



## SWITZERLAND

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

### TRENDS AND SOURCES OF ZOO NOSES AND ZOO NOTIC AGENTS IN HUMANS, FOODSTUFFS, ANIMALS AND FEEDINGSTUFFS

including information on foodborne outbreaks and antimicrobial resistance in zoonotic agents

IN 2005

## INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: **Switzerland**

Reporting Year: **2005**

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

<b>Laboratory name</b>	<b>Description</b>	<b>Contribution</b>
SFVO	Swiss federal veterinary Office	Swiss Zoonoses Report

## **PREFACE**

This report is submitted to the European Commission in accordance with Article 9 of Council Directive 2003/99/EC<sup>1</sup>. The information has also been forwarded to the European Food Safety Authority (EFSA).

The report contains information on trends and sources of zoonoses and zoonotic agents in Switzerland during the year 2005. The information covers the occurrence of these diseases and agents in humans, animals, foodstuffs and in some cases also in feedingstuffs. In addition the report includes data on antimicrobial resistance in some zoonotic agents and commensal bacteria as well as information on epidemiological investigations of foodborne outbreaks. Complementary data on susceptible animal populations in the country is also given.

The information given covers both zoonoses that are important for the public health in the whole European Community as well as zoonoses, which are relevant on the basis of the national epidemiological situation.

The report describes the monitoring systems in place and the prevention and control strategies applied in the country. For some zoonoses this monitoring is based on legal requirements laid down by the Community Legislation, while for the other zoonoses national approaches are applied.

The report presents the results of the examinations carried out in the reporting year. A national evaluation of the epidemiological situation, with special reference to trends and sources of zoonotic infections, is given. Whenever possible, the relevance of findings in foodstuffs and animals to zoonoses cases in humans is evaluated.

The information covered by this report is used in the annual Community Summary Report on zoonoses that is published each year by EFSA.

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<sup>1</sup> Directive 2003/99/EC of the European Parliament and of the Council of 12 December 2003 on the monitoring of zoonoses and zoonotic agents, amending Decision 90/424/EEC and repealing Council Directive 92/117/EEC, OJ L 325, 17.11.2003, p. 31

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## **1. ANIMAL POPULATIONS**

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

### **A. Information on susceptible animal population**

#### **Sources of information:**

Living animals and herds: Coordinated census of agriculture. Swiss federal office of agriculture and Swiss federal office of statistics.

Slaughtered animals: Official meat inspection statistics (SFVO) and monthly agricultural statistics (Swiss Farmer's Federation)

#### **Dates the figures relate to and the content of the figures:**

Number of animals hold in farms in Switzerland at 5th of May 2005.

Number of animals slaughtered in the year 2005.

#### **Definitions used for different types of animals, herds, flocks and holdings as well as the types covered by the information:**

Herd and flock are used as equivalent. The indicated number of herds is identical to the number of farms holding respective species. Agriculture census counts the number of farms. Farms with more than one herd or more than one holding of a species are very rare in Switzerland.

#### **National evaluation of the numbers of susceptible population and trends in these figures:**

In the timeframe of the last ten years a declining amount of farms are holding cattle (-2% per year), pigs or laying hens (-4% per year each) and broilers (-2,5% per year). In the same time cattle population declined by 1,5% per year whereas the population of pigs (+1,5% per year) and boilers (+2.8% per year) increased.

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

Average size of the farms in 2005: 34 cattle (16 dairy cows). 125 pigs, 29 sheep, 11 goats, 181 laying hens, 4200 broilers.

**Table Susceptible animal populations**

\* Only if different than current reporting year

Animal species	Category of animals	Number of herds or flocks		Number of holdings		Livestock numbers (live animals)		Number of slaughtered animals	
		Year*	Year*	Year*	Year*	Year*	Year*		
Cattle (bovine animals)	in total	45433				1552703		644309	
Gallus gallus (fowl)	breeding flocks, unspecified - in total	2358				126023			
	laying hens	15661				2829272			
	broilers	1189				5028122		42047000	
Goats	in total	6736				73498		33201	
Pigs	in total	12537				1566298		2712779	
Sheep	in total	11204				441024		273084	
Solipeds, domestic	horses - in total	12769				66139		3836	
Turkeys	in total	336				132380			

## **2. INFORMATION ON SPECIFIC ZONOSSES AND ZONOTIC AGENTS**

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



## **2.1. SALMONELLOSIS**

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

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

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

The Swiss ordinance of epizootics covers salmonellosis in cows, goats and milk sheep (TSV, Article 222-227) and in particular *Salmonella enteritidis* infection in poultry (TSV, Article 255-261). Both diseases fall into the category of animal diseases to be controlled and are notifiable diseases.

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

The incidence of *Salmonella Enteritidis* infection in poultry (Breeding flocks and laying hens flocks) decreased in the period 1994 to 2005 from 38 to 8 infected flocks per year.

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

Baseline study on the prevalence of *Salmonella* in laying flocks of *Gallus gallus* referring to the regulation of the European Commission (EC) No. 2160/2003.

## **2.1.2. Salmonella in foodstuffs**

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

#### **Monitoring system**

##### **Sampling strategy**

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

The industry takes responsibility for the monitoring of fattening poultry and poultry meat production in a system of self-auditing. Results of the Salmonella monitoring of the largest poultry producers and abattoirs are available covering more than 90% of the production. The number of animals tested is substantially higher than the number of samples shown in the table, because collective samples were often tested (pooling).

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

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

Sampling distributed evenly throughout the year

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

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

Fresh meat

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

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

Part of broilers or part of parts of broilers (leg, breast, wing)

##### **Definition of positive finding**

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

Growth in microbiological culture and identification of Salmonella

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

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

Bacteriological method: Bacteriological culture according to the descriptions of the Swiss Food Manual 2005 (Chapter 56).

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

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

Imported poultry (2005: 37,198 tons of poultry) is monitored by the border veterinarian

service and randomly tested for *Campylobacter* and *Salmonella*. To test for *Salmonella*, 83 samples were taken in the year 2005.

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

No measures are taken

### **Notification system in place**

Notifiable disease in animals according to Swiss ordinance of epizootics (TSV, Art. 5)

### **Results of the investigation**

Of the samples tested, 37% came from France, 28% from Brazil, 16% from Italy, 12% from Hungary and 7% from Germany. Six consignments from Hungary and one each from France, Brazil and Italy tested positive for *Salmonella* spp., of which the serovars isolated were *S. infantis* (3), *S. typhimurium* (3), *S. enteritidis* (2) and *S. newport* (1).

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

After a steady decline in *Salmonella* prevalence in imported poultry over the past three years (2002: 16% in 83 tested samples; 2003: 11% in 111 tested samples; 2004: 5% in 173 tested samples), *Salmonella* spp. were detected more than twice as frequently in 2005 compared with the previous year.

