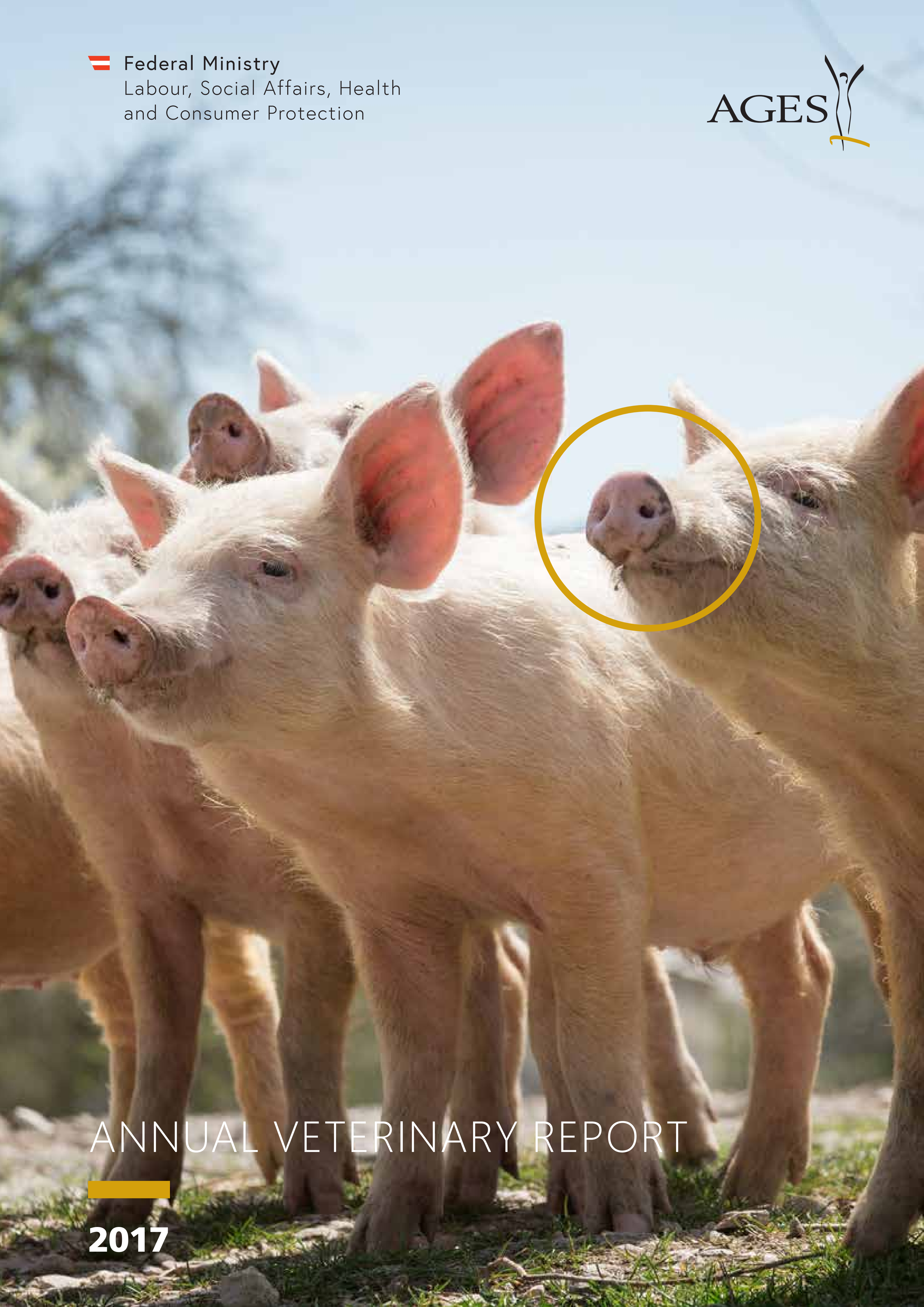
Federal Ministry
Labour, Social Affairs, Health
and Consumer Protection

AGES



ANNUAL VETERINARY REPORT

2017

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Federal Ministry of Labour, Social Affairs, Health and Consumer Protection
Austrian Agency for Health and Food Safety (AGES)

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FOREWORD

There is a direct link between animal health and food safety as we can only maintain a high standard in the production of food from animal origin if we maintain high animal health standards. Our official veterinarians make sure that only products from healthy animals find their way into the food chain. Their work begins with monitoring compliance with animal protection and animal health standards, includes a wide variety of laboratory tests and encompasses the issuing of certificates and licenses to enable smooth trade of animals and their products. Additionally, the staff of the Austrian Agency for Health and Food Safety (AGES) support the respective departments within my ministry through laboratory tests, risk assessments, the preparation of random sampling plans, public relations and their professional expertise.

This Annual Veterinary Report provides insight into the numerous activities of AGES and illustrates the excellent, efficient cooperation between the Austrian veterinary authorities and the Austrian Agency for Health and Food Safety. This is especially important with respect to keeping Austria safe from specific animal diseases. Biosecurity has become an increasingly important topic in the past year. The implementation of hygiene measures – some simpler, some more intricate – should prevent pathogenic agents from reaching agricultural establishments at all. Interdisciplinary task groups develop guidelines for this purpose and provide the necessary recommendations. Moreover, awareness of this topic within the Austrian agricultural sector and the meat and milk-processing industry has to be raised even more. It is necessary to further improve animal protection and guarantee trade in healthy animals, as well as safe products of animal origin.

My special thanks not only go to those who were involved in the creation of this report, but also to the people who have committed themselves to the safekeeping and promotion of animal health in Austria. Their commitment ensures that consumers' food comes from healthy animals that are treated appropriately to their species.

Minster of Social Affairs Mag. Beate Hartinger-Klein

Regards,
Mag. Beate Hartinger-Klein

Federal Minister of Labour, Social Affairs, Health and Consumer Protection

MONITORING OF ANIMAL HEALTH

INTRODUCTION

ONE OF THE BASIC PREREQUISITES FOR THE PRODUCTION OF HIGH-QUALITY AND SAFE FOOD OF ANIMAL ORIGIN IN AUSTRIA IS THE MAINTENANCE AND PROMOTION OF LIVESTOCK HEALTH.

Similarly, ensuring freedom from animal diseases is also a necessity for the trade in animals and makes a fundamental contribution to the added value in the context of livestock production. The monitoring of animal health and the combating of animal diseases are conducted on the basis of EU and national legislation and through the application of recommendations from the International Office of Epizootic Diseases (OIE). They are undertaken in close cooperation between the Austrian federal government (Federal Ministry of Labour, Social Affairs, Health and Consumer Protection, BMASGK), the federal provinces, the veterinary research facilities of the Austrian Agency for Health and Food Safety GmbH (AGES) and the laboratories based in individual federal provinces.
It should be stressed that the official veterinarians of the competent veterinary authorities in all the federal provinces are the regulatory agents in Austria.

The nationwide guarantee that the health status of Austrian livestock is tested annually is ensured by means of statistically verified sampling and monitoring programmes. The number of samples taken and analysed from Austrian livestock, including fish and bees, is published in this Annual Veterinary Report, together with the results.

STRUCTURE OF VETERINARY ADMINISTRATION IN AUSTRIA

COORDINATION OF CONTROLS

AUSTRIA IS A REPUBLIC WITH NINE FEDERAL PROVINCES (BURGENLAND, CARINTHIA, UPPER AUSTRIA, LOWER AUSTRIA, SALZBURG, STYRIA, TYROL, VORARLBERG AND VIENNA) AND 94 DISTRICTS.

Based on Article 10 Para. 1 (2) and (12) of the Austrian Federal Constitution Act (B-VG), Fed. Law Gazette 1/1930, as amended, the food sector, including food inspection and the veterinary sector (including the measures necessary to preserve the health of animals and combat the animal diseases affecting them, as well as the prevention of indirect hazards to human health resulting from animal husbandry and from the utilisation of animal body parts and animal products), feed trade regulation, as well as cross-border trade with animals and products, are a federal matter in terms of legislation and enforcement. In other words, the federal authorities are responsible for the passing and enforcing of legislation in these areas within the scope of the federal structure.

Where there are no federal authorities in place, the relevant provincial governor and provincial authorities reporting to the governor (including the district administrative authorities) are responsible for enforcement on behalf of the federal government, pursuant to Art. 102 Para. 1 B-VG. This system is referred to as indirect federal administration.

In this context, the provincial governor is bound by the instructions issued by the federal minister, and is responsible for organising and implementing monitoring as required.

The functions of the central veterinary authorities, in respect to the conducting of controls, are limited to planning and coordination within the indirect federal administration system. The areas in which enforcement is carried out by the federal government's own authorities (direct federal administration) include controls on the import of live animals, foods of animal origin, foods of plant origin (those that are subject to increased levels of control under EU legislation) and animal by-products.

Pursuant to Art. 11 BV-G, animal welfare is a matter of federal legislation and provincial enforcement. In other words, the federal authorities are responsible for the passing of legislation, and the provinces for the enforcement of the regulations.

The provinces carry the sole responsibility for the enforcement of the regulations in these fields. This includes plant disease and animal protection monitoring and control measures; the provincial government is the supreme authority and the subordinate district authority acts as the authority of first instance in such cases.

The Federal Ministries Act defines the fields of responsibility of the individual ministries. The responsibilities of the Federal Ministry of Labour, Social Affairs, Health and Consumer Protection include food control, animal health and animal protection, and – from 2007 – animal protection during transportation, which is subject to requirements detailed in the annex of transport regulations. The subjects of feed and plant health are among the responsibilities of the Federal Ministry of Sustainability and Tourism (BMNT).

The Austrian Agency for Health and Food Safety (AGES) and the Federal Office for Food Safety (BAES) were established under the Health and Food Safety Act (GESG).

AGES comprises all the federal laboratories for food testing, veterinary and human medicine testing, as well as the agricultural laboratories of the BMNT. The BMASGK employs 21 veterinarians in three departments, who deal with veterinary matters, as well as nine border veterinarians at the two remaining border control posts at Vienna-Schwechat and Linz-Hörsching airports, where consignments imported from third countries which are subject to controls are inspected.

The wide variety of functions carried out by the veterinary administration are conducted by 220 official veterinarians employed by the provincial governments and their districts. A total of 1,013 official contracts were awarded to practising veterinarians to meet monitoring obligations in accordance with the Austrian Animal Health Act, the ordinances on TB, BVD, poultry hygiene, and the Animal Transportation Act.

The total number of veterinary practitioners in Austria is just under 3,000; about 50 vets work in veterinary laboratories.

