producing isolate was detected.

2. Public health relevance of the findings on food-borne AMR in animals and foodstuffs

The increase of fluoroquinolones resistance rates in *Campylobacter jejuni* and/or *Campylobacter coli* from broilers and/or meat is important for public health, as this zoonotic agents accounts for more than 8000 human cases of campylobacteriosis in Switzerland. In contrast, the decreased detection rate of ESBL-producing *E. coli* of broilers and meat thereof is desirable. Although the remaining ESBL-producing *E. coli* as well as indicator *E. coli* showed high resistance rate for fluoroquinolones.

3. Recent actions taken to control AMR in food producing animals and food

No specific measures are ongoing.

4. Any specific action decided in the Member State or suggestions to the European Union for actions to be taken against food-borne AMR threat

A national strategy to combat antibiotic resistance (StAR) has been developed and implemented. It follows the one health approach covering public and veterinary health and the environment as well. It includes fields in different sectors (regulatory, prudent use, surveillance, research, control in hospitals etc.) with the long-term objective to ensure the effectiveness of antimicrobials for humans and animals in order to preserve their health. For further information see https://www.star.admin.ch/star/en/home.html.

5. Additional information

Further information will be found in the Swiss antibiotic resistance report 2022 on the usage of antibiotics and the occurrence of antibiotic resistance in Switzerland on the FSVO website.

(a): The CIAs depends on the bacterial species considered and the harmonised set of substances tested within the framework of the harmonised monitoring:

- **For *Campylobacter* spp., macrolides (erythromycin) and fluoroquinolones (ciprofloxacin);**
- **For *Salmonella* and *E. coli*, 3rd and 4th generation cephalosporins (cefotaxime) and fluoroquinolones (ciprofloxacin) and colistin (polymyxin);**

General Description of Antimicrobial Resistance Monitoring; *Campylobacter jejuni/coli* broilers caecum

1. General description of sampling design and strategy[(a)]

A stratified random sampling approach according to EFSA specifications is used for taking samples. The samples are taken by the competent authorities.

2. Stratification procedure per animal population and food category

The five slaughterhouses included in the monitoring program produce over 60% of slaughtered broilers. The number of samples for each slaughterhouse is determined in proportion to the number of animals slaughtered per year. The samples are taken evenly distributed over the year, in order to exclude seasonal effects.

3. Randomisation procedure per animal population and food category

A random sample of 808 caecal samples were taken. The number of samples per month were defined in the sampling plan for each slaughterhouse, samples could be taken from Monday to Friday.

4. Analytical method used for detection and confirmation[(b)]

Direct detection of *Campylobacter coli* according to ISO 10272 was performed. Species identification were performed by Matrix Assisted Laser Desorption Ionisation Time Of Flight Mass Spectrometry (MALDI TOF MS) using the direct transfer protocol recommended by the manufacturer (Biotyper 3.0, Bruker Daltonics GmbH, Bremen, Germany).

5. Laboratory methodology used for detection of antimicrobial resistance[(c)]

MICs were determined by broth microdilution method using Sensititre susceptibility plates (EUCAMP2) (TREK Diagnostic Systems Ltd, East Grinstead, United Kingdom). Resistance was defined following the epidemiological cut-off values according to the European directive EU/652/2013.

6. Results of investigation

Antimicrobial resistance rates of *Campylobacter coli* from poultry showed an increase for all tested antimicorbials. *Campylobacter jejuni* showed no significant changes in resistance rates.

7. Additional information

Further information will be found in the Swiss antibiotic resistance report 2022 on the usage of antibiotics and the occurrence of antibiotic resistance in Switzerland on the FSVO website.

*** to be filled in per combination of bacterial species/matrix**

(a): Method of sampling (description of sampling technique: stage of sampling, type of sample, sampler), Frequency of sampling, Procedure of selection of isolates for susceptibility testing, Method used for collecting data.