Prevalence of *Salmonella* in poultry meat from Swiss production is constantly low, as the results of monitoring of the industry shows: 2003: 0.6% positive samples, 2004 1.4% positive samples, 2005 0.5% positive samples.

### **Additional information**

Swiss zoonoses report 2005. Swiss Federal Veterinary Office Magazine 3/06 (<http://www.bvet.admin.ch/news/magazin/index.html?lang=en>)

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

### **Monitoring system**

#### **Sampling strategy**

##### **At retail**

A study was carried out to investigate *Salmonella* prevalence in turkey meat at retail trade. This study was done in collaboration with the Centre for Zoonoses, Bacterial Animal Diseases and Antibiotic Resistance (ZOBA) of the University of Berne and the cantonal laboratories of Aargau, Baselland, Geneva, Jura, St. Gallen, Ticino and Thurgau.

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

##### **At retail**

Other: twice a year

### **Type of specimen taken**

#### **At retail**

Fresh meat

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

#### **At retail**

Raw turkey meat from 172 retail businesses were sampled. Refrigerated domestic products (26%), refrigerated import products (46%) and frozen import products (28%) were sampled according to their market share. Sampling was carried out among food distributors in 57 different communities in all regions of Switzerland, not more than one sample of the same product category being taken in each branch.

### **Definition of positive finding**

#### **At retail**

Growth in microbiological culture and identification of Salmonella

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

#### **At retail**

Other: Bacteriological culture according to the descriptions of the Swiss Food Manual 2005 (Chapter 56).



fresh	Swiss zoonoses report 2005, BYER Magazin 3, 2006	single	25 g	172	10	1				2	1	2	2	1
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### **2.1.3. Salmonella in animals**

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

##### **Monitoring system**

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

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

Baseline study on the prevalence of Salmonella in laying flocks of Gallus gallus referring to the regulation of the European Commission (EC) No. 2160/2003.

Laying hens are sampled at the end of their production period, within 9 weeks before depopulation; only one flock per holding with at least 1000 hens; in total 260 holdings.

Start of the study 1. of June 2005, during one year.

Results will be available after completion of the study at 31. of May 2006.

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

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

9 weeks prior to slaughter

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

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

Socks/ boot swabs

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

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

7 pooled samples are taken in any holding: 5 pairs of boot swabs (1 pair = 1 pool) and 2 dust samples, both from egg belts and from different places of the house (additional faecal samples instead of dust samples).

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

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

A flock is considered positive, if the presence of Salmonella spp. is detected in at least one of the samples.

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

Vaccination is prohibited

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

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

Bacteriological method: Detection method referring to the following literature: A Laboratory Manual for the Isolation and Identification of Avian Pathogens. 4th Edition 1998, American Association of Avian Pathologists, Chapter 2: Salmonellosis. Guidelines on Detection and Monitoring of Salmonella Infected Poultry Flocks with Particular Reference to Salmonella Enteritidis. World Health Organization, Graz, Austria, 1994. Swiss Food Manual (SLMB) Anhang 3, Kapitel 56. OIE Manual of Standards 1992, Anhang 4: Salmonellosis: S. Typhimurium and S. Enteritidis.

### **Vaccination policy**

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

Vaccination is prohibited

#### **Laying hens flocks**

Vaccination is prohibited

### **Control program/mechanisms**

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

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

The Swiss ordinance of epizootics covers Salmonella enteritidis infection in poultry (TSV, Article 255-261) as notifiable animal diseases to be controlled. Breeding poultry and laying hens in flocks comprising more than 50 birds are subject to active surveillance and have to be tested for S. enteritidis. Procedure and intensity of control is equivalent to directive 92/117/EEC. During the raising and laying periods, samples are taken at regular intervals.

In breeding flocks (production of hatching eggs) three samples are taken during the raising phase and further samples then taken at periodic intervals during the laying phase. During the raising phase, bacteriological tests are carried out on faeces and dead birds.

In a suspected case, bacteriological tests are carried out on additional samples. In the event of a definitive positive finding, a simple first-degree quarantine is imposed on the flock (Article 69 TSV): To prevent the disease from spreading, animal movements are prohibited. All direct contact between birds that are subject to the quarantine and birds from other flocks is forbidden. The quarantined flocks must not be changed either by moving animals to other flocks or by introducing animals from other flocks. The diseased flocks must be slaughtered or culled.

Imported one-day chicks and hatching eggs are monitored for Salmonella enteritidis. In 2005 about 2.4 million one-day chicks, about 100,000 young hens and about 9 million hatching eggs were imported. The one-day chicks were



mostly fattening chicks (87%). The rest were layers (3%) and parent birds of the fattening type (6%) and laying type (4%). The largest proportion of imported animals and also most hatching eggs (>90%) came from France. All tests for *S. enteritidis* in imported poultry were negative.

### **Laying hens flocks**

The Swiss ordinance of epizootics covers *Salmonella enteritidis* infection in poultry (TSV, Article 255-261) as notifiable animal disease to be controlled. Breeding poultry and laying hens in flocks comprising more than 50 birds are subject to active surveillance and have to be tested for *S. enteritidis*. Procedure and intensity of control is equivalent to directive 92/117/EEC. During the raising and laying periods, samples are taken at regular intervals. Measures in case of the positive findings or single cases. Samples from laying hens (production of eggs for consumption) are taken every six months. During the laying phase, blood or eggs undergo regular serological testing for antibodies.

In a suspected case, bacteriological tests are carried out on additional samples. In the event of a definitive positive finding, a simple first-degree quarantine is imposed on the flock (Article 69 TSV): To prevent the disease from spreading, animal movements are prohibited. All direct contact between birds that are subject to the quarantine and birds from other flocks is forbidden. The quarantined flocks must not be changed either by moving animals to other flocks or by introducing animals from other flocks. The diseased flocks must be slaughtered or culled.

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

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

In the event of a definitive positive finding, a simple first-degree quarantine is imposed on the flock (Article 69 TSV): To prevent the disease from spreading, animal movements are prohibited. All direct contact between birds that are subject to the quarantine and birds from other flocks is forbidden. The quarantined flocks must not be changed either by moving animals to other flocks or by introducing animals from other flocks. The diseased flocks must be slaughtered or culled.

#### **Laying hens flocks**

In the event of a definitive positive finding, a simple first-degree quarantine is imposed on the flock (Article 69 TSV): To prevent the disease from spreading, animal movements are prohibited. All direct contact between birds that are subject to the quarantine and birds from other flocks is forbidden. The quarantined flocks must not be changed either by moving animals to other flocks or by introducing animals from other flocks. The diseased flocks must be slaughtered or culled.

### **Notification system in place**

The Swiss ordinance of epizootics covers *Salmonella enteritidis* infection in poultry (TSV, Article 255-261) as notifiable animal disease.