OVERVIEW OF ANIMAL DISEASE SITUATION IN AUSTRIA

NUMBER OF ANIMALS AND HOLDINGS:

Survey data for animal numbers and holdings in Austria (see Table 1) are based on the analyses carried out by Statistics Austria using the BMASGK's Veterinary Information System (VIS).

Table 1:
Livestock in Austria

Species	Livestock	Holdings
Cattle[1]	1,957,196	60,675
Pigs[1]	2,870,096	30,048
Sheep[1]	456,978	17,241
Goats[1]	109,486	10,431
Sheep & Goats[2]	566,464	24,556
Equidae[3]	90,993	18,370
Poultry[3]	20,573,715	68,233
Farmed Wild Ruminants	46,167	1,981
New World Camelids	5,090	790

[1] Cattle, pigs, sheep, goats: numbers of animals and holdings from VIS, cut-off date 1 April of the calendar year 2017, including the average stocks of those holdings at which a pen was empty on the sampling day, but which held replacement animals again in the course of the year.
[2] Sheep and goats: holdings with both sheep and goats were counted only once
[3] Equidae, poultry: numbers of animals and holdings taken from VIS entries from previous years (no annual survey)

IN 2017, AUSTRIA WAS FREE FROM THE FOLLOWING, HIGHLY CONTAGIOUS ANIMAL DISEASES:

- Foot and mouth disease
- Vesicular stomatitis
- Swine vesicular disease
- Rinderpest
- Peste des petits ruminants
- Contagious bovine pleuropneumonia
- Lumpy skin disease
- Rift Valley fever
- Sheep and goat pox
- African swine fever
- Classical swine fever
- Newcastle disease
- African horse sickness

OFFICIALLY RECOGNISED FREEDOMS, ADDITIONAL GUARANTEES

As a result of the strict eradication programmes that were carried out in the past and subsequent annual monitoring programmes, Austria is officially recognised as being free from certain diseases, such as bovine tuberculosis (*Myobacterium bovis*), bovine brucellosis (*Brucella abortus*), and enzootic bovine leukosis (all since 1999), as well as small ruminant brucellosis (*Brucella melitensis*, since 2001). Austria was granted additional guarantees from the EU for other diseases, such as infectious bovine rhinotracheitis (since 1999), and Aujeszky's disease (since 1997). The receiving of disease-free official status and the granting of additional guarantees eases conditions in the national livestock industry, as well as providing trade benefits. The maintenance of this outstanding animal health status is one of the fundamental goals of the Austrian veterinary authorities and considerable attention will continue to be focused on monitoring to identify any newly occurring or re-introduced diseases as quickly as possible before they can cause serious economic damage. The good health of the Austrian livestock population has to be reconfirmed annually, on the basis of the results of the monitoring programmes that are required to be conducted every year.

STATUS RECOGNITION

In addition to its officially recognised "disease-free" status and additional guarantees, the European Commission has also granted Austria the following special animal health status recognition:

1) Negligible BSE risk: since August 2012, based on the Implementing Decision 2012/489/EU. (OIE recognition was already granted as of May 2012.)
2) Negligible risk of classical scrapie: Austria has maintained this status since the coming into effect of Regulation (EU) No. 1148/2014 on 18.11.2014. Finland and Sweden also obtained this status in 2016.

QUALITY MANAGEMENT SYSTEM AND ACCREDITATION

Under the Austrian Health and Food Security Act, the Austrian Agency for Health and Food Safety, which is responsible for the protection of the health of humans, animals and plants, must carry out analyses in line with the relevant legislation, for which the application of accredited methods is required, e.g. tests directed at the combating of animal diseases and zoonoses.

"Accreditation is the formal recognition by the accreditation body (Federal Ministry of Science, Research and Economics) that the test centres meet the appropriate requirements regarding qualification and equipment and may, thus, be considered competent to carry out the activities included in the certificate of accreditation."

The basis for accreditation is derived from requirements stated in the Austrian ÖVE/ÖNORM EN ISO/IEC 17025:2007 "General requirements for the competence of testing and calibration laboratories".
The procedural rules required are laid down by the Austrian Accreditation Act (AkkG F.L.G. (BGBl.) I No. 28/2012) by way of supplement to Regulation (EC) No. 765/2008.

Accredited test centres must demonstrate to an independent accreditation body that they perform their activities at a professionally competent level, in compliance with statutory and standardised requirements and that this level is comparable internationally. Thus, accreditation guarantees the comparability of results within the EU and confidence in the quality and reliability of the tests conducted. Accreditation therefore means that, within the EU, Austrian test reports have the same status as those from other countries. This is proving to be increasingly important for successful participation in international competition.
All three institutes in the Animal Health Division of AGES (Institutes for Veterinary Disease Control Inns-bruck, Linz and Mödling) were combined into a joint test centre with effect from 14.1.2015 within the framework of a multi-site accreditation system. This was seen as the logical consequence of developments in AGES over the last few years, which have led to increasingly close cooperation between the different sites. The need for common procedures and regulations has resulted in a joint quality management system with uniform procedures and processes and harmonised test methods. The current joint quality management system and its competence are checked regularly by the accreditation body at all the different sites.

NATIONAL REFERENCE LABORATORIES

The authority of each Member State responsible for testing designates National Reference Laboratories (NRL) for each EU Reference Laboratory (EU-RL). The BMASGK has designated the different laboratories of the AGES Animal Health Division to be the National Reference Laboratories for 31 diseases.

The designation, responsibilities and tasks of both the EU-RLs and the NRLs are laid down in Regulation (EC) No. 882/2004, Articles 32 and 33, and, as of 29 April, 2018 in Regulation (EC) No. 2017/625 Articles 92-101, and in additional legislation pertinent to these matters.

These regulations form the basis for ensuring the high quality and international comparability of test results via the network of EU and National Reference Laboratories.

The National Reference Laboratories serve as a communications and information hub between the EU Reference Laboratories and the national, official testing centres and national authorities. They coordinate the activities of the official testing centres and provide scientific and technical support to the national authorities.

The NRLs regularly take part in comparison tests organised across Europe and they themselves regularly organise national comparison tests for the official testing centres. This serves both quality control purposes and aids the development of standardised methods within the EU.

Additional tasks of the NRLs are defined via international and national legislation and include, for ex-ample, the regular monitoring of the official test centres, the provision of standards, batch testing and sample storage.

Non-negative test results are verified by the NRL and forwarded to the EU-RL, as necessary.

CENTRE FOR BIOLOGICAL SAFETY IN MÖDLING (ZBS)

With the completion of the new high containment laboratory, the Centre for Biological Safety in Mödling (ZbS) has provided a further step towards the efficient monitoring of animal health in Austria. The ZbS is used to conduct laboratory investigations for BSL risk group 3 zoonotic agents and laboratory investigations for highly contagious animal diseases categorised within risk groups BSL3ag and BSL4ag.

The building was designed and constructed in compliance with EUFMD Directives (Minimum Biorisk Management Standards for Laboratories Working with FMD Virus) and has been in operation since October 2015. The laboratory is under a constantnegative pressure with inward air flow in order to prevent the escape of airborne pathogens (aerosols). An air tight outer shell as well as air locks for the entry and exit of staff and pass hatches with interlocking doors ensures the maximum biocontainment. The building consists of three floors, with the ventilation system located on the top floor and the effluent decontamination system in the cellar. Both of these systems have built in redundancy and designed to failsafe. Access controls at various levels ensure that only trained, trustworthy personnel can reach the containment areas, where pathogens are or could potentially be present. Particularly critical are all the laboratory areas and the technical decontamination areas in the cellar and the top floor.. A shower is mandatory when leaving the laboratory and some of the technical-system areas, and a quarantine period of 72 hours must also be observed to prevent the release of, and exposure to, a pathogen and, thus, an outbreak of disease in Austrian livestock.
A Bio Risk Officer (BRO) must be appointed, if an organisation operates a laboratory at this containment level, in accordance with the EUFMD Directives. The BRO is a staff member of the institute and an expert in all the possible biohazards and risks that might be present in the organisation. They advise the manage-

ment on biosafety matters, undertake risk assessments and implement biosafety measures. In the event of imminent danger, they report directly to the authority (BMASGK).

Figure 1:
AGES Centre for Biological Safety in Mödling

Figure 2:
Thermal Effluent Decontamination at the Centre for Biological Safety

RISK ASSESSMENT IN THE VETERINARY SECTOR

Risk assessments form an important basis for decision making by legislators. In Austria, for example, they are used to assess the risk of the recurrence of animal diseases, the risk of the introduction of a disease through transportation or trade or to assess different inspection, prohibition and vaccination strategies. This allows for the evaluation of possible measures and action options.

The preparation of risk assessments is usually carried out in accordance with the guidelines of the World Organization for Animal Health (OIE). These guidelines begin with in-depth hazard identification and are then composed of four phases of release assessment, exposure assessment, impact assessment and risk assessment.

AGES provides the Federal Ministry of Labour, Social Affairs, Health and Consumer Protection (BMASGK) and, via the AGES homepage, the general public regular updates on animal disease in and around Austria for current and potential animal disease epidemics. For example, a daily evaluation of the spread of the European epidemic of Highly Pathogenic Avian Influenza (HPAI) and a bi-weekly evaluation of the HPAI situation in Austria was provided by AGES, based on animal disease reports from the Animal Disease Notification System (ADNS) of the European Commission. In addition, the ADNS animal disease notifications for African Swine Fever (ASF), Blue Tongue Disease (BTV) and Lumpy Skin Disease (LSD) are evaluated on a regular basis and the results are available in a report. Additional assessments and analyses of animal movement data are often required, especially in the event of an outbreak. This includes the identification of contact establishments by means of forward and backward tracing, and/or the simulation of animal disease outbreaks along commercial networks. This way, data from the official veterinary information system (VIS), the cattle database and the European Trade Control and Expert System (TRACES) allows the rapid tracing of animal transportation activities within, as well as beyond, Austria's borders. Furthermore, AGES provides evaluations and maps of affected, inspected or vaccinated establishments, including restricted zones, and prepares sampling recommendations adapted to specific events.

In addition, risk-based sampling plans are used each year to monitor classical scrapie, bovine brucellosis, enzootic bovine leukosis, IBR/IPV and tuberculosis in cattle and *Brucella melitensis* in sheep and goats.

