

# National Survey 2005

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The Swiss farm animal population today is free from many diseases thanks to the implementation of efficient control strategies and restrictive import practices. In addition to being free from the former List A diseases (as compiled by the World Organisation for Animal Health [OIE]) Switzerland is free from eight other major diseases (rabies, tuberculosis, brucellosis in cattle, infectious bovine rhinotracheitis [IBR], enzootic bovine leukosis [EBL], brucellosis in sheep and goats, Aujeszky's disease and brucellosis in pigs). This freedom from disease applies to farm animals, except in the case of rabies, where freedom from disease relates to the territory of Switzerland and therefore includes wild animals. To monitor these diseases, a National Survey based on random sampling was carried out in addition to the statutory requirement of notification of outbreaks and disease-specific surveillance options (such as testing abortions for brucellosis). Farm animals in the Principality of Liechtenstein are also monitored as part of the same random sampling programme. Under a treaty between the states, all Swiss sanitary and epidemiological regulations also apply in the Principality of Liechtenstein.

## Introduction and aims

In addition to the qualified clinical surveillance of farm animals by farmers and veterinarians, random sampling programmes represent the second most important pillar in the system for confirming freedom from disease in a country. Since 1995, diseases assigned in the animal diseases ordinance to the class of diseases to be eradicated have been monitored regularly by random sampling programmes that permit scientifically sound conclusions to be drawn with regard to the entire population. The results of these studies serve as a permanent quality certificate for the standards of health in Swiss animal husbandry. And they provide consumers with the security they need that they are purchasing products which originate from healthy animals. These tests also serve as a record of our performance in animal health for observers abroad. As part of the worldwide trade agreement, unilaterally imposed trade barriers should be further dismantled. The ongoing documentation on the high standard of health of our farm animals allows Switzerland to demand supplementary guarantees from its trade partners to reduce the risk of importing diseases from abroad. In this way, the export of Switzerland's animals and animal products is also facilitated.

## Procedure

The detailed planning and implementation of the random sampling is carried out every year in collaboration with the cantons, the test laboratories and the Swiss Federal Veterinary Office (SFVO). The number of farms selected every year depends on the characteristics of the disease, the results of previous years and the risk of disease being imported. For the 2005 National Survey, 1480 cattle and 673 sheep farms were randomly selected from the database on animal movements (TVD, as of November 2004). The cattle farms that are tested for EBL represent a subset of the cattle farms tested for IBR. Sampling takes place regularly in the spring. Blood samples were taken from all animals more than 24 months old. If there were fewer than 5 animals available older than 24 months, 5 blood samples were taken from younger animals. On cattle farms that were only to be tested for IBR, the oldest five animals per epidemiological unit were tested. On sheep farms, blood samples were taken from animals older than 12 months (12 m) as follows: Herds of less than 40 animals older than 12 m: all animals; herds of 40-99 animals older than 12 m: 40 animals; herds of 100 or more animals older than 12 m: 50 animals. The survey of goats for *Brucella melitensis* was based on the samples obtained as part of the control programme for caprine arthritis encephalitis (CAE). Data for pigs were obtained partly in the abattoir and in some cases directly on the pig farm. To obtain samples from as large a number of farms as possible in the abattoir, as many farms as possible with 50 or more breeding sows were included in the survey (n=734). A further 525 farms with fewer than 50 breeding sows were scheduled for purely on-farm sampling. The number of farms to be surveyed per canton was determined

according to random criteria in proportion to the number of pig breeding farms as defined in AGIS 2003.

### **Laboratory analyses**

Blood samples were sent to accredited laboratories for analysis. The diagnosis of IBR/IPV, EBL, *Brucella melitensis* and Aujeszky's disease was established in serum using ELISA. All positive and inconclusive ELISA results had to be checked by the responsible reference laboratory and confirmed with supplementary tests. These tests consisted of a serum neutralisation test in the case of IBR/IPV and Aujeszky's disease, an ELISA-Ab GP-51 in the case of EBL, and a complement fixation test (CFT) and agglutination test in the case of brucellosis.

### **Diseases covered by the 2005 survey**

Infectious bovine rinotracheitis / infectious pustular vulvovaginitis: cattle

Enzootic bovine leucosis: cattle

*Brucella melitensis*: sheep and goats

Aujeszky's disease: pigs

### **Principality of Liechtenstein**

In the Principality of Liechtenstein, 88 animals in three cattle herds were tested for IBR and EBL, 21 animals in three sheep herds and 12 animals in two goat herds were tested for *Brucella melitensis*. The farms were selected at random. All samples from the Principality of Liechtenstein were negative.