## **Results of the investigation**

In 8 poultry flocks, the Salmonella Enteritidis infection was detected and the flocks were culled.

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

The incidence of Salmonella Enteritidis infection in poultry (Breeding flocks and laying hens flocks) decreased in the period 1994 to 2005 from 38 to 8 infected flocks per year.

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

### **Monitoring system**

#### **Sampling strategy**

##### **Broiler flocks**

The industry takes responsibility for the monitoring of fattening poultry and poultry meat production in a system of self-auditing. Results of the Salmonella monitoring of the largest poultry producers and abattoirs are available covering more than 90% of the production. The number of animals tested is substantially higher than the number of samples shown in the table, because collective samples were often tested (pooling).

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

##### **Broiler flocks: Before slaughter at farm**

Sampling distributed evenly throughout the year

##### **Broiler flocks: At slaughter (flock based approach)**

Sampling distributed evenly throughout the year

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

##### **Broiler flocks: Before slaughter at farm**

Socks/ boot swabs

##### **Broiler flocks: At slaughter (flock based approach)**

Other: neck skin / appendix

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

##### **Broiler flocks: Before slaughter at farm**

Pooling

##### **Broiler flocks: At slaughter (flock based approach)**

Pooling

**Case definition**

**Broiler flocks: Before slaughter at farm**

Growth in microbiological culture and identification of Salmonella

**Broiler flocks: At slaughter (flock based approach)**

Growth in microbiological culture and identification of Salmonella

**Diagnostic/analytical methods used**

**Broiler flocks: Before slaughter at farm**

Other: Culture according to the descriptions of the Swiss Food Manual 2005 (Chapter 56).

**Broiler flocks: At slaughter (flock based approach)**

Other: Culture according to the descriptions of the Swiss Food Manual 2005 (Chapter 56).

**Vaccination policy**

**Broiler flocks**

Vaccination is prohibited

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

Percentage of positive samples is low (0.2% at farm level, 1.0% at slaughter). There is no need for extended control measures.

**Table Salmonella in other poultry**

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella	S. Infantis	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	S. Agona	S. Indiana
<b>Gallus gallus (fowl)</b>										
laying hens during production period	Swiss Zoonoses report, BVET Magazin 3, 2006.	flocks	1631	8		8				
broilers	Swiss Zoonoses Report 2005	Flocks and Slaughter Batches	1188	9	2	0	1	3	2	1

**Footnote**

Swiss Zoonoses Report 2005: Swiss Federal Veterinary Office Magazine 3/06.

#### **2.1.4. Salmonella in feedingstuffs**

### **2.1.5. Salmonella serovars and phagetype distribution**

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

The methods of collecting, isolating and testing of the Salmonella isolates are described in the chapters above respectively for each animal species, foodstuffs and humans. The serotype and phagetype distributions can be used to investigate the sources of the Salmonella infections in humans. Findings of same serovars and phagetypes in human cases and in foodstuffs or animals may indicate that the food category or animal species in question serves as a source of human infections. However as information is not available from all potential sources of infections, conclusions have to be drawn with caution.

## **2.2. CAMPYLOBACTERIOSIS**

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

#### **A. Thermophilic Campylobacter General evaluation**

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

Campylobacter infection in humans is today the main food-associated infection in Switzerland and throughout the world. Campylobacter spp. are predominantly transmitted to humans via the alimentary tract, water and poultry being the primary sources. An important approach to controlling the rate of infection in humans is therefore to prevent the colonisation of broiler poultry by Campylobacter, so that the pathogen does not even enter the abattoir and thus the food chain.

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

Human as well as animal cases are notifiable.

In 2005, 5259 cases of campylobacteriosis were reported in humans. At 70.9 reports per 100,000 inhabitants, campylobacteriosis was reported more than two-and-a-half times more often than salmonellosis (25.3 reports per 100,000 inhabitants). Of the 5259 human isolates tested, 57% were *C. jejuni*, 4% were *C. coli* and 32% were *C. jejuni* or *C. coli* that were not further differentiated. Other Campylobacter species (7%) were of minor importance.

As part of a research project on resistance to antibiotics, the SFVO studied the prevalence of Campylobacter in 100 flocks of broiler poultry in 2002 to 2005 (cloacal swabs samples at the end of the slaughter line). The prevalence of Campylobacter spp. in poultry production thus remained unchanged in 2005 compared with previous years (2004: 26%; 2003: 25%), but was significantly lower than in 2002 (42%).

At 36%, the prevalence of Campylobacter spp. among imported poultry in 2005 was within the range of previous years (2004: 22%, 2003: 40%).

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

Notifiable disease in animals according to Swiss ordinance of epizootics (TSV Art. 5)

##### **Additional information**

Swiss zoonoses report 2005. Swiss Federal Veterinary Office Magazine 3/06 (<http://www.bvet.admin.ch/news/magazin/index.html?lang=en>)



## **2.2.2. Campylobacter, thermophilic in foodstuffs**

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

#### **Monitoring system**

##### **Sampling strategy**

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

A study was carried out to investigate Campylobacter prevalence in turkey meat at retail trade. This study was in collaboration with the Centre for Zoonoses, Bacterial Animal Diseases and Antibiotic Resistance (ZOBA) of the University of Berne and the cantonal laboratories of Aargau, Baselland, Geneva, Jura, St. Gallen, Ticino and Thurgau.

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

###### **At retail**

2 times a year

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

###### **At retail**

Fresh meat

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

###### **At retail**

Raw turkey meat from 172 retail businesses were sampled. Refrigerated domestic products (26%), refrigerated import products (46%) and frozen import products (28%) were sampled according to their market share. Sampling was carried out among food distributors in 57 different communities in all regions of Switzerland, not more than one sample of the same product category being taken in each branch.

##### **Definition of positive finding**

###### **At retail**

Bacterial growth and identification by interpretation of gram staining, oxidase-katalyse-tests and hippurat- and indoxylacetate-hydrolysis

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

###### **At retail**

Other: According to the descriptions of the Swiss Food Manual 2005 (Chapter 56; Method E.22).

### **Preventive measures in place**

none

### **Control program/mechanisms**

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

Imported poultry (2005: 37,198 tons of poultry) is controlled by the border veterinarian service and randomly sampled for *Campylobacter* and *Salmonella*. To test for *Campylobacter* spp., 83 samples were taken in the year 2005.

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

No measures are taken.

### **Notification system in place**

Salmonellosis is a notifiable disease in animals according to Swiss ordinance of epizootics (TSV Art. 5)

### **Results of the investigation**

Of the samples tested, 37% came from France, 28% from Brazil, 16% from Italy, 12% from Hungary and 7% from Germany. Thirty samples (36%) tested positive for *Campylobacter* spp., half of the samples tested being identified as *C. jejuni* and almost a quarter (23%) as *C. coli*. The positive samples came from France (60%), Italy (23%), Hungary (10%) and Germany (7%). At 36%, the prevalence of *Campylobacter* spp. among imported poultry in 2005 was within the range of previous years (2004: 22%, 2003: 40%).