AUSTRIAN ANIMAL HEALTH SERVICES

The animal health services in Austria (TGD) are permanent institutions located in each province with the exception of Vienna. Participation is voluntary. They offer services to owners of farm animals (cattle, pigs, sheep, goats, poultry, farmed game, fish and bees) and veterinarians within a precisely defined legal framework. An Austria-wide poultry health service based in Lower Austria was established for poultry holdings. Veterinarians and farmers are committed to keeping and handling livestock in a way to try to minimise the use of veterinary medicinal products and prevent the impairment to animal health due to husbandry conditions, as part of this framework. The legal basis for this is defined in the Veterinary Medicinal Products Control Act (TAKG, F.L.G. I 2002/28 last amended by F.L.G. I 2008/36) and in the Animal Health Services Regulation (TGD VO 2009, Federal Law Gazette II 2009/434).

In 2017, 68 % of cattle, 93 % of pigs, 31 % of sheep and goat stocks, 80 % of poultry and 23 % of farmed game in Austria were monitored as part of the animal health service network. The 693 veterinarians active in this support system regularly advise TGD animal owners and care for their livestock.

The veterinarians carry out documented visits several times a year (depending on the size of the holding) to inspect and record compliance with legal requirements, most notably, the documentation of the correct use of medicinal products, the adherence to animal welfare regulations, animal health status and hygiene and feeding.

Such documented visits may also focus on "biosecurity at agricultural holdings," a topic for which specially developed checklists, e-learning programmes and lectures are available. This way, farmers are made more aware of the potential routes of entry of pathogens into their holdings.

Numerous health programmes, leaflets and comprehensive information materials have been developed to support effective stock management by the animal health services, in order to maintain or improve animal health and to increase the profitability and competitiveness of Austrian agricultural holdings. (Table 2).

In accordance with the Veterinary Medicinal Product Application Ordinance 2010, the veterinary medi-cinal products referred to in the programmes may be administered by a TGD livestock owner, as part of the relevant animal health programme and under the conditions outlined therein, provided that the training requirements within the Animal Health Services Regulation are met.

The animal health services offer training and further education events in cooperation with numerous training facilities in Austria.

Livestock holders must attend a minimum of four hours of specific further training every four years and veterinarians must attend at least 30 hours of specific further training every four years.

Regularly updated control regulations are used to monitor compliance with the legal requirements in the context of internal and external inspections.
The external inspections of the branch offices of the animal health services and the random checks of TGD participants (veterinarians and livestock holders) are carried out annually by accredited companies on behalf of the BMASGK.

Depending on the results of the inspections, the branch offices of the animal health services may be obliged to take different measures up to exclusion from participation in the TGD and, where appropriate, to involve the relevant district administrative authority.

FOR FURTHER INFORMATION AND AN IMAGE FILM ABOUT THE TGD, PLEASE VISIT:

https://www.verbrauchergesundheit.gv.at/tiere/tiergesundheitsdienst/
http://www.tgd.at

Table 2:
The following TGD programmes, leaflets and information materials are available at the time of reporting:

Species	Programmes and Information materials
Bees	Austrian Bee Health Programme 2016
Fish	Fish Health Programme
Poultry	Poultry Health Programme "Overall concept for monitoring and reducing antibiotic use, salmonella, Campylobacter and optimising animal welfare indicators"
	Programme of the Poultry Health Service QGV for the optimisation of conditions and product quality of broilers (*Gallus gallus*) and turkeys (*Meleagris gallopavo*)
	Programme for the control of salmonella in poultry farming and slaughtering in Austria and for the improvement of the health status of poultry stocks, including measures to ensure and improve the quality of products (eggs and poultry meat)
	Supplement to the Poultry Health Programme Salmonella Control - Sampling of Turkeys
	Programme of the Poultry Health Service QGV for combating salmonella and other pathogens in broilers (*Gallus gallus*), laying hens, water fowl and turkeys (*Meleagris gallopavo*) in accordance with the principles of competitive exclusion (CE)
	Poultry Health Programme "Antibiotics"
	Poultry Health Programme "Blackhead Disease"
	Poultry Health Programme "Restructuring problem flocks of laying hens"
	Poultry Health Programme "Infantis"
	Poultry Health Programme "All-in-One Concept"
Pigs	ÖTGD programme for the prevention of *E. coli*-related diseases in the pig programme "Animal Health and Management in Pigs"
	ÖTGD Programme "Circovirus Vaccination for Piglets"
	Programme for the monitoring of PRRS in Austrian stud breeding holdings
	Programme for monitoring the mange status in Austrian piglet holdings
	Programme for the monitoring and control of progressive rhinitis atrophicans in breeding pigs
	Programme Animal Health and Management in Pigs
Cattle	Programme for the collection, production and transfer of embryos
	TGD Fertility Programme
	Programme Module Udder Health for Cattle
	Programme Health Monitoring for Cattle
	TGD leaflet Dermatitis digitalis (DD, Mortellaro, strawberry disease)
	TGD leaflet Parasites in Cattle
Sheep and Goats	Programme for the control and monitoring of Maedi/Visna (MV), Caprine Arthritis Encephalitis (CAE) and *Brucella ovis* in sheep and goats
	Programme Endo- and Ectoparasite Control in Small Ruminants
Farmed Game	Austria-wide TGD programme for keeping game animals in enclosures (immobilisation and ante mortem inspection)

AUJESZKY'S DISEASE

Aujeszky's disease or pseudorabies is caused by a herpes virus (Suid herpes virus 1, SuHV-1) from the sub-family Alphaherpesvirinae. Pigs (domestic and wild) are the natural reservoir for SuHV-1. Carnivores and ruminants are the end hosts. There is no transmission from an infected end host to healthy carnivores or ruminants. The outcome for the host is usually fatal. Humans are not susceptible to SuHV-1 infection. Pigs that survive an SuHV-1 infection retain at minimum a latent infection for the rest of their lifetimes. The reactivation and spread of the infection in these animals is possible. It is prohibited to vaccinate pigs against this disease in Austria.

An outbreak of Aujeszky's disease in domestic pig stocks in Austria is notifiable, pursuant to Art.16 of the Austrian Animal Diseases Act. A permanent monitoring programme for domestic pig stocks in Austria has been in place since 1997. The Aujeszky situation in Austria is assessed on the basis of the annual monitoring programme. Based on the results of these tests, Austria has been officially recognised as being free from Aujeszky's disease in domestic pigs since 1997 (additional guarantees).

DOMESTIC PIGS – MONITORING:

A total of 22,559 pigs from 4,442 establishments were tested serologically for antibodies (Ab) to Aujeszky's disease in 2017. All the tests returned negative results.

CLASSICAL SWINE FEVER (CSF)

The National Reference Laboratory at the IVET Mödling tested a total of 7,241 blood samples from pigs for CSF antibodies in 2017. Of this number, 1,814 tests were private and 5,427 were commissioned officially. A total of 1,519 samples were tested using RT-PCR for the detection of CSF virus. Neither the antibodies nor the virus were detected in any of the samples.

The Institute for Veterinary Disease Control in Mödling has been taking and testing samples in four categories as part of the Austrian monitoring programme for classical swine fever, using a risk-based sampling plan since 2010.

CSF MONITORING IN DOMESTIC PIGS:

Tables 3 and 4 show the test results. The NRL in Mödling developed and validated a new triplex PCR due to the occurrence of the first cases of African Swine Fever (ASF) in Eastern Europe and because it is not possible to distinguish clinically between the symptoms of CSF and ASF. This method can be used to test for CSF, ASF and an extraction control simultaneously from a single sample, thus saving both time and financial resources. This triplex PCR has been used as the screening method for all official testing at the NRL in Mödling since 2014.

Table 3:
CSF – Number of official samples taken from domestic pigs 2017. All the samples were negative.

Category	Group of monitoring	Target population	Diagnostics	Samples - half-year and total 1. HY	2. HY	Σ
I	Monitoring a spart of post mortem Inspection	Slaughtered pigs	Virus detection using PCR (Ag)	40	34	74
II	Monitoring of Rendering Plant	(All age groups)	Virus detection using PCR (Ag)	488	550	1,038
		Regau Upper Austria		172	120	292
		Tulln Lower Austria		0	268	268
		Landscha Styria		179	108	287
		Unterfrauenhaid Burgenland		25	15	40
		Klagenfurt Carinthia		112	39	151
III	Follow-up tests from AGES routine diagnostics	(All ages)	Virus detection using PCR (Ag)	161	175	336
IV	Blood samples from AGES routine diagnostics	(All age groups)	Antibody detection (Ab)	2,724	2,703	5,427

Table 4:
Number of CSF tests on domestic pigs in total (official and private commissions) in Austria in 2017. All the samples were negative.

Diagnostic method	Samples in CSF - Surveillance	Other samples	Total
AK - ELISA (Ab - ELISA)	5,427	1,814	7,241
PCR	1,448	71	1,519
Virus isolation	0	0	
Total	6,875	1,885	8,760

AFRICAN SWINE FEVER (ASF)

African Swine Fever (ASF) is a highly contagious, systemic disease that occurs only in members of the pig family (Suidae). It is caused by the African Swine Fever virus (ASFV), an enveloped virus with a double-stranded DNA genome and currently the only known DNA arbovirus in the Asfarviridae family. The natural hosts are various species of African wild pigs, particularly warthogs and bushpigs, but all species of pig are susceptible to infection. ASFV infection usually causes an illness with high fever and high levels of morbidity and mortality in both the European wild boar and domestic pigs. There is no risk of infection for other domestic animals or humans.