(b): Analytical method used for detection and confirmation: according to the legislation, the protocols developed by the EURL-AR should be used and reported here. In the case of the voluntary specific monitoring on Carbapenemase-producers, the selective media used (commercial plates, 'in house' media) should be also reported here. In general, any variation with regard to the EURL-AR protocols should be stated here, number of isolates isolated per sample, in particular for *Campylobacter* spp.

(c): Antimicrobials included, Cut-off values

General Description of Antimicrobial Resistance Monitoring; indicator *E. coli*/broilers caecum

1. General description of sampling design and strategy[(a)]

A stratified random sampling approach according to EFSA specifications is used for taking samples. The samples are taken by the competent authorities.

2. Stratification procedure per animal population and food category

The five slaughterhouses included in the monitoring program produce over 60% of slaughtered fattening pigs. The number of samples for each slaughterhouse is determined in proportion to the number of animals slaughtered per year. The samples are taken evenly distributed over the year, in order to exclude seasonal effects.

3. Randomisation procedure per animal population and food category

A random sample of 217 caecal samples were taken. The number of samples per month were defined in the sampling plan for each slaughterhouse, samples could be taken from Monday to Friday.

4. Analytical method used for detection and confirmation[(b)]

Direct detection of indicator *E. coli* on Mac Conkey Agar was performed. Species identification were performed by Matrix Assisted Laser Desorption Ionisation Time Of Flight Mass Spectrometry (MALDI TOF MS) using the direct transfer protocol recommended by the manufacturer (Biotyper 3.0, Bruker Daltonics GmbH, Bremen, Germany).

5. Laboratory methodology used for detection of antimicrobial resistance[(C)]

MICs were determined by broth microdilution method using Sensititre susceptibility plates (EUVSEC) (TREK Diagnostic Systems Ltd, East Grinstead, United Kingdom). Resistance was defined following the epidemiological cut-off values according to the European directive EU/652/2013. If ESBL/Carba-suspicious isolates occur, the EUVSEC2 plate was used additionally for confirmation.

6. Results of investigation

Antimicrobial resistance rates of indicator *E. coli* from poultry showed in general – except for fluoroquinolones- lower resistance rates compared to 2018. Resistance to cefotaxime, ceftazidime, meropenem and colistin was not detected.

7. Additional information

Further information will be found in the Swiss antibiotic resistance report 2022 on the usage of antibiotics and the occurrence of antibiotic resistance in Switzerland on the FSVO website.

*** to be filled in per combination of bacterial species/matrix**

(a): Method of sampling (description of sampling technique: stage of sampling, type of sample, sampler), Frequency of sampling, Procedure of selection of isolates for susceptibility testing, Method used for collecting data.

(b): Analytical method used for detection and confirmation: according to the legislation, the protocols developed by the EURL-AR should be used and reported here. In the case of the voluntary specific monitoring on Carbapenemase-producers, the selective media used (commercial plates, 'in house' media) should be also reported here. In general, any variation with regard to the EURL-AR protocols should be stated here, number of isolates isolated per sample, in particular for *Campylobacter* spp.

(c): Antimicrobials included, Cut-off values

General Description of Antimicrobial Resistance Monitoring; ESBL-resistant *E. coli*/broilers caecum

1. General description of sampling design and strategy[(a)]

A stratified random sampling approach according to EFSA specifications is used for taking samples. The samples are taken by the competent authorities.

2. Stratification procedure per animal population and food category

The five slaughterhouses included in the monitoring program produce over 60% of slaughtered fattening pigs. The number of samples for each slaughterhouse is determined in proportion to the number of animals slaughtered per year. The samples are taken evenly distributed over the year, in order to exclude seasonal effects.

3. Randomisation procedure per animal population and food category

A random sample of 612 caecal samples were taken. The number of samples per month were defined in the sampling plan for each slaughterhouse, samples could be taken from Monday to Friday.