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

At 36%, the prevalence of *Campylobacter* spp. among imported poultry in 2005 was within the range of previous years (2004: 22%, 2003: 40%).

### **Additional information**

Swiss zoonoses report 2005. Swiss Federal Veterinary Office Magazine 3/06 (<http://www.bvet.admin.ch/news/magazin/index.html?lang=en>)

**Table Campylobacter in poultry meat**

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for thermophilic Campylobacter spp.	C. coli	C. lari	C. jejuni	C. upsaliensis	thermophilic Campylobacter spp., unspecified
<b>Meat from turkey</b>										
fresh	Swiss zoonoses report 2005. Swiss Federal Veterinary Office Magazine 3/06 *	single	25 g	172	65	16	1	48		

\* (<http://www.bvet.admin.ch/news/magazin/index.html?lang=en>)

### **2.2.3. Campylobacter, thermophilic in animals**

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

##### **Monitoring system**

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

The analysis of Campylobacter prevalence in poultry is part of a national monitoring program for antimicrobial resistance in Swiss food-producing animals. The program follows the EU Directive on the monitoring of zoonoses and zoonotic agents (2003/99/EC). In accordance with the proposal of the EU, a sample size was set to estimate the prevalence of resistant Isolates with a confidence of 10%, assuming that about 50% of the isolates show resistancy.

These samples were used at the same time to estimate the herd prevalence of Campylobacter in broilers in 2005.

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

###### **At slaughter**

Once a year

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

###### **At slaughter**

Other: cloacal swabs

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

###### **At slaughter**

160 herds of broiler were randomly selected. From each herd, 2 specimens were sampled by collecting from each specimen 2 cloacal swabs (Bioswab Cary Blair Medium). The swabs were analysed at one single Lab for the presence of Campylobacter spp..

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

###### **At slaughter**

bacterial growth and identification by interpretation of gram staining, oxidase-katalyse-tests and hippurat- and Indoxylacetate-hydrolysis

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

###### **At slaughter**

Bacteriological method: Enrichment of bacteria during 24h at 43°C with Campylobacter Enrichment Broth (Biolife) and cultivation on Campyloset agar plates (bioMérieux, France)

### **Vaccination policy**

no vaccination available

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

no immunoprophylactic methods allowed

### **Control program/mechanisms**

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

Imported poultry (2005: 37,198 tons of poultry) is monitored by the border veterinarian service and randomly tested for *Campylobacter* and *Salmonella*. To test for *Campylobacter* spp., 83 samples were taken.

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

mandatory notification; no measures are taken

### **Notification system in place**

Notifiable disease in animals according to Swiss Regulation of epizootics (TSV Art. 5)

### **Results of the investigation**

Of the samples tested, 37% came from France, 28% from Brazil, 16% from Italy, 12% from Hungary and 7% from Germany. Thirty samples (36%) tested positive for *Campylobacter* spp., half of the samples tested being identified as *C. jejuni* and almost a quarter (23%) as *C. coli*. The positive samples came from France (60%), Italy (23%), Hungary (10%) and Germany (7%). At 36%, the prevalence of *Campylobacter* spp. among imported poultry in 2005 was within the range of previous years (2004: 22%, 2003: 40%).

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

At 36%, the prevalence of *Campylobacter* spp. among imported poultry in 2005 was within the range of previous years (2004: 22%, 2003: 40%).

### **Additional information**

Swiss zoonoses report 2005. Swiss Federal Veterinary Office Magazine 3/06 (<http://www.bvet.admin.ch/news/magazin/index.html?lang=en>)

**Table Campylobacter in animals**

	Source of information	Sampling unit	Units tested	Total units positive for Campylobacter, thermophilic	C. jejuni	C. coli	C. lari	C. upsaliensis	thermophilic Campylobacter spp., unspecified
<b>Gallus gallus (fowl)</b>									
<b>broilers</b>									
- at slaughterhouse (1)	Monitoring program for antimicrobial resistance in broilers	single	596	137	82	46			9

(1) : cloacal swabs

#### **2.2.4. Antimicrobial resistance in Campylobacter, thermophilic isolates**

## **2.3. LISTERIOSIS**

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

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

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

In comparison with Salmonella and Campylobacter, Listeria represent the highest risk for a hospitalization and the second highest risk for death due to a intoxication by food. A major source of infection are milk products and cheese. Approximately 30% of the diseased people die, whereof aborted foetus have a major part.

The biggest epidemic outbreak in Switzerland was in the 80ies due to contaminated cheese of a particular variety. The first cases of this outbreak were diagnosed in 1983. However, the epidemic pattern and the cause of the infection was a long time not identified because the disease was not notifiable to that time. No more than in 1986 the contaminated cheese was identified as a source of infection. To that time 122 people diseased and 33 died.

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

Human as well as animal cases are notifiable.

A total of 70 cases of Listeria monocytogenes were registered with the Federal Office of Public Health and the Centre National de Référence des Listerias (CNRL). This figure is higher than in the last few years (30-40 human cases) and is due in part to an outbreak in Canton Neuchatel, where cheese contaminated with Listeria monocytogenes (serotyp 1/2a) was sold. Eight people were hospitalized and thereof 3 people died.

Cantonal veterinarians reported 20 cases of listeriosis in animals (10 in sheep, 5 in cattle, 5 in goats), which is within the mean range over many years.

The approved Swiss Veterinary Laboratories reported 98 diagnostic testings in dogs, cattle, sheep, goats and solipeds (see table)

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

Notifiable disease in animals according to Swiss ordinance of epizootics (TSV Art. 5)

The cheese production plant contaminated with Listeria (see above) was closed, and the batch of infected cheese was retracted and disposed.

##### **Additional information**

Swiss zoonoses report 2005. Swiss Federal Veterinary Office Magazine 3/06 (<http://www.bvet.admin.ch/news/magazin/index.html?lang=en>)



### 2.3.2. Listeria in foodstuffs

### 2.3.3. Listeria in animals

**Table Listeria spp. in animals**

	Source of information	Sampling unit	Units tested	Total units positive for Listeria	L. monocytogenes	Listeria spp., unspecified
<b>Cattle (bovine animals) (1)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	81	8		8
<b>Sheep (2)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	10	7		7
<b>Goats (3)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	4	3		3
<b>Pigs (4)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	0			
<b>Solipeds, domestic</b>						
horses (5)	Database Information Center for Animal Health in Switzerland (ITS)	animal	2	0		0
<b>Dogs</b>						
pet animals (6)	Database Information Center for Animal Health in Switzerland (ITS)	animal	1	0		0

- (1) : antigen detection (Immunohistochemistry, histology or culture)
- (2) : antigen detection (Immunohistochemistry, histology or culture)
- (3) : antigen detection (Immunohistochemistry, histology or culture)
- (4) : antigen detection (Immunohistochemistry, histology or culture)
- (5) : antigen detection (Immunohistochemistry, histology or culture)
- (6) : antigen detection (Immunohistochemistry, histology or culture)

**Footnote**

testing for agents.