The virus is transmitted via direct contact or animate (Ornithodoros ticks) and inanimate vectors. ASFV remains infectious for a long time even outside a living host, especially in meat and meat products.
African swine fever was observed in the region between the Black Sea and Caspian Sea, known as the Transcaucasus region, in 2007. Since then, ASF has spread further northwards, including to Russia, Ukraine and Belarus, close to the borders of EU Member States. No EU Member State had been affected by ASF up to 2013, with the exception of Sardinia (Italy), where the disease has been present since 1978.
The first cases of ASF were seen in Lithuania, Latvia and Poland in 2014, near the border with Belarus. These developments in ASF in Eastern Europe led the EU to commission a scientific report from EFSA on the spread of the disease, which was published on 14 July, 2015 (http://www.efsa.europa.eu/de/efsajournal/pub/4163). ASF is endemic in two regions in Eastern Europe: southwest and central Russia. In these regions, both domestic (especially free-range domestic pigs) and wild boars are affected, while the disease has mainly been found in wild boars in the Baltic States and Poland. The cause of the ASFV outbreak in the Czech Republic in 2017 could be traced with high probability to the further spread of the disease through the illegal feeding of ASF-infected food scraps. The first confirmed ASF outbreak was reported near Zlin close to the Austrian border (distance of ca. 80 km) on 26 June, 2017. As a result, the regions in the administrative districts of Hollabrunn, Tulln, Korneuburg, Mistelbach, Bruck/Leitha, Gänserndorf and Vienna located north of the River Danube were declared risk areas at the beginning of July 2017 to prevent the spread of ASF in Austria. In the specified risk area, all of the free range farms and 10 % of the holdings with outdoor pens were obligated to undergo ASF inspections. The location (settlements, remote location, close to the forest, etc.) and the closeness to the Czech border – in particular to the place where the disease was detected in the Czech Republic – were essential factors in the selection of the farms with outdoor pens to be inspected. A total of 994 samples were taken from domestic pigs and examined, with 951 samples testing negative for ASF. Forty-three samples could not be evaluated as a result of PCR inhibition (=inadequate quality of the sample materials). Additionally, 119 officially taken samples

of wild boars were tested, with 117 testing negative and two unanalysable. As a biosecurity measure, the animals from holdings with outside pens were housed indoor overnight and official veterinarians ran an information campaign aimed at individuals who are part of the rapid alert system (finding wild boar cadavers) or those involved in hunting directly or the processing of hunting products (meat, trophies,…).This included forest rangers, law enforcement officers, the road maintenance department, army personnel, farmers and other businesses dealing with pigs (domestic pigs and/or wild boars), in addition to hunters.

THE RELEVANT DOCUMENTATION IS AVAILABLE ON THE HOMEPAGE OF THE COMMUNICATIONS PLATFORM CONSUMER HEALTH (KVG) OF THE BMASGK
https://www.verbrauchergesundheit.gv.at/tiere/asp_Vortrag.html

By taking part regularly in international interlaboratory tests, the National Reference Laboratory for ASF at the Institute of Veterinary Disease Control in Mödling ensures that ASF can be detected rapidly and reliably using lab tests, should the worst case occur. A triplex PCR (ASF, CSF and internal control) was developed at the National Reference Laboratory of AGES IVET Mödling in 2014, for the differential diagnosis of "swine fever" (Classical and African) and incorporated into the scope of accreditation in line with EN/ISO 17025. An exclusion test for differential diagnosis purposes is carried out in the case of suspected cases reported by an official veterinarian or in the case of pathological laboratory dissection findings that do not rule out any suspicion. An exclusion test of this type was performed on eight domestic pigs in 2016 – all the samples were assessed as negative for ASF (Table 5).

Table 5:
ASF – Examinations of suspected case reports and exclusion tests from 2011 to 2017

Year	Serological analyses	PCR analyses	Species
2011	0	0	Pig
2012	0	5	Pig
2013	0	5	Pig
2014	0	10	Pig
2015	0	13	Pig
2016	0	9	Pig
2017	0	8	Pig

A total of 1,448 official samples were tested using PCRs (see Figure 3) in the course of domestic pig screening. A total of 1,444 samples were assessed as ASF negative and four samples could not be analysed.

In addition, 74 samples of abortions in domestic pigs were examined last year, with 72 samples assessed as negative and two were not analysable.

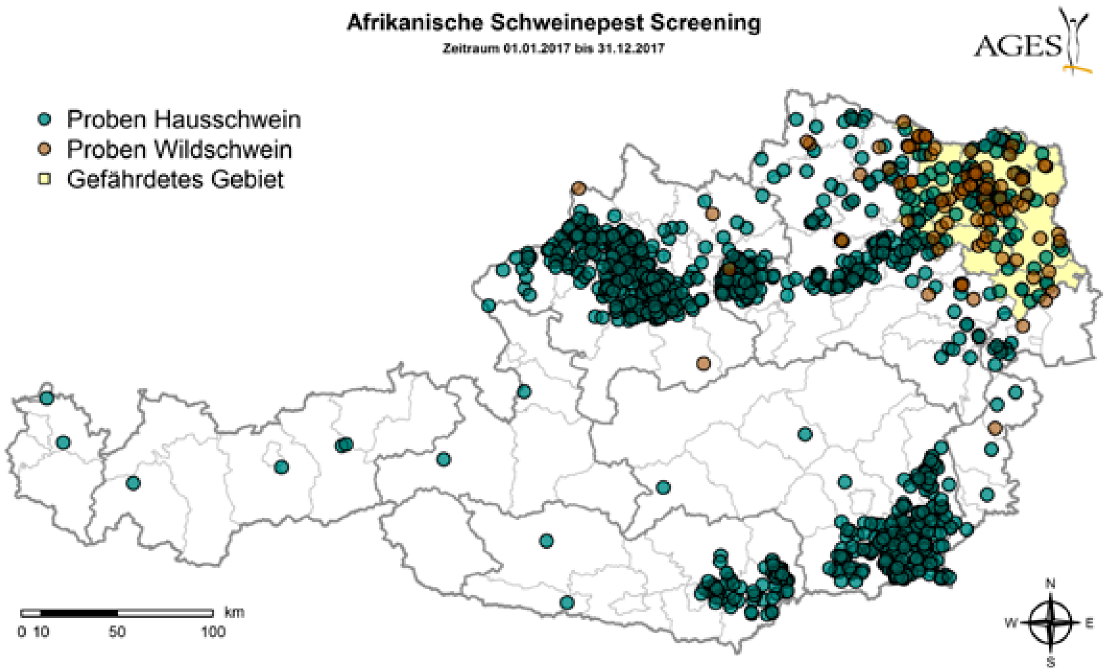

Figure 3:
Representation of domestic pigs (blue-green dots) and wild boars (brown dots) tested for ASF as part of screening.

Starting in 2011, an extensive wildlife survey was conducted, which included tests for the presence of the ASF virus. Tests of this type were carried out on a smaller scale in the subsequent years 2012 and 2013. However, the figure increased again in 2014 as a result of epidemiological developments in Eastern Europe and a monitoring programme for swine fever in wild boars that was established at the time. The 2017 wild boar swine fever monitoring programme analysed 68 samples, 66 of which tested negative for ASF and two could not be analysed or tested. The relevant test figures can be seen in Table 6 below.

Table 6:
ASF – Examinations in Wild Boars from 2011 to 2017

Year	Serological analyses	PCR analyses	Species
2011	223	298	Wild boar
2012	43	2	Wild boar
2013	32	2	Wild boar
2014	0	98	Wild boar
2015	0	74	Wild boar
2016	0	45	Wild boar
2017	0	68	Wild boar

SWINE BRUCELLOSIS

Swine brucellosis is a notifiable animal disease caused by bacteria. However, reports of this disease in domestic pigs caused by *Brucella* (*B.*) *suis* biovar 2 are rare in Europe. Swine brucellosis was first detected in Austria in a breeding sow in Styria in the 1990s. Several pig holdings in the Lower Austrian Waldviertel region experienced outbreaks in 2003 and there was one outbreak in the Schärding District (Upper Austria) in 2004. In the reporting year of 2017 one outbreak was detected at a breeding farm in the district of Grießkirchen, Upper Austria, with a total of nine contact establishments. An outbreak of the disease causes increased numbers of abortions in domestic pigs at all stages of pregnancy. The pathogen is detected using molecular biology methods and by growing cell cultures from abortion material or indirectly by serological tests for antibodies.

B. suis biovar 2 is common in wild boars and hares in Europe and can be transmitted to domestic pigs and humans (zoonosis) from these wild animals. While *B. suis* biovar 2 has only a minor pathogenic effect in humans, *B. suis* biovar 1, which has been detected in wild and domestic animals in Europe but only in Croatia up to now, is highly pathogenic for humans. Hares infected with brucellosis show differently sized, yellow-brownish lumps, especially in their liver and spleen, and a purulent inflammation of their genitalia. Brucellosis cases were observed in greater numbers in Upper Austria, Lower Austria and Burgenland between 1990 and 1993. *B. suis* biovar 2 was last detected in hares in Upper Austria in 2017. In wild boars, the bacteria are found in the lymph nodes, seminal vesicles, the prostrate or the testicles, even though these organs might appear unchanged. The detection of *B. suis* biovar 2 in the mandibular lymph nodes of 12 wild boars that were killed in the wild in 2011 and 2012 in eight districts in Lower Austria, Upper Austria and Burgenland was reported in 2016.

Transmission potential is more prevalent in the case of free-range or outdoor holdings of domestic pigs in endemic areas. The pathogen may also be introduced via contaminated green forage or a chronically infected boar that is introduced into a herd of breeding sows. The unsafe disposal of animal by-products from hunted wild boars and hares also presents a risk of the introduction of the bacteria into the livestock population. Ensuring basic hygiene standards during hunting and in the processing of wild game meat by hunters is the most important measure in preventing the introduction of the pathogen into domestic pig livestock and its transmission to humans.

BRUCELLOSIS OF SMALL RUMINANTS

BRUCELLA MELITENSIS

Brucellosis in small ruminants is an infectious disease that can be also transmitted to humans (zoonosis) and is caused by the bacterium *Brucella melitensis*. Typical symptoms of the disease, also known as Malta fever, in humans are high fever, shivering, headaches and muscle pain. Sources of infection are raw sheep and goat's milk and products made from them, as well as infected animals which are suffering from reproductive organ disorders and, in rare cases, inflammation of the joints. The pathogen causing brucellosis is found predominantly in the Mediterranean area and the Tropics.

Austria has been officially recognised as being free from *Brucella melitensis* since 11 April, 2001, pursuant to Commission Decision 2001/292/EC. This status has to be confirmed with annual, representative sample tests. The sample size is published by the competent federal ministry in the official veterinary bulletin. A total of 19,503 blood samples from sheep and goats from 1,591 holdings were tested for antibodies to *B. melitensis* in 2017. There were no positive cases of *Brucella melitensis*.

BRUCELLA OVIS

In rams, brucellosis takes the form of infectious epididymitis caused by *Brucella ovis*. This disease is not zoonotic. A total of 3,802 rams from 1,355 holdings were tested serologically in 2017 and one seropositive animal was identified.