### **How representative is the national survey?**

The distribution of the farms surveyed in 2005 in relation to the number of cantons and the size of the farms surveyed (Figure) vary only slightly compared with the data obtained in the Farm Census (Agroinformation System AGIS). The 2005 National Survey can be regarded as representative of the situation throughout Switzerland.

### **Discussion**

With the testing of 1430 cattle farms for IBR and EBL, 673 sheep farms and 592 goat farms for *Brucella melitensis* and 1139 pig farms for Aujeszky's disease, the objectives set for the 2005 National Survey were achieved everywhere. All the farms surveyed were free of *Brucella melitensis* and Aujeszky's disease. Taking into account the results of the National Surveys conducted since 1994, the Swiss farm animal population is therefore free of *Brucella melitensis* and Aujeszky's disease. In the survey of cattle, one positive sample was found for EBL and one for IBR. After extensive studies, no further cattle were discovered to be positive for IBR or EBL. With the systematic implementation of the measures stipulated in the animal disease ordinance (TSV), Switzerland can again be regarded as free from IBR and EBL. Nevertheless, these positive results mean that more cattle farms will have to be tested for IBR and EBL in the 2006 National Survey.

The detailed report (in German, French or Italian) on the national survey can be found on the internet at [www.bvet.admin.ch/tierges](http://www.bvet.admin.ch/tierges)

## Random sampling of cattle for IBR and EBL in 2005

	Number	Mean per farm	Range
<b>Cattle</b>			
Cattle farms in Switzerland in 2005 <sup>1)</sup>	46,574		
Farms selected	1,480		
Farms not surveyed	63		
No cattle	8		
Farm closure	2		
Other reasons	31		
No data	22		
Substitute farms	13		
Farms surveyed	1,430		
Cattle on farms surveyed <sup>2)</sup>	51,480	36	2-420
Blood samples tested	28,241	19.75	2-112
Questionable positive, results retested negative in the reference laboratory	271 IBR 83 EBL		
<b>Positive test results</b>	<b>1 IBR <sup>3)</sup></b> <b>1 EBL <sup>4)</sup></b>		

1) According to the database on animal movements (TVD, as of Nov. 05)

2) Animal figures are missing for 16 farms. The total number of cattle was extrapolated accordingly.

3) Of all the non-interpretable and positive blood samples, one proved positive in the serum neutralisation test (SNT). See text for explanation.

4) Of all the non-interpretable and positive results, one proved positive in the second, more specific ELISA test. See text for explanation.

## Random sampling of sheep and goats for *Brucella melitensis* in 2005

	Sheep			Goats		
	No.	Mean per farm	Range	No.	Mean per farm	Range
Farms in Switzerland in 2003 <sup>1)</sup>	14,776			10,025		
Farms selected	979			704		
Farms not surveyed	306			112		
No sheep / goats	183			67		
Farm closure	49			15		
Other reasons	42			19		
No data	32			11		
Farms surveyed	673			592		
Animals in farms surveyed	21,536	32	1-500	5,920	10.1	1-448
Blood samples tested	9,488	14.1	1-53	4,299	7.3	1-448
Questionable positive, results retested negative in the reference laboratory	4 <b>0 <sup>3)</sup></b>			0 <b>0 <sup>3)</sup></b>		
<b>Positive test results</b>						

1) Sheep and goats according to the agricultural policy information system (AGIS 2003)

2) For 65 sheep and 144 goat farms, the total number of animals on the farm were missing. The total number of animals was extrapolated accordingly.

3) All non-interpretable results were negative on re-testing in the CFT and the agglutination test. All blood samples tested can therefore be considered free of *Brucella melitensis*.