## **2.4. E. COLI INFECTIONS**

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

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

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

## **2.5. TUBERCULOSIS, MYCOBACTERIAL DISEASES**

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

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

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

Switzerland is officially acknowledged as free from bovine tuberculosis since 1959.

Freedom from disease has been proven in 1997 conducting a survey in a randomized sample of 4874 farms. 111'394 cattle (whole holdings older than 6 months) were tuberculin tested. In 72 farms tests had to be repeated. All farms were negative.

Vaccination is prohibited. Requirements of section 3.2.3.10 of the OIE International Animal Health Code are fulfilled since 1959. Free status is recognised by EU (Bilateral Agreement on Agriculture, Veterinary Annex).

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

There are no observations that would challenge the freedom of Swiss cattle from tuberculosis.

## **2.5.2. Mycobacterium in animals**

### **A. Mycobacterium bovis in Bovine Animals**

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

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

Switzerland is officially acknowledged as free from bovine tuberculosis since 1959. Freedom from disease has been proven in 1997 conducting a survey in a randomized sample of 4874 farms. 111'394 cattle (whole holdings older than 6 months) were tuberculin tested. In 72 farms tests had to be repeated. All farms were negative.

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

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

Bovine tuberculosis is regulated as a zoonoses to be eradicated (Swiss ordinance of epizootics, TSV Art. 158 - Art. 165). Notification of suspicious cases is mandatory. Actions to be taken in suspicious farms are ban of all animal traffic, investigation of the whole herd.

Official meat inspection is investigating each carcass, its organs and lymphatic tissue on the prevalence of abnormal alterations. Carcasses showing clinical signs of tuberculosis have to be destroyed.

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

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.

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

Bovine tuberculosis is notifiable since 1950.

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

There are no observations that would challenge the freedom of Swiss cattle population from tuberculosis.

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

Region	Total number of existing bovine		Officially free herds		Infected herds		Routine tuberculin testing		Number of tuberculin tests carried out before the introduction into the herds (Annex A(I)(2)(C) third indent (1) of Directive 64/432/EEC)	Number of animals with suspicious lesions of tuberculosis examined and submitted to histopathological and bacteriological examinations	Number of animals detected positive in bacteriological examination
	Herds	Animals	Number of herds	%	Number of herds	%	Interval between routine tuberculin tests	Number of animals tested			
Schweiz/Suisse/Svizzera	45433	1552703	45433	100	0	0		111394	2	0	
Total	45433	1552703	45433	100	0	0	0	111394	2	0	

**Footnote**

The first and until now latest survey took place in 1997. All animals tested were Tuberculosis negativ.  
 The number of animals with suspicious lesions (n=2) are date from the year 2005. None of those specimens were testes bacteriologically positive for TB.

## **2.6. BRUCELLOSIS**

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

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

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

Switzerland is officially acknowledged as free from bovine brucellosis since 1959. Bovine brucellosis is notifiable since 1956. Vaccination is prohibited since 1961. Requirements of section 3.2.1.5 of the OIE International Animal Health Code are fulfilled since 1963. Free status is recognised by EU (Bilateral Agreement on Agriculture, Veterinary Annex). National Survey in 1997.

Switzerland's sheep and goat population is officially acknowledged as brucellosis free. Free status is recognized by EU (Bilateral Agreement on Agriculture, Veterinary Annex). National Surveys are carried out since 1998.

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

There are no observations that would challenge the freedom of Swiss cattle population from brucellosis. There are no observations that would challenge the freedom of Swiss sheep and goat population from brucellosis.

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

National surveys on a yearly basis are carried out to document freedom from brucellosis in sheep and goat since 1998.

## **2.6.2. Brucella in foodstuffs**

## **2.6.3. Brucella in animals**

### **A. Brucella abortus in Bovine Animals**

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

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

Switzerland is officially acknowledged as free from bovine brucellosis since 1959. Bovine brucellosis is notifiable since 1956. Vaccination is prohibited since 1961. Requirements of section 3.2.1.5 of the OIE International Animal Health Code are fulfilled since 1963. Free status is recognised by EU (Bilateral Agreement on Agriculture, Veterinary Annex).

Freedom from disease has been proved in 1997 conducting a survey in a randomized sample of 4874 farms. 31'042 blood samples and 18'952 milk samples from a total of 49'994 cows (in general older than 24 months) were tested using serological test. There were no positive findings in these samples.

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

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

Brucellosis in bovine animals is regulated as zoonoses to be eradicated (Swiss ordinance of epizootics, TSV Art. 150 - Art. 157). Notification of suspicious cases is mandatory. Actions to be taken in suspicious farms are ban of all animal traffic, investigation of the whole herd and of the placenta of calving cows.

Official meat inspection is investigating each carcass, its organs and lymphatic tissue on the prevalence of abnormal alterations. Carcasses showing clinical signs of brucellosis have to be destroyed.

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

In confirmed cases (herds) all diseased cattle has to be killed. All placentas, abortion material and the milk of diseased and suspicious cows has to be disposed. The barn has to be disinfected.

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

Notification of suspicious cases and outbreaks is mandatory since 1956.

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

There are no observations that would challenge the freedom of Swiss cattle population from brucellosis.

### **B. Brucella melitensis in Sheep**

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



### **The entire country free**

Freedom from disease has been proved every year since 1998 conducting a survey in a randomized sample of farms. Free status is recognized by EU (Bilateral Agreement on Agriculture, Veterinary Annex).

### **Control program/mechanisms**

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

Brucellosis in sheep and goats is regulated as zoonoses to be eradicated (Swiss ordinance of epizootics, TSV Art. 190 - Art. 195). Notification of suspicious cases is mandatory. Actions to be taken in suspicious farms are ban of all animal traffic and the investigation of the whole herd.

Official meat inspection is investigating each carcass, its organs and lymphatic tissue on the prevalence of abnormal alterations. Carcasses showing clinical signs of brucellosis have to be destroyed and farms of origin are investigated.

Freedom from disease has been documented every year since 1998 conducting a survey in a randomized sample of farms. In 2005 673 farms with sheep and 592 farms with goats were included in the survey. 9'488 samples from sheep and 4'299 samples from goats were tested using serological test. There were no positive findings in these samples. EU regulation 91/68/EEC that defines populations of sheep and goat as one epidemiological unit is the basis of the survey. Scientific basis is published by Hadorn et al. 2002: Risk-based design of repeated surveys for the documentation of freedom from non-highly contagious diseases. Preventive Veterinary Medicine (2002) 56: 179-192.