4. Analytical method used for detection and confirmation[(b)]

Selective enrichment for ESBL-producing *E. coli* according to the revised protocols published by the EU-RL for Antimicrobial Resistance at the National Food Institute, Lyngby, DENMARK was performed. Resistance type was confirmed phenotypically with the EUVSEC2 plate. Species identification were performed by Matrix Assisted Laser Desorption Ionisation Time Of Flight Mass Spectrometry (MALDI TOF MS) using the direct transfer protocol recommended by the manufacturer (Biotyper 3.0, Bruker Daltonics GmbH, Bremen, Germany).

5. Laboratory methodology used for detection of antimicrobial resistance[(C)]

MICs were determined by broth microdilution method using Sensititre susceptibility plates (EUVSEC, EUVSEC2) (TREK Diagnostic Systems Ltd, East Grinstead, United Kingdom). Resistance was defined following the epidemiological cut-off values according to the European directive EU/652/2013.

6. Results of investigation

With selective enrichment the detection rate of ESBL-producing *E. coli* in poultry decreased significantly from 30.6% in 2018 to 9.9% in 2020. ESBL-producing isolates showed a very high resistance rate to fluoroquinolones.

7. Additional information

Further information will be found in the Swiss antibiotic resistance report 2022 on the usage of antibiotics and the occurrence of antibiotic resistance in Switzerland on the FSVO website.

*** to be filled in per combination of bacterial species/matrix**

(a): Method of sampling (description of sampling technique: stage of sampling, type of sample, sampler), Frequency of sampling, Procedure of selection of isolates for susceptibility testing, Method used for collecting data.

(b): Analytical method used for detection and confirmation: according to the legislation, the protocols developed by the EURL-AR should be used and reported here. In the case of the voluntary specific monitoring on Carbapenemase-producers, the selective media used (commercial plates, 'in house' media) should be also reported here. In general, any variation with regard to the EURL-AR protocols should be stated here, number of isolates isolated per sample, in particular for *Campylobacter* spp.

(c): Antimicrobials included, Cut-off values

General Description of Antimicrobial Resistance Monitoring; Carbapenem-resistant *E. coli*/broilers caecum

1. General description of sampling design and strategy[(a)]

A stratified random sampling approach according to EFSA specifications is used for taking samples. The samples are taken by the competent authorities.

2. Stratification procedure per animal population and food category

The five slaughterhouses included in the monitoring program produce over 60% of slaughtered fattening pigs. The number of samples for each slaughterhouse is determined in proportion to the number of animals slaughtered per year. The samples are taken evenly distributed over the year, in order to exclude seasonal effects.

3. Randomisation procedure per animal population and food category

A random sample of 612 caecal samples were taken. The number of samples per month were defined in the sampling plan for each slaughterhouse, samples could be taken from Monday to Friday.

4. Analytical method used for detection and confirmation[(b)]

Selective enrichment for carbapenemase-producing *E. coli* according to the revised protocols published by the EU-RL for Antimicrobial Resistance at the National Food Institute, Lyngby, DENMARK was performed. Suspected isolates were recultured on the selective Carba and Oxa48 Agar before MIC testing was performed. Resistance type was confirmed phenotypically with EUVSEC2 plate and Carba Blue test. Species identification were performed by Matrix Assisted Laser Desorption Ionisation Time Of Flight Mass Spectrometry (MALDI TOF MS) using the direct transfer protocol recommended by the manufacturer (Biotyper 3.0, Bruker Daltonics GmbH, Bremen, Germany).

5. Laboratory methodology used for detection of antimicrobial resistance[(C)]

MICs were determined by broth microdilution method using Sensititre susceptibility plates (EUVSEC, EUVSEC2) (TREK Diagnostic Systems Ltd, East Grinstead, United Kingdom). Resistance was defined following the epidemiological cut-off values according to the European directive EU/652/2013.

6. Results of investigation

With selective enrichment the detection rate of Carbapenemase-producing *E. coli* was zero (0%) for broilers.

7. Additional information

Further information will be found in the Swiss antibiotic resistance report 2022 on the usage of antibiotics and the occurrence of antibiotic resistance in Switzerland on the FSVO website.