TRANSMISSIBLE SPONGIFORM ENCEPHALOPATHIES (TSE)

BSE

The statutory framework conditions of Regulation (EC) No 999/2001 and Commission Decision 2009/719/EG, as amended, continued to apply in 2017. Pursuant to the Regulation on the Monitoring of Bovine Health (Federal Law Gazette II No. 334/2013) and Announcement GZ BMG-74.600/0007-II/B/10/2014 dated 14 June 2016, animals that died or were slaughtered, at the age of 48 months or above, and were born in Austria or the following countries: B, CY, CZ, DK, D, EE, FIN, F, GR, H, IRL, I, LV, LT, LUX, M, NL, P, PL, S, SK, SLO, SP, UK, Channel Islands, Isle of Man, and bovines aged 24 months or above slaughtered as an emergency or special measure or were culled on health grounds during a slaughtering ban, were subject to testing for BSE. For cattle from EU countries without a revised monitoring programme (BG, RO), as well as Switzerland and other non-EU countries, the age limits in Regulation (EC) No 999/2001 continued to apply (30 months for animals slaughtered normally, 24 months for all other categories). Tests on younger cattle, from the age of 20 months, continued to be possible at the expense of the person authorised. Two animals were submitted for testing at the request of the authorised person in 2017.

Table 7:
Number of Tests in Respect to BSE

Categories cattle	Analysed samples	Age limit in months
Healthy slaughter	133	30
Emergency slaughter and slaughter with clinical signs at ante mortem	3,209	24
Fallen stock	13,794	48 bzw. 24[1]
Eradication as part of BSE programme	0	
Clinical suspicion	17	
Voluntary tests	2	ab 20
Total	17,155	

[1] Age limit dependent on country of origin and legal basis (Commission Decision 2009/719/EC as amended)

Once again, no cases of BSE were found in Austria in 2017. As of May 2012, Austria was classed as a country with a "negligible BSE risk" by the OIE.
When requests are submitted for testing, suspect animals that test negative for TSE can be subjected to further differential diagnostic tests with respect to other CNS agents.

SCRAPIE

One case of "atypical scrapie" was detected in a nine year old, fallen/killed sheep in Austria in 2017.
The diagnosis was made at the NRL Mödling using Western Blot and confirmed by the EURL for TSE.
Austria has held the status "negligible risk of classical scrapie" since Regulation (EU) No. 1148/2014 came into effect on 18 November, 2014.
Examination obligations for scrapie were conducted in line with Annex 1 of the Sheep and Goat Health Monitoring Regulation (Fed. Law Gazette II No. 308/2015) of 1 November, 2015 and Regulation (EC) No. 999/2001.

In 2017, sheep and goats over 18 months that were slaughtered were also inspected as part of a risk-based random sampling plan, found in Annex 12 of the relevant Notification in force (see under "**BSE**"), in addition to fallen/killed animals.
Genotyping was carried out in accordance with the provisions of Regulation (EC) No. 999/2001 of the European Parliament and the Council.

Table 8:
Numbers of Tests in Respect to Scrapie

Categories sheep and goats	Analysed samples	Positive samples
Slaughtered sheep and goats	170	0
Fallen/ killed stock	3,385	1 (atyp. scrapie)
Clinical scrapie – clinical suspicions	0	0
Total	3,555	1 (atyp. scrapie)

Figure 4:
Sheep's head before sampling using brain spoon technique

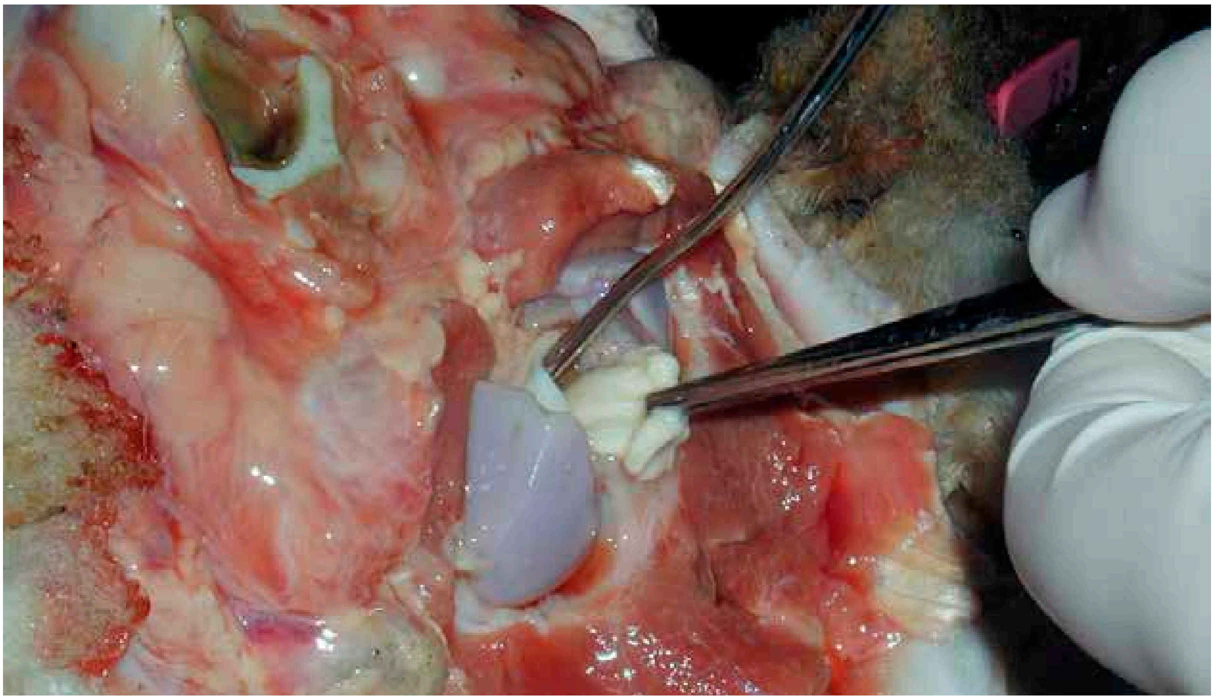

Figure 5:
Spoon sampling technique used on a sheep's head

BOVINE BRUCELLOSIS, ENZOOTIC BOVINE LEUKOSIS AND IBR/IPV

Bovine brucellosis (Abortus Bang), enzootic bovine leukosis (EBL) and infectious bovine rhinotracheitis / pustulous vulvovaginitis or balanoposthitis (IBR/IPV, IBP) are notifiable animal diseases.

Bovine brucellosis is a bacterial, zoonotic infection. Individuals in close contact with animals, such as farmers, vets and abattoir staff, are at particular risk. The disease is caused by Brucella abortus, which is responsible for contagious abortions in cattle and causes the sickness known as Bang's disease in humans.

Enzootic bovine leukosis is a viral disease in cattle. The pathogen belongs to the family of the Retroviridae, genus HTLV-BLV group. The tumours that develop are malignant B-cell lymphomas.

IBR/IPV or IBP (red nose) is a viral disease in cattle, caused by Bovine herpesvirus Type 1 (BHV-1). The pathogen belongs to the family of the Herpesviridae, genus Varicellovirus.

Since 1999 Austria has been officially recognised as being free from bovine brucellosis and enzootic bovine leukosis and holds additional guarantees for IBR.

Annual monitoring programmes are undertaken to preserve this status, in accordance with the specifications of Directive 64/432/EEC and the National Regulation on Monitoring of Bovine Health, and this was also the case in 2017.

Dairy farms and non-dairy farms are sampled in accordance with a risk-based random sampling plan drawn up by the AGES Data and Statistics and Risk Management Division (AGES-DSR). Dairy farms are screened through testing samples from bulk tank milk using ELISA tests. Non-dairy farms are monitored through testing blood samples, again using ELISA tests. The tests are conducted at the Institute for Veterinary Disease Control in Linz.

Table 9 below provides an overview of the number of tests for bovine brucellosis, enzootic bovine leucosis and IBR/IPV within the framework of the monitoring programme.

Table 9:
Tests for Bovine brucellosis, enzootic bovine leucosis and IBR/IPV

	Blood samples/cattle tested	Bulk milk samples/Pools
Bovine Brucellosis	10,952	1,324
Enzootic Bovine Leukosis	10,964	1,323
IBR/IPV (Red Nose)	11,659	1,547

Once again, Austria's cattle livestock were recognised as being free from bovine brucellosis, enzootic bovine leukosis and IBR/IPV in 2017.

TUBERCULOSIS (TBC)

The causative agents of tuberculosis in humans and animals are closely related species of mycobacteria that are combined in what is known as the *Mycobacterium tuberculosis* complex (MTBC). This complex includes the following species: *Mycobacterium* (*M.*) *tuberculosis*, *M. africanum*, *M. canettii*, *M. bovis*, *M. caprae*, *M. pinnipedii*, *M. mungi*, *M. orygis*, *M. suricattae* and *M. microti*. Identification of the *Mycobacterium* species and genotyping of the strains is undertaken using a variety of molecular biological methods. The entire *Mycobacterium tuberculosis* complex – also including ovine tuberculosis – is a notifiable disease in Austria. Austria has been officially free from bovine tuberculosis (*M. bovis*) since 1999 pursuant to EU Commission Decision No. 467/1999/EC.

However, the formerly Federal Ministry of Health and Women´s Affairs has ordered the examination of cattle in certain risk areas (special testing zones and special monitoring zones) using simultaneous (intradermal) tests since the occurrence of tuberculosis infections in wild red deer caused by *M. caprae* in certain areas of the federal provinces of Tyrol and Vorarlberg.

The tuberculosis pathogen *M. caprae* was detected in a total of nine animals from eight cattle farms as part of these tests in 2017. In Tyrol two cattle stocks in the district of Reutte and one in the district of Landeck were affected by the infection. Five affected cattle stocks were found in the district of Bludenz in Vorarlberg.

In 2011 was the first time that an infection zone with reference to TB was defined and identified in the federal province of Tyrol on the legal basis of the Austrian Red Deer TB Ordinance (Rotwild-TBC-Verordnung). Infections with *M. caprae* were detected in 13 red deer in this infection zone during the hunting season of 2017. Additionally, Tyrol has carried out a red deer screening (hunting grounds in the Karwendel mountain range and the districts of Innsbruck-Land, Schwaz, Landeck and Kufstein) since 2012, with *M. caprae* being detected in 7 red deer during the 2017 hunting season.

The federal province of Vorarlberg has also been running a province-wide red deer TB monitoring programme since 2009, with a control zone set up in the district of Bludenz in 2013. Distinctions are made between core, monitoring and observation areas in the affected red deer areas in the control zone – in a similar fashion to the infection zone in Tyrol. Tests carried out in the 2017 hunting season in Vorarlberg detected infections with *M. caprae* in 28 red deer and one infection with *M. microti*.