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

In confirmed cases (herds) the whole herd has to be killed immediately. All placentas, abortion material and the milk of diseased and suspicious animals have to be disposed. The barn has to be disinfected.

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

Notification of suspicious cases and outbreaks is mandatory since 1966.

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

There are no observations that would challenge the freedom of Swiss goat population from brucellosis.

## **C. Brucella melitensis in Goat**

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

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

Freedom from disease has been proved every year since 1998 conducting a survey in a randomized sample of farms. Free status is recognized by EU (Bilateral Agreement on Agriculture, Veterinary Annex).

## **Control program/mechanisms**

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

Brucellosis in sheep and goats is regulated as zoonoses to be eradicated (Swiss ordinance of epizootics, TSV Art. 190 - Art. 195). Notification of suspicious cases is mandatory. Actions to be taken in suspicious farms are ban of all animal traffic and the investigation of the whole herd.

Official meat inspection is investigating each carcass, its organs and lymphatic tissue on the prevalence of abnormal alterations. Carcasses showing clinical signs of brucellosis have to be destroyed and farms of origin are investigated.

Freedom from disease has been documented every year since 1998 conducting a survey in a randomized sample of farms. In 2005 a randomized sample of 673 farms with sheep and 592 farms with goats were included in the survey. 9'488 samples from sheep and 4'299 samples from goats were tested using serological test. There were no positive findings in these samples. EU regulation 91/68/EEC that defines populations of sheep and goat as one epidemiological unit is the basis of the survey. Scientific basis is published by Hadorn et al. 2002: Risk-based design of repeated surveys for the documentation of freedom from non-highly contagious diseases. Preventive Veterinary Medicine (2002) 56: 179-192.

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

In confirmed cases (herds) the whole herd has to be killed immediately. All placentas, abortion material and the milk of diseased and suspicious animals have to be disposed. The barn has to be disinfected.

### **Notification system in place**

Notification of suspicious cases and outbreaks is mandatory since 1966.

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

There are no observations that would challenge the freedom of Swiss goat population from brucellosis.

**Table Brucellosis in other animals**

	Source of information	Sampling unit	Units tested	Total units positive for Brucella	B. melitensis	B. abortus	B. suis	Brucella spp., unspecified
<b>Pigs (1)</b>	Database of laboratory results from the Swiss approved Ceterinary diagnostic Laboratories (ITS)	Animals	48	0			0	
<b>mixed herds unspecified (3)</b>	Database of laboratory results from the Swiss approved Ceterinary diagnostic Laboratories (ITS)	Animals	532	3				3
<b>Wild boars (4)</b>	Database of laboratory results from the Swiss approved Ceterinary diagnostic Laboratories (ITS)	Animals	6	0			0	
<b>wild (2)</b>	atabase of laboratory results from the Swiss approved Ceterinary diagnostic Laboratories (ITS)	Animals	3	0			0	

- (1) : Diagnostic analyses by cultural methods
- (2) : Diagnostic analyses by cultural methods
- (3) : Serological Data
- (4) : Serological Data

**Footnote**

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Diagnostic analyses stratified by cultural methods or serological data. Please note the comments of each line

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

Region	Total number of existing bovine		Officially free herds		Infected herds		Surveillance						Investigations of suspect cases											
	Herds	Animals	Number of herds	%	Number of herds	%	Serological tests			Examination of bulk milk samples			Information about abortions			Epidemiological investigation								
							Number of bovine herds tested	Number of animals tested	Number of infected herds tested	Number of bovine herds tested	Number of animals or pools tested	Number of infected herds	Number of notified abortions whatever cause	Number of isolations of Brucella infection	Number of abortions due to Brucella abortus	Number of animals tested with serological blood tests	Number of suspended herds	Number of positive animals Serologically	Number of positive animals BST	Number of animals examined microbiologically	Number of animals positive microbiologically			
Whole country	45433	1552703	45433	100	0	0	4874	31042	0	4874	0	4874	0	0	0	0	18952	0	0	0	0	0	0	0
Total	45433	1552703	45433	100	0	0	4874	31042	0	4874	0	4874	0	0	0	0	18952	0	0	0	0	0	0	0

**Footnote**

Last surveillance: 1997

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

Region	Total number of existing ovine / caprine		Officially free herds		Infected herds		Surveillance			Investigations of suspect cases				
	Herds	Animals	Number of herds	%	Number of animals	%	Number of herds tested	Number of animals tested	Number of infected herds	Number of animals tested with serological blood tests	Number of animals positive serologically	Number of animals examined microbologically	Number of animals positive microbologically	Number of suspended herds
Whole country	17940	514522	17940	100	0	0	1266	13787	0	0	0	0	0	0
Total	17940	514522	17940	100	0	0	1266	13787	0	0	0	0	0	0

**Footnote**

details of the surveillance are described in a report and can be downloaded:  
[http://www.bvet.admin.ch/tiergesundheits/00192/index.thml?lang=de&download=04237\\_de.pdf](http://www.bvet.admin.ch/tiergesundheits/00192/index.thml?lang=de&download=04237_de.pdf)

## **2.7. YERSINIOSIS**

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

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

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

Yersiniosis (*Y. enterocolitica*, *Y. pseudotuberculosis*) in animal is notifiable, but not in humans. Cases of *Yersinia* in animals are reported in a database by the cantonal chief veterinarians. Approved Swiss veterinary Laboratories are linked with a laboratory database of the Swiss Federal Veterinary Office. In 2005, three cases of yersiniosis were reported by cantonal veterinarians, one being in a monkey, one in a sheep and one in a mouse. In the diagnostic laboratories, 254 samples were tested for yersiniosis, and four of these proved positive.