*** to be filled in per combination of bacterial species/matrix**

(a): Method of sampling (description of sampling technique: stage of sampling, type of sample, sampler), Frequency of sampling, Procedure of selection of isolates for susceptibility testing, Method used for collecting data.

(b): Analytical method used for detection and confirmation: according to the legislation, the protocols developed by the EURL-AR should be used and reported here. In the case of the voluntary specific monitoring on Carbapenemase-producers, the selective media used (commercial plates, 'in house' media) should be also reported here. In general, any variation with regard to the EURL-AR protocols should be stated here, number of isolates isolated per sample, in particular for *Campylobacter* spp.

(c): Antimicrobials included, Cut-off values

General Description of Antimicrobial Resistance Monitoring; ESBL-resistant *E. coli*/chicken meat

1. General description of sampling design and strategy[(a)]

A stratified random sampling approach according to EFSA specifications is used for taking samples. The samples are taken by the competent authorities.

2. Stratification procedure per animal population and food category

Fresh, chilled and untreated meat samples were gathered in all Swiss cantons throughout the year. The applied sampling scheme considered each canton's population density and market shares of retailers. Approximately one half of the chicken meat consumed in Switzerland is imported. Hence, imported and domestic meat accounted for approximately one third and two thirds, respectively, of the chicken meat samples.

3. Randomisation procedure per animal population and food category

A random sample of 296 meat samples for selective enrichment methods were investigated. The number of samples per week were defined in the sampling plan for each cantonal laboratory, samples could be taken from Monday to Friday.

4. Analytical method used for detection and confirmation[(b)]

Selective enrichment for ESBL-producing *E. coli* according to the revised protocols published by the EU-RL for Antimicrobial Resistance at the National Food Institute, Lyngby, DENMARK was performed. Suspected isolates were recultured on the selective Mac Conkey Agar before MIC testing was performed. Resistance type was confirmed phenotypically with the EUVSEC2 plate. Species identification were performed by Matrix Assisted Laser Desorption Ionisation Time Of Flight Mass Spectrometry (MALDI TOF MS) using the direct transfer protocol recommended by the manufacturer (Biotyper 3.0, Bruker Daltonics GmbH, Bremen, Germany).

5. Laboratory methodology used for detection of antimicrobial resistance[(C)]

MICs were determined by broth microdilution method using Sensititre susceptibility plates (EUVSEC, EUVSEC2) (TREK Diagnostic Systems Ltd, East Grinstead, United Kingdom). Resistance was defined following the epidemiological cut-off values according to the European directive EU/652/2013.

6. Results of investigation

With selective enrichment the overall detection rate of ESBL-producing *E. coli* in chicken meat decreased slightly from 34.9% in 2018 to 29.4% in 2020. ESBL-producing isolates showed very high resistance rate to fluoroquinolones.

7. Additional information

Further information will be found in the Swiss antibiotic resistance report 2022 on the usage of antibiotics and the occurrence of antibiotic resistance in Switzerland on the FSVO website.

*** to be filled in per combination of bacterial species/matrix**

(a): Method of sampling (description of sampling technique: stage of sampling, type of sample, sampler), Frequency of sampling, Procedure of selection of isolates for susceptibility testing, Method used for collecting data.

(b): Analytical method used for detection and confirmation: according to the legislation, the protocols developed by the EURL-AR should be used and reported here. In the case of the voluntary specific monitoring on Carbapenemase-producers, the selective media used (commercial plates, 'in house' media) should be also reported here. In general, any variation with regard to the EURL-AR protocols should be stated here, number of isolates isolated per sample, in particular for *Campylobacter* spp.

(c): Antimicrobials included, Cut-off values

General Description of Antimicrobial Resistance Monitoring; Carbapenem-resistant *E. coli*/chicken meat

1. General description of sampling design and strategy[(a)]

A stratified random sampling approach according to EFSA specifications is used for taking samples. The samples are taken by the competent authorities.