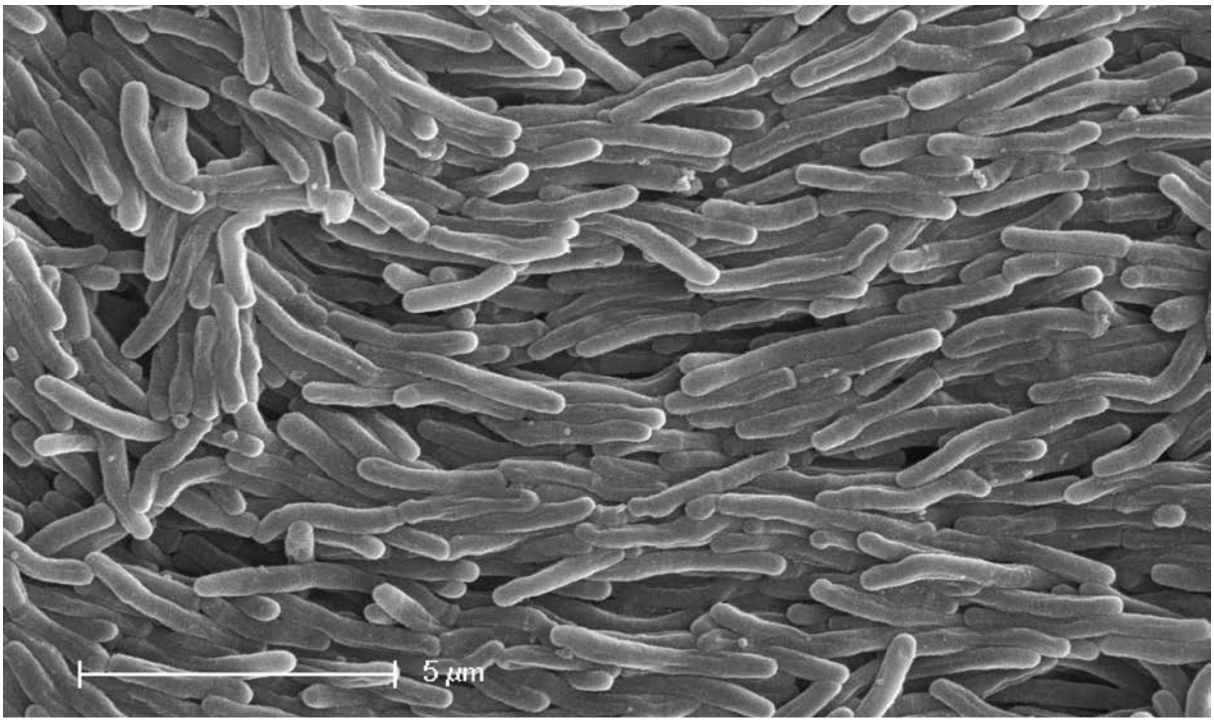

Figure 6:
Scanning electron microscope image of *M. caprae*

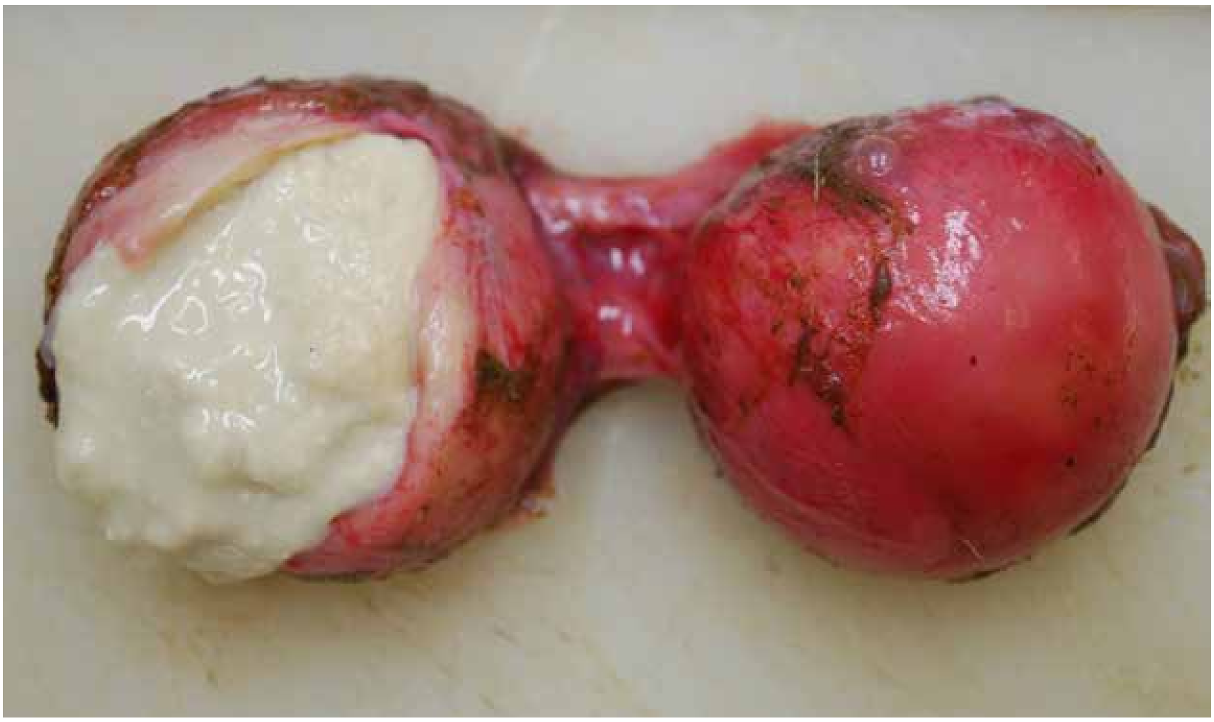

Figure 7:
Red deer – spherical enlargement of 2 mediastinal lymph nodes

BOVINE VIRAL DIARRHOEA (BVD)/ MUCOSAL DISEASE (MD)

BVD/MD is one of the most commercially damaging infectious diseases in cattle. Consequently, several European countries, such as Austria, the Scandinavian countries, Switzerland and, since 2011, the Federal Republic of Germany, have opted to eradicate the disease actively.

Corresponding national legislation, the BVD Regulation, based on the Animal Health Law, has regulated the control measures and procedures for the prevention of BVD/MD throughout Austria since 2004. It is required to notify any suspicion of BVD/MD.
The disease occurs globally and is caused by a pestivirus of the Flaviviridae family. Persistently infected cattle (PI animals) play a key role in the spread of the disease as they excrete large amounts of the virus continuously throughout their entire lives via all of their bodily excretions and secretions.

Respiratory tract infections, diarrhoea, fever, loss of appetite, reduced milk production and a general weakening of the immune system are all possible symptoms. Fertility problems occur in most cases, and pregnant animals may abort or give birth to deformed and sickly calves. BVD infections in early pregnancy may result in the birth of PI animals. Many of the diverse clinical symptoms often go unrecognised, which is why early detection is so important.

Infection of immunocompetent animals with the BVD virus usually triggers only a transitory infection (transient viraemia) and this acute or transient infection subsequently results in the creation of antibodies that can be detected in the blood or milk. In PI animals, mutations of the virus or superinfections with an additional viral strain can result in mucosal disease. This disease is particularly severe, resulting in the death of the infected animals. Typical symptoms are massive and often bloody diarrhoea, high fever, extreme mucosal erosions and subsequent secondary infections.

Diagnosis is made on the basis of the detection of antibodies in blood, individual milk or bulk tank milk samples. Blood, tissue, secretions and organ samples from the affected animals are suitable for ascertaining the presence of the virus (antigen detection).

The successful and continuously positive development of BVD controls (in 2006, two years after the start of the nationwide eradication programme, 2,600 PI were still detected in about 1,700 holdings, for example) can also be seen in 2017: the Austrian holdings subject to the BVD Regulation were almost all officially recognised as being free from BVDV, only three new outbreaks occurred in 2017.

Table 10:
BVD - positive trend over the past five years

Year	No. of PI	No. of holdings with PI
2012	62	41
2013	62	23
2014	33	14
2015	11	6
2016	4	3
2017	3	3

Exemptions from the compulsory testing of individual cattle in the event of movement of the animals were granted in accordance with Art. 14 para. 6 of the BVD Regulation 2007 (F.L.G. II No. 178/200, as amended) for officially recognised BVD-free stocks from specific regions, as a result of the good BVD situation in Austria. These exemptions are granted for one year (from 1 April of the current year to 31 March of the following year) and are published in the Official Veterinary Bulletin and can be found in the Legal Information System (RIS).

The further improvement of this situation and the prevention of the reintroduction of the disease into livestock is of the utmost importance and will also pose a major challenge in the years ahead.

PARATUBERCULOSIS

Paratuberculosis is a chronic, incurable bacterial infection in domestic and wild ruminants caused by *Mycobacterium avium* subspecies *paratuberculosis* (MAP). Clinical symptoms usually only appear after an incubation period of 2 – 10 years and are characterised by uncontrollable diarrhoea despite the maintenance of appetite, emaciation, lower milk production, reduced weight gain, fertility disorders and death. The infection is usually transmitted during the first few months of the life of the animal from faeces containing the pathogen and milk or teats contaminated with faeces.

Clinical paratuberculosis in cattle, sheep, goats and game ruminants in game holdings has been notifiable in Austria since 2006. Testing within the scope of this monitoring programme as detailed in the regulation is performed centrally at the AGES IVET Linz. Clinically suspect cases can be investigated diagnostically by submitting blood and faecal samples to the testing laboratory. Organ materials (intestinal samples, lymph nodes) are submitted from animals which have died or have been killed.

Samples from 52 cattle from 50 holdings and 14 goats from one holding, as well as from one farmed deer from one holding were examined in 2017. The clinical suspicion of MAP infection was diagnostically confirmed in 14 cattle from 14 holdings and two goats from one holding. Figure 8 depicts the clinically suspect cases in the individual federal provinces submitted for lab testing (numbers in black), the number of animals that tested positive for MAP (numbers in red) and the number of holdings with confirmed suspected cases (numbers in blue).