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

Notifiable disease in animals according to Swiss ordinance of epizootics (TSV Art. 5)

##### **Additional information**

Swiss zoonoses report 2005. Swiss Federal Veterinary Office Magazine 3/06 (<http://www.bvet.admin.ch/news/magazin/index.html?lang=en>)

**2.7.2. Yersinia in foodstuffs**

**2.7.3. Yersinia in animals**

**Table Yersinia spp. in animals**

	Source of information	Sampling unit	Units tested	Total units positive for Yersinia	Y. enterocolitica	Yersinia unspecified	Y. enterocolitica - Y. enterocolitica O:9	Y. enterocolitica - Y. enterocolitica O:3
<b>Cattle (bovine animals)</b>	Database Information Center for Animal Health in Switzerland (ITS)	single	5	0				
<b>Sheep</b>	Database Information Center for Animal Health in Switzerland (ITS)	single	2	2				
<b>Goats</b>	Database Information Center for Animal Health in Switzerland (ITS)	single	2	0				
<b>Pigs</b>	Database Information Center for Animal Health in Switzerland (ITS)	single	81	0				
<b>Solipeds, domestic</b>	Database Information Center for Animal Health in Switzerland (ITS)	single	3	0				
<b>Poultry, unspecified</b>	Database Information Center for Animal Health in Switzerland (ITS)	single	2	0				



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<b>Dogs</b>	Database Information Center for Animal Health in Switzerland (ITS)	single	88	0				
<b>Cats</b>	Database Information Center for Animal Health in Switzerland (ITS)	single	37	0				
<b>Rabbits</b>	Database Information Center for Animal Health in Switzerland (ITS)	single	2	0				
<b>Other animals</b>	Database Information Center for Animal Health in Switzerland (ITS)	single	43	3				

**Footnote**

method used: culture

## **2.8. TRICHINELLOSIS**

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

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

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

Trichinella infections have not been detected in domestic pigs in Switzerland for many decades. A full study of all slaughtered pigs, as required by European Commission (EC) Regulation 2075/2005, has not been carried out to date. From 2001 to 2004, between 400,000 and 490,000 pigs (15 to 19% of all slaughtered pigs) were tested every year without any positive findings being obtained. In 2005, a total of 916,791 pigs in three abattoirs were tested, which corresponded to 34% of the pigs slaughtered in Switzerland. All results were negative. Also in 2005, 14 foals tested negative on slaughter.

Trichinellosis and suspicion of trichinellosis are notifiable since 1966.

Investigation of wild boar, bear and nutria is mandatory (Swiss ordinance of meat hygiene, FHyV Art. 35). Meat hygiene tests on 2655 wild boars showed no positive results.

However, the fox and lynx are known to harbour *Trichinella britovi* in Switzerland. Seven infected foxes were identified in a study in 1992 / 1993 (Jakob et al., Schweiz. Arch. Tierheilk. 136: 298-308,1994), and in 2005 the case of a positive lynx was reported for the tenth time since 1999. *Trichinella* infections acquired in Switzerland have probably not occurred in humans for years in this country. But since human trichinellosis is not a notifiable disease, this cannot be stated with certainty.

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

There are no observations that would challenge the freedom of Swiss pigs, solipeds and wild boars from trichinellosis.

Game animals : fox and lynx harbour *Trichinella britovi*.

## **2.8.2. Trichinella in animals**

### **A. Trichinella in pigs**

#### **Monitoring system**

##### **Sampling strategy**

###### **General**

There is no mandatory sampling in pigs. However slaughterhouses that export meat or meat products to the EU have to fulfill Council Directive 77/96/EEC of 21 December 1976 on the examination for trichinae (*trichinella spiralis*) upon importation from third countries of fresh meat derived from domestic swine. In 2005, a total of 916,791 pigs in three abattoirs were tested according Regulation 77/96/EEC, which corresponded to 34% of the pigs slaughtered in Switzerland. All results were negative. The method used was artificial digestion method.

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

###### **General**

In slaughterhouses that are admitted to export in the EU all pigs are examined. In slaughterhouses of the national market no pigs are examined. Examined fraction of slaughtered pigs is 34%.

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

###### **General**

Piece of pillar of the diaphragm.

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

###### **General**

Piece of pillar of the diaphragm taken at slaughter.

##### **Case definition**

###### **General**

Detection of causative organism.

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

###### **General**

Artificial digestion method according regulation 77/96/EEC.

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

Trichinellosis is a notifiable disease in animals. In humans Trichinellosis is not notifiable.

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

There are no observations that would challenge the freedom of Swiss pigs from trichinellosis.

**B. Trichinella in horses**

**Monitoring system**

**Sampling strategy**

There is no sampling in horses. Few samples are taken sporadically.

**Frequency of the sampling**

14 samples were taken in 2005

**Case definition**

Detection of causative organism.

**Diagnostic/analytical methods used**

Artificial digestion method

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

Negative results in all samples.

**Notification system in place**

Trichinellosis is a notifiable disease in animals. In humans Trichinellosis is not notifiable.

**Table Trichinella in animals**

	Source of information	Sampling unit	Units tested	Total animals positive for Trichinella	T. spiralis	Trichinella spp., unspecified
<b>Pigs</b>	Swiss zoonoses report 2005	animals	961791	0	0	0
<b>Solipeds, domestic</b>	Swiss zoonoses report 2005	animals	14	0	0	0
<b>Wild boars</b>						
wild	Swiss zoonoses report 2005	animals	2655	0	0	0

**Footnote**

Swiss Zoonoses Report 2005: Swiss Federal Veterinary Office Magazine 3/06  
 (<http://www.bvet.admin.ch/archiv/magazin/index.html?lang=en>)

## **2.9. ECHINOCOCCOSIS**

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

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

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

Echinococcosis in animals is notifiable, but not in humans.

The burden of infection from *E. multilocularis* has increased because 1) the increasing of the fox population after having eradicated fox rabies, and 2) foxes have extended their habitat to urban areas. This may mean that the human population is exposed to a higher risk. However, in the last 35 years there has been no indication of a rise in incidences of alveolar hydatid disease in humans (seven to ten new cases per year). An increase in case numbers would probably be noticed only after a delay of between 5 and 15 years, as symptoms often occur years after infection.

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

Notifiable disease in animals according to Swiss ordinance of epizootics (TSV Art. 5)

##### **Additional information**

Swiss zoonoses report 2005. Swiss Federal Veterinary Office Magazine 3/06  
(<http://www.bvet.admin.ch/news/magazin/index.html?lang=en>)

### 2.9.2. Echinococcus in animals

**Table Echinococcus spp. in animals**

	Source of information	Sampling unit	Units tested	Total units positive for Echinococcus spp.	E. granulosus	E. multilocularis	Echinococcus spp., unspecified
<b>Cattle (bovine animals) (1)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	3	0			0
<b>Sheep (2)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	1	0			0
<b>Goats (3)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	0				
<b>Pigs (4)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	4	1			1
<b>Dogs (5)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	77	14			14
pet animals (8)	Database Information Center for Animal Health in Switzerland (ITS)	animal	30	7			7

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<b>Cats (6)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	2	0			0
pet animals (9)	Database Information Center for Animal Health in Switzerland (ITS)	animal	1	0			0
<b>Foxes (7)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	33	13			13

- (1) : Detection of the agent (PCR and/or AG-ELISA)
- (2) : Detection of the agent (PCR and/or AG-ELISA)
- (3) : Detection of the agent (PCR and/or AG-ELISA)
- (4) : Detection of the agent (PCR and/or AG-ELISA)
- (5) : Detection of the agent (PCR and/or AG-ELISA)
- (6) : Detection of the agent (PCR and/or AG-ELISA)
- (7) : Detection of the agent (PCR and/or AG-ELISA)
- (8) : Serological Data
- (9) : Serological Data

**Footnote**

The data of the table represent the detection either of the agent Echinococcus spp.(methods used: PCR and/or AG-ELISA) or serological data (ELISA). Please note the comments of each line.