2. Stratification procedure per animal population and food category

Fresh, chilled and untreated meat samples were gathered in all Swiss cantons throughout the year. The applied sampling scheme considered each canton's population density and market shares of retailers. Approximately one half of the chicken meat consumed in Switzerland is imported. Hence, imported and domestic meat accounted for approximately one third and two thirds, respectively, of the chicken meat samples.

3. Randomisation procedure per animal population and food category

A random sample of 296 meat samples for selective enrichment methods were investigated. The number of samples per week were defined in the sampling plan for each cantonal laboratory, samples could be taken from Monday to Friday.

4. Analytical method used for detection and confirmation[(b)]

Selective enrichment for carbapenemase-producing *E. coli* according to the revised protocols published by the EU-RL for Antimicrobial Resistance at the National Food Institute, Lyngby, DENMARK was performed. Suspected isolates were recultured on the selective Carba and Oxa48 Agar before MIC testing was performed. Resistance type was confirmed phenotypically with EUVSEC2 plate. Species identification were performed by Matrix Assisted Laser Desorption Ionisation Time Of Flight Mass Spectrometry (MALDI TOF MS) using the direct transfer protocol recommended by the manufacturer (Biotyper 3.0, Bruker Daltonics GmbH, Bremen, Germany).

5. Laboratory methodology used for detection of antimicrobial resistance[(C)]

MICs were determined by broth microdilution method using Sensititre susceptibility plates (EUVSEC, EUVSEC2) (TREK Diagnostic Systems Ltd, East Grinstead, United Kingdom). Resistance was defined following the epidemiological cut-off values according to the European directive EU/652/2013.

6. Results of investigation

With selective enrichment the detection rate of Carbapenemase-producing *E. coli* was zero (0%) for chicken meat.

7. Additional information

Further information will be found in the Swiss antibiotic resistance report 2022 on the usage of antibiotics and the occurrence of antibiotic resistance in Switzerland on the FSVO website.

*** to be filled in per combination of bacterial species/matrix**

(a): Method of sampling (description of sampling technique: stage of sampling, type of sample, sampler), Frequency of sampling, Procedure of selection of isolates for susceptibility testing, Method used for collecting data.

(b): Analytical method used for detection and confirmation: according to the legislation, the protocols developed by the EURL-AR should be used and reported here. In the case of the voluntary specific monitoring on Carbapenemase-producers, the selective media used (commercial plates, 'in house' media) should be also reported here. In general, any variation with regard to the EURL-AR protocols should be stated here, number of isolates isolated per sample, in particular for *Campylobacter* spp.

(c): Antimicrobials included, Cut-off values

General Description of Antimicrobial Resistance Monitoring*; *Campylobacter jejuni* and *coli*/chicken meat

1. General description of sampling design and strategy[(a)]

A stratified random sampling approach is used for taking samples within the active monitoring programme on antimicrobial resistance in fresh meat at retail. The samples are taken by the competent authorities.

2. Stratification procedure per animal population and food category

Fresh, chilled and untreated meat samples were gathered in all Swiss cantons throughout the year. The applied sampling scheme considered each canton's population density and market shares of retailers. Approximately one half of the chicken meat consumed in Switzerland is imported. Hence, imported and domestic meat accounted for approximately one third and two thirds, respectively, of the chicken meat samples.

3. Randomisation procedure per animal population and food category

A random sample of 296 chicken meat were investigated. The number of samples per week were defined in the sampling plan for each cantonal laboratory, samples could be taken from Monday to Friday.

4. Analytical method used for detection and confirmation[(b)]

Enrichment in Preston broth for *Campylobacter coli* and *Campylobacter jejuni* according to ISO 10272 was performed. Species identification were performed by Matrix Assisted Laser Desorption Ionisation Time Of Flight Mass Spectrometry (MALDI TOF MS) using the direct transfer protocol recommended by the manufacturer (Biotyper 3.0, Bruker Daltonics GmbH, Bremen, Germany).