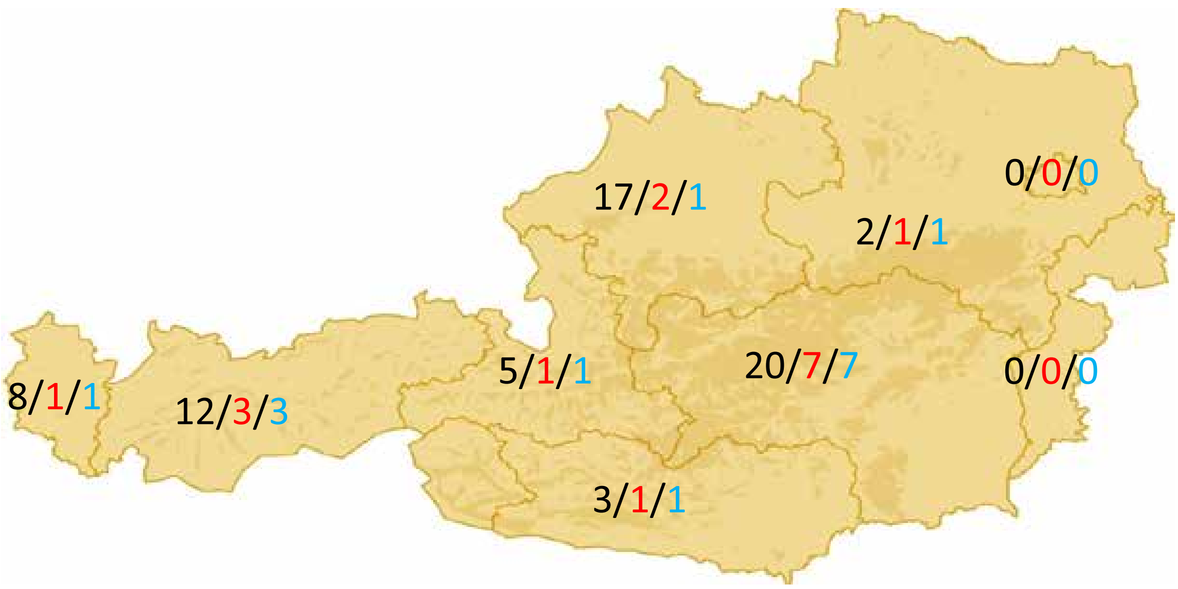

Figure 8:
Number of suspected cases of paratuberculosis submitted (black), of animals confirmed by positive laboratory findings (red) and of positive holdings (blue).

BLUETONGUE (BT)

Bluetongue (BT) is a viral disease of ruminants (cattle, sheep and goats) that is spread by midges of the Culicoides genus. The pathogen is an RNA virus of the *Orbivirus* genus and 24 serotypes are currently known. Experts are already debating additional serotypes (more than 27). The pathogen responsible for BT in Europe was detected in Greece in 1998. The first outbreaks of BTV 8, an "exotic" BTV serotype that had not previously been found in Europe, occurred for the first time in the border region of Germany, Belgium and the Netherlands (north of 40°N) in 2006. Austria reported its first BT case to the EU and the OIE on 7 November, 2008. A total of 14 outbreaks (28 animals) were identified in the federal provinces of Upper Austria, Salzburg and Vorarlberg. As a result, mandatory vaccination of all cattle, sheep and goats was ordered in 2008 to prevent the further spread of the disease. Austria was able to regain its BT-free status on 17 March, 2011, two years after the last BT case.

A new BTV-4 epidemic occurred in south-eastern Europe in the second half of 2014 and spread rapidly from Turkey via Greece, Romania, Bulgaria and the Balkan countries to Hungary and Croatia. Additionally, serotype 8, which had not been observed in Central Europe for a while at this point of time, led to the setting up of restricted zones in France in 2015.

During the spread of bluetongue across Eastern Europe, serotype 4 was also detected in Austria on 17 November 2015, for the first time. A total of four BTV 4 outbreaks in the federal provinces of Styria and Burgenland were recorded in 2015 and three outbreaks in Burgenland and Carinthia in 2016. Table 11 below provides an overview of the BTV 4 cases from 2015 to 2016. No BTV cases were recorded in 2017.

Table 11:
Number of the last BT cases in 2015 and 2016 in the respective federal provinces, districts and holdings up to this date

Province	District	Year	Holdings	Animals infected	BTV serotype
Burgenland	Neusiedl/See	2015	1	1	BTV-4
Burgenland	Jennersdorf	2015	1	1	BTV-4
Styria	Hartberg-Fürstenfeld	2015	1	2	BTV-4
Styria	Südoststeiermark	2015	1	2	BTV-4
Burgenland	Jennersdorf	2016	2	3	BTV-4
Carinthia	Klagenfurt	2016	1	1	BTV-4

After the outbreaks were discovered, a restriction zone was set up in the east of Austria in accordance with Regulation (EC) No. 1266/2007, with the aim of preventing any spread into disease-free areas through restricting livestock trading. No compulsory vaccinations for serotype 4 of bluetongue were set up, although vaccination is possible on a voluntary basis. Figure 9 below illustrates the BTV restriction zone in eastern Austria, including BTV cases.

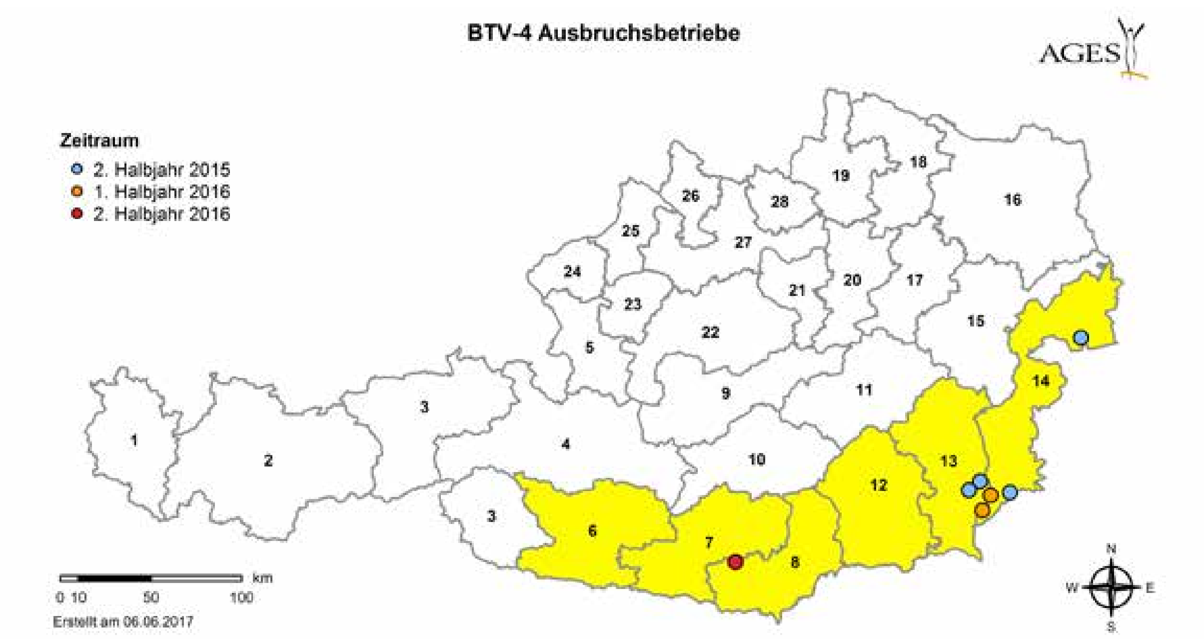

Figure 9:
BTV 4 restriction zones and regional units for BTV monitoring up to April 2017

Upon detecting the first BTV 4 cases in Austria, the monitoring programme was adjusted to be able to accurately isolate the precise extent of BT virus circulation. To do this, a monitoring scheme that had been used during the BTV 8 epidemic in 2008 was reintroduced. A total of 28 regions, the size of which took into account the topographic situation, cattle density and political districts, were defined (also see Figure 9) and 60 unvaccinated animals from each region were subjected to serological BTV-Ab examinations, in addition to the monitoring that was already in progress. Regions 13 and 14 were reorganised in April 2017 and an additional region 14a was introduced, as the restriction zone could be reduced in size in this area after two years without any BTV cases (Figure 10).

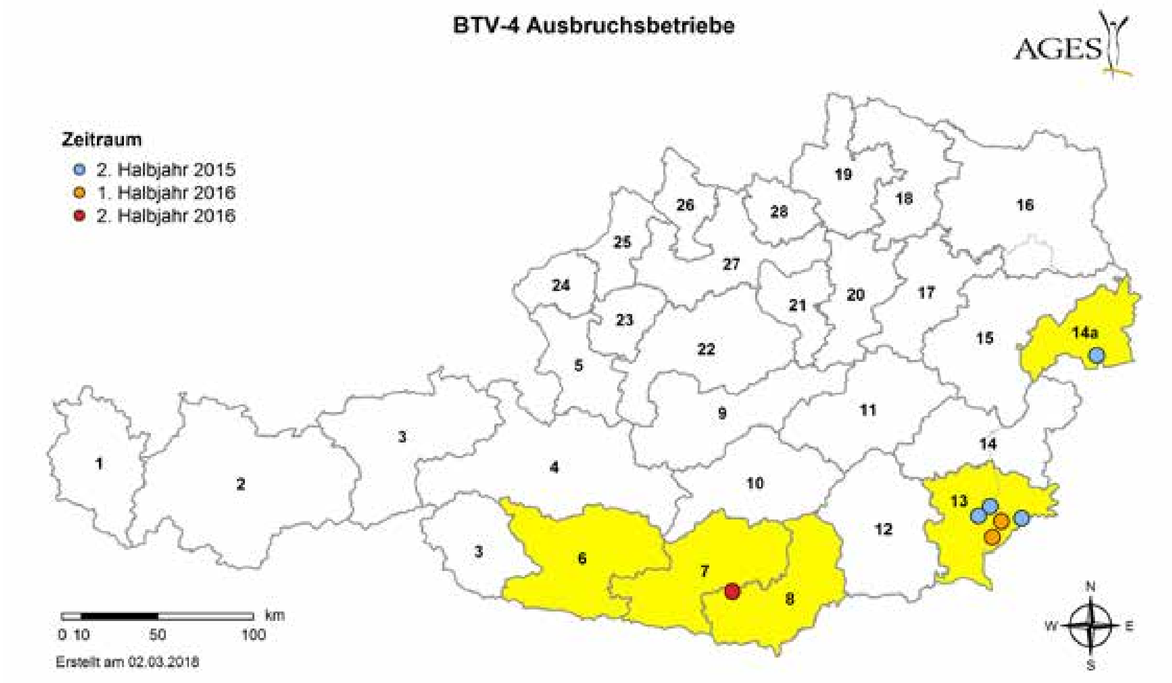

Figure 10:
BTV 4 restriction zone and regional unit for BT monitoring as of April 2017

In total, 6,928 cattle from all the regional units and 1,518 holdings (Figure 11) were serologically BTV negative in 2017.