## Random sampling of breeding sows for Aujeszky's disease in 2005

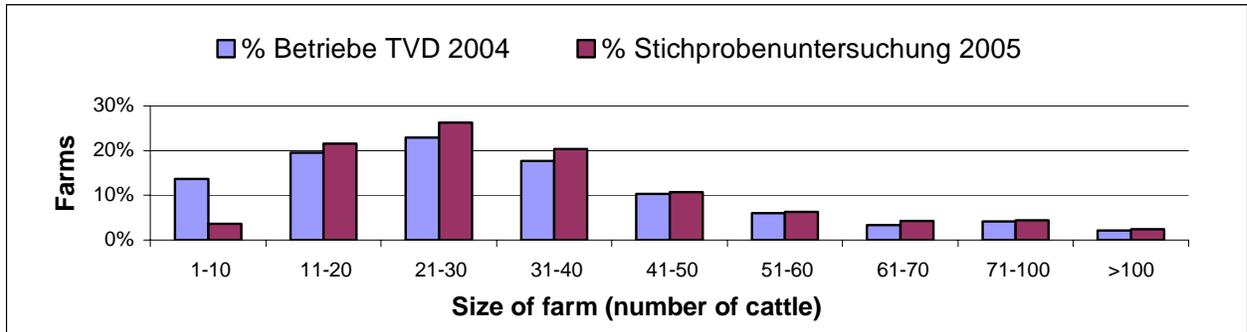
	Number / %
Pig breeding farms in Switzerland in 2003 <sup>1)</sup>	
Total	5053
= 50 breeding sows	832
< 50 breeding sows	4221
Farms selected	
Total	1263
= 50 breeding sows	738
Abattoir sampling	586
On-farm sampling	152
< 50 breeding sows	525
Abattoir sampling	-
On-farm sampling	525
Farms with at least 1 sample	
Total	1139
= 50 breeding sows	706
Abattoir sampling	565
On-farm sampling	141
< 50 breeding sows	433
Abattoir sampling	-
On-farm sampling	433
Farms with sufficient results	
Total	1067
= 50 breeding sows	637
Abattoir sampling	498
On-farm sampling	139
< 50 breeding sows	430
Abattoir sampling	-
On-farm sampling	430
Returns (at least 1 sample)	
Total	90.2%
= 50 breeding sows	95.7%
< 50 breeding sows	82.5%
Abattoir sampling	96.4%
On-farm sampling	84.8%
Returns (met)	
Total	84.5%
= 50 breeding sows	86.3%
< 50 breeding sows	81.9%
Abattoir sampling	81.9%
On-farm sampling	84.0%
Evaluable blood samples	7526
Mean per farm	7.17
Range	1-32
<b>Questionable positive, results retested negative in the reference laboratory</b>	<b>14</b>
<b>Positive blood samples</b>	<b>0 <sup>2)</sup></b>

<sup>1)</sup> According to the agricultural policy information system (AGIS, as of 2003)

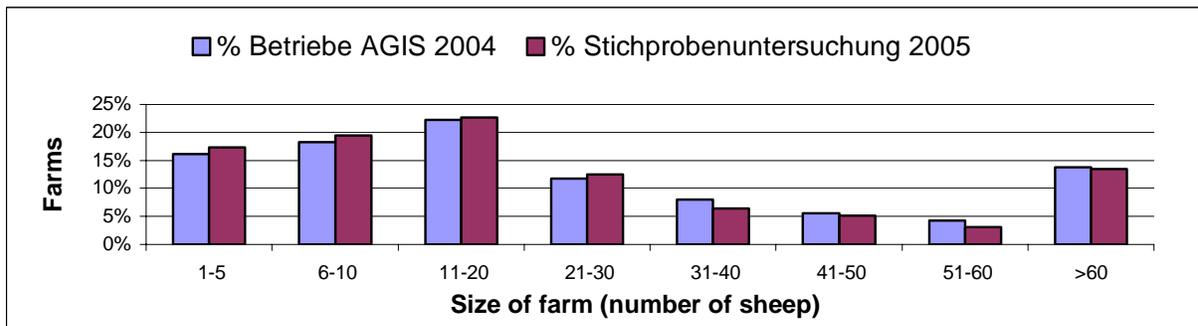
<sup>2)</sup> Of all the non-interpretable and positive results, none proved positive in the serum neutralisation test (SNT). All the samples tested for Aujeszky's disease can therefore be considered negative.

**Size of farms tested in the 2005 National Survey compared with the database on animal movements (TVD) on Aug. 05 (cattle) and the Farm Census AGIS 2004 (sheep and goats).**

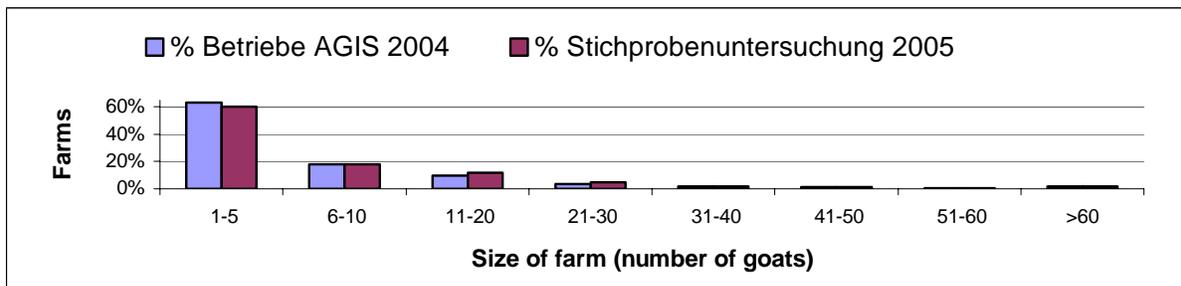
a) Cattle



b) Sheep



c) Goats



% Betriebe AGIS 2004 = % farms AGIS 2004

% Stichprobenuntersuchung 2005 = % 2005 National Survey