5. Laboratory methodology used for detection of antimicrobial resistance[(C)]

MICs were determined by broth microdilution method using Sensititre susceptibility plates (EUCAMP2) (TREK Diagnostic Systems Ltd, East Grinstead, United Kingdom). Resistance was defined following the epidemiological cut-off values according to the European directive EU/652/2013.

6. Results of investigation

Antimicrobial resistance rates of *Campylobacter coli* from chicken meat showed an increase in very high resistance rates for fluoroquinolones, and a slightly decrease in tetracycline and streptomycin resistance rates. For *Campylobacter jejuni,* a markely increase in resistance rates for fluoroquinolones, streptomycin and tetracyclines were detected.

7. Additional information

Further information will be found in the Swiss antibiotic resistance report 2022 on the usage of antibiotics and the occurrence of antibiotic resistance in Switzerland on the FSVO website.

*** to be filled in per combination of bacterial species/matrix**

(a): Method of sampling (description of sampling technique: stage of sampling, type of sample, sampler), Frequency of sampling, Procedure of selection of isolates for susceptibility testing, Method used for collecting data.

(b): Analytical method used for detection and confirmation: according to the legislation, the protocols developed by the EURL-AR should be used and reported here. In the case of the voluntary specific monitoring on Carbapenemase-producers, the selective media used (commercial plates, 'in house' media) should be also reported here. In general, any variation with regard to the EURL-AR protocols should be stated here, number of isolates isolated per sample, in particular for *Campylobacter* spp.

(c): Antimicrobials included, Cut-off values

General Description of Antimicrobial Resistance Monitoring; *Salmonella* spp./divers

1. General description of sampling design and strategy[(a)]

The prevalence of *Salmonella* spp. in food-producing animals in Switzerland is very low as a consequence of long term control programs. Therefore, besides isolates from national control programs (breeding hens, laying hens, broilers and fattening turkeys, Swiss ordinance of epizootics (TSV, Article 255-261) isolates from diagnostic submissions from diverse animal species were included.

2. Stratification procedure per animal population and food category

All *Salmonella enterica* subspecies *enterica* isolates from hen, pigs, cattle and turkey reaching the national reference laboratory in 2020 were tested for AMR.

3. Randomisation procedure per animal population and food category

No randomisation take place. A total of 138 *Salmonella* isolates were tested.

4. Analytical method used for detection and confirmation[(b)]

Identification and serotyping according to ISO 6579 was performed.

5. Laboratory methodology used for detection of antimicrobial resistance[(c)]

MICs were determined by broth microdilution method using Sensititre susceptibility plates (EUVSEC) (TREK Diagnostic Systems Ltd, East Grinstead, United Kingdom). Resistance was defined following the epidemiological cut-off values according to the European directive EU/652/2013. If ESBL-suspicious isolates occur, the EUVSEC2 plate was used additionally for confirmation.

6. Results of investigation

In total 138 *Salmonella* isolates were tested, no isolate was confirmed as ESBL-producing strain. No carbapenemase-producing isolate was detected.

7. Additional information

Further information will be found in the Swiss antibiotic resistance report 2022 on the usage of antibiotics and the occurrence of antibiotic resistance in Switzerland on the FSVO website.

*** to be filled in per combination of bacterial species/matrix**

(a): Method of sampling (description of sampling technique: stage of sampling, type of sample, sampler), Frequency of sampling, Procedure of selection of isolates for susceptibility testing, Method used for collecting data.

(b): Analytical method used for detection and confirmation: according to the legislation, the protocols developed by the EURL-AR should be used and reported here. In the case of the voluntary specific monitoring on Carbapenemase-producers, the selective media used (commercial plates, 'in house' media) should be also reported here. In general, any variation with regard to the EURL-AR protocols should be stated here, number of isolates isolated per sample, in particular for *Campylobacter* spp.

(c): Antimicrobials included, Cut-off values