## **2.10. TOXOPLASMOSIS**

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

#### **A. Toxoplasmosis general evaluation**

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

There are some sporadic cases of toxoplasmosis in humans and animals. However, due to a lack of surveillance data, the knowledge about the prevalence of the infection in humans and animals is scarce.

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

Toxoplasma in animals is notifiable, but not in humans.

Sixteen cases in animals were reported since 1997: Sheep (6); Goat (4); Cat (2); Cattle (2); Monkey (1); other mamalia (1)

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

Notifiable disease in animals according to Swiss Regulation of epizootics (TSV Art. 5)

##### **Additional information**

Swiss zoonoses report 2005. Swiss Federal Veterinary Office Magazine 3/06  
(<http://www.bvet.admin.ch/news/magazin/index.html?lang=en>)

## 2.10.2. Toxoplasma in animals

**Table Toxoplasma in animals**

	Source of information	Sampling unit	Units tested	Total units positive for Toxoplasma
<b>Cattle (bovine animals) (1)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	1	0
unspecified (8)	Database Information Center for Animal Health in Switzerland (ITS)	animal	11	1
<b>Sheep (2)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	2	2
<b>Goats (3)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	1	0
<b>Pigs (4)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	0	-
<b>Solipeds, domestic (5)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	0	-
<b>Dogs (6)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	3	0
pet animals (9)	Database Information Center for Animal Health in Switzerland (ITS)	animal	137	21
<b>Cats (7)</b>	Database Information Center for Animal Health in Switzerland (ITS)	animal	261	5
pet animals (10)	Database Information Center for Animal Health in Switzerland (ITS)	animal	44	11

- (1) : Detection of the agent (Methods used: Microscopical analysis of faeces, immunofluorescence and PCR)  
 (2) : Detection of the agent (Methods used: Microscopical analysis of faeces, immunofluorescence and PCR)  
 (3) : Detection of the agent (Methods used: Microscopical analysis of faeces, immunofluorescence and PCR)  
 (4) : Detection of the agent (Methods used: Microscopical analysis of faeces, immunofluorescence and PCR)  
 (5) : Detection of the agent (Methods used: Microscopical analysis of faeces, immunofluorescence and PCR)  
 (6) : Detection of the agent (Methods used: Microscopical analysis of faeces, immunofluorescence and PCR)  
 (7) : Detection of the agent (Methods used: Microscopical analysis of faeces, immunofluorescence and PCR)

(8) : Serological Data  
(9) : Serological Data  
(10) : Serological Data

**Footnote**

The numbers in the table stand either for the detection of the agent *Toxoplasma gondii* (Methods used: Microscopical analysis of faeces, immunofluorescence and PCR) or for serological results. Please note in this context the comments of each line.

## **2.11. RABIES**

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

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

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

The European fox rabies epizootic starting in 1939 at the eastern border of Poland reached Switzerland on March 3, 1967. Rabies spread over large parts of the country until 1977, the year it caused three human deaths. In 1978 the first field trial world-wide for the oral immunization of foxes against rabies was conducted in Switzerland. Initially, the expansion of the vaccination area led to a rapid reduction in rabies cases. However, the 1990s were characterized by a recrudescence of rabies in spite of regular oral immunization of foxes. The last endemic case of rabies was diagnosed in 1996 after an adaptation of the vaccination strategy.

A total of 17'109 rabies cases, of which 73% in foxes and 14% in domestic animals were diagnosed, leading to an estimated number of some 25 000 postexposure treatments in humans. To eliminate rabies, a total of 2.8 million baits containing a modified live virus were distributed - mostly by hand - in the field.

According to the definitions of the OIE and WHO (no cases for at least two years) Switzerland has been officially recognized as free of rabies since 1998. A suspected case of rabies in a dog (urban rabies) was confirmed in 2003, but since the dog was a foundling picked up close to the French border, it is highly unlikely that this indicates a focus of rabies infection in Switzerland. Bat rabies has been diagnosed in three cases in the past fifteen years (1992, 1993, 2002).

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

Switzerland is free from European fox rabies. However, fox rabies is present in the neighbour country Germany. There is a risk for the swiss fox population to be re-infected by immigrating infected foxes.

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

Vaccination of the Swiss dog population; Rabies testing on animals with suspect symptoms; A permit from the Swiss Federal Veterinary Office is mandatory for the import and re-import from countries which are not free from urban rabies. The animals are checked by the border veterinarian at entry. The import conditions are: vaccination against rabies; blood test at least 30 days after vaccination and subsequent waiting period of 3 months; identification with microchip / tattoo; veterinary border check.

##### **Additional information**

Swiss rabies center: [http://www.cx.unibe.ch/ivv/Swiss\\_Rabies\\_Center/swiss\\_rabies\\_center.html](http://www.cx.unibe.ch/ivv/Swiss_Rabies_Center/swiss_rabies_center.html)

## 2.11.2. Lyssavirus (rabies) in animals

**Table Rabies in animals**

	Source of information	Sampling unit	Units tested	Total units positive for Lyssavirus (rabies)	unspecified lyssavirus
<b>Cattle (bovine animals)</b>	National Swiss Rabies Center	animal	2	0	
<b>Solipeds, domestic</b>	National Swiss Rabies Center	animal	1	0	
<b>Dogs</b>	National Swiss Rabies Center	animal	27	0	
<b>Cats</b>	National Swiss Rabies Center	animal	24	0	
<b>Bats</b>					
wild	National Swiss Rabies Center	animal	11	0	
<b>Foxes</b>					
wild	National Swiss Rabies Center	animal	56	0	
<b>Badgers</b>					
wild	National Swiss Rabies Center	animal	5	0	
<b>Marten</b>					
wild	National Swiss Rabies Center	animal	7	0	
<b>Polecats</b>	National Swiss Rabies Center	animal	1	0	
<b>Ferrets</b>	National Swiss Rabies Center	animal	2	0	
<b>Alpine chamois</b>	National Swiss Rabies Center	animal	1	0	
<b>Rats</b>	National Swiss Rabies Center	animal	1	0	
<b>Squirrels</b>					
wild	National Swiss Rabies Center	animal	1	0	
<b>Chipmunk</b>	National Swiss Rabies Center	animal	1	0	

### Footnote

Swiss Rabies Center: [http://www.cx.unibe.ch/ivv/Swiss\\_Rabies\\_Center/swiss\\_rabies\\_center.html](http://www.cx.unibe.ch/ivv/Swiss_Rabies_Center/swiss_rabies_center.html)

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

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

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

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

## **4. FOODBORNE OUTBREAKS**

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