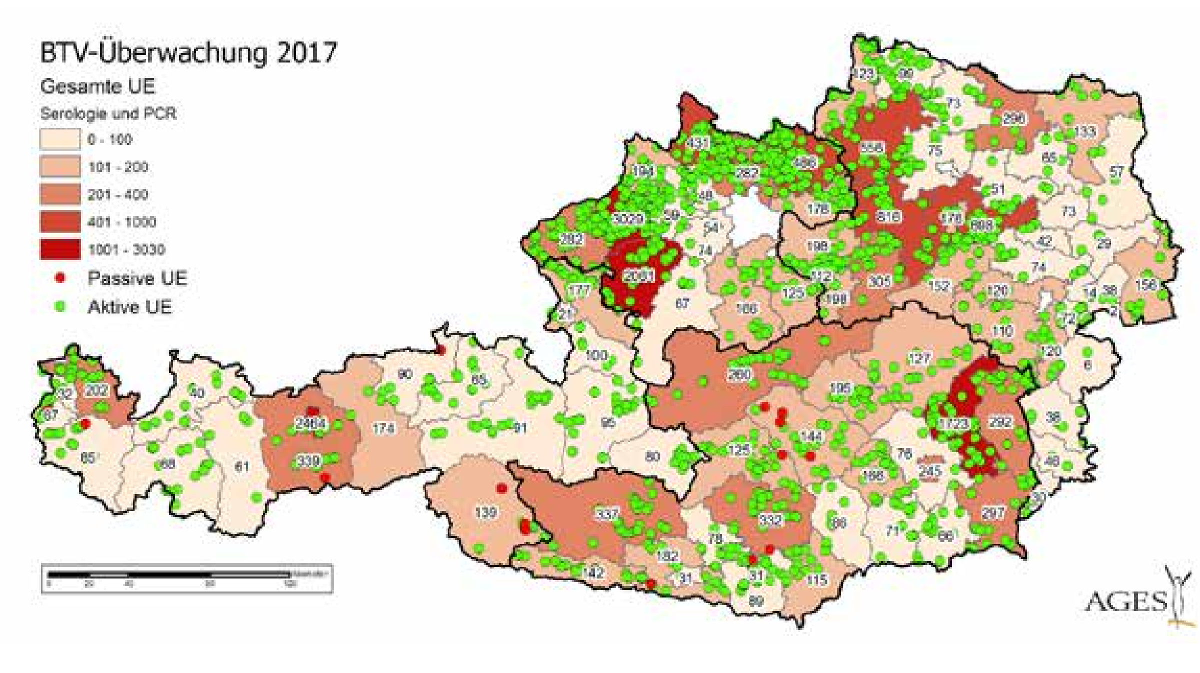

Figure 11:
Holdings sampled within the framework of the active BT monitoring programme in 2017 (marked green) and holdings sampled within the framework of the passive BT monitoring programme in 2017 (marked red)

Cattle from 18 holdings in the provinces of Vorarlberg, Tyrol, Carinthia and Styria were tested within the framework of passive monitoring for bluetongue disease, which is undertaken all year round on the basis of the notification obligation under Art. 17 of the Austrian Act on Animal Diseases and of livestock testing in holdings where outbreaks have occurred. A total of 66 serological tests and 67 molecular biological tests were carried out to this end.

All the tests on the samples taken as a result of suspicions yielded negative results.

In addition, Austria also runs a vector monitoring programme to acquire information on the occurrence and activity periods of the insects transmitting the virus. A "vector-free period" could be declared once again on 15 December 2017 based on the results of this programme, allowing for additional movement options in animal trading. Mosquito traps were installed at selected locations and temperature monitoring introduced at the same time to make sure that no vector activity was expected. The vector-free period lasted into the first months of 2018.

ILLUSTRATING THE SEASONAL VECTOR-FREE PERIOD USING THE EXAMPLE OF THE 2016/17 SEASON

The BT virus is transmitted by bloodsucking midges (midges of the genus Culicoides spp.). A seasonal, vector-free period can be defined in the winter months to ease trade restrictions, based on Regulation (EC) No. 1266/2007 Annex V. Potential virus transmission is excluded given the inactivity of the midges. Thanks to the midge monitoring carried out between 2007 and 2013, it is known that the species relevant for the transmission of the BT virus can be found all over Austria. The midges are active throughout the entire summer months, but mainly in July and August. Their activity decreases considerably in autumn with the increasing number of frost days (minimum temperature below 0 °C) and finally stops entirely in winter. The midges become active again in spring with average day temperatures of over 10 °C.

The seasonal vector-free period is defined every year from December to April of the following year, based on these observations. Midge monitoring is carried out during this period for review purposes. To do this, UV light traps are installed at nine locations across Austria and operated for 24 hours on a regular basis (Figure 12). The insects caught in the traps are sent to the Vetmeduni Vienna for identification. Biting midges – if present – are identified morphologically under the microscope by determining their characteristic wing patterns (Figure 13). Additionally, the temperature is also monitored to be able to better assess the start and end of the midge season. The seasonal vector-free period was specified at the end of November 2016 and lasted from 2 December 2016 to 28 April 2017.

The monitoring of midges started at the beginning of October and midges were caught on a regular basis up to calendar week 47, in particular in St. Veit an der Glan and Grafendorf (Figure 14). No midges were caught at any of the locations from December to the middle of March. The hottest March since recording began and the mild temperatures at the beginning of April and the resulting start of midge activity at St. Veit an der Glan and Grafendorf led to the early end of the vector-free period on 14 April, 2017. The vector-free period lasted for 134 days and, thus, allowed for additional movement options in animal trading.

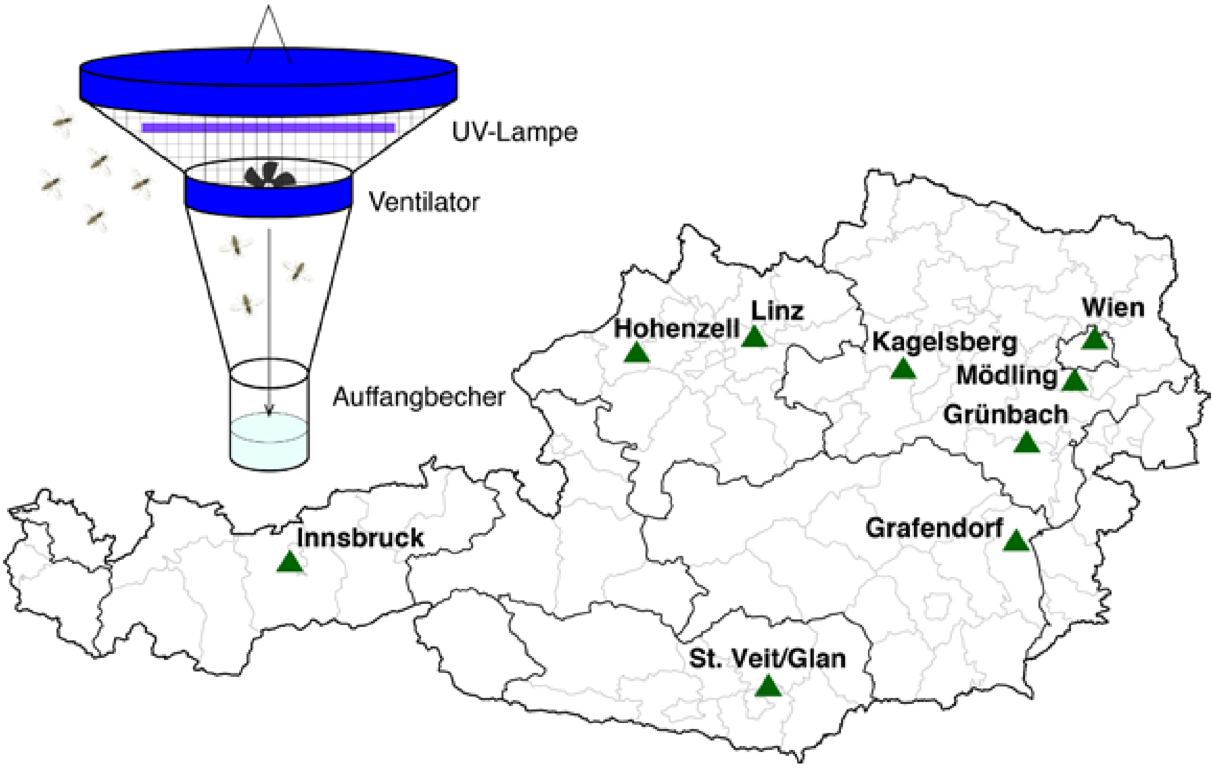

Figure 12:
The vector-free period is monitored using UV light traps (left) at nine locations (green triangles) across Austria. The UV light lures insects to the trap, but only insects that are the size of midges fit through the mesh at the top of the trap. A fan forces the insects into a collecting container filled with water.

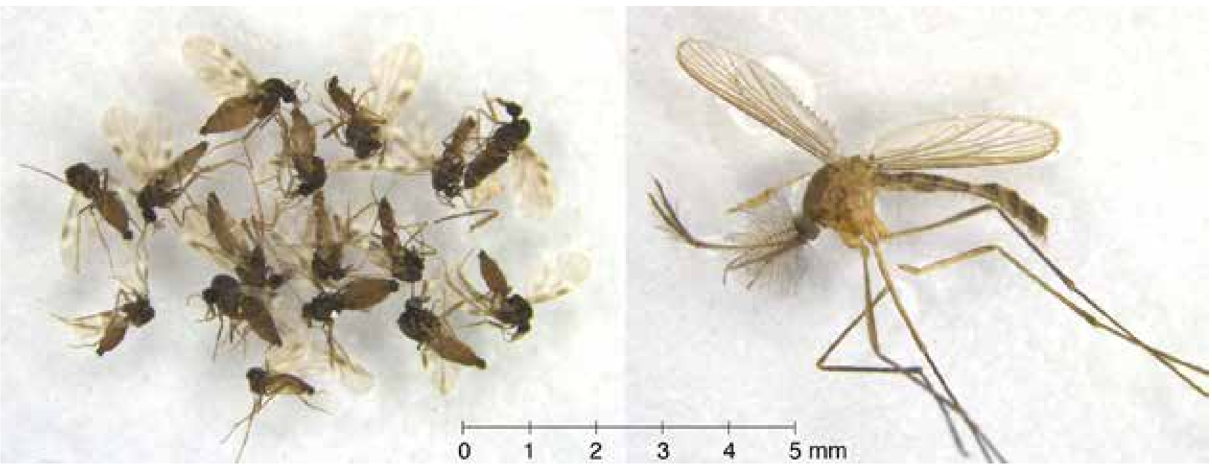

Figure 13:
The midges (left) are identified morphologically under the microscope by determining their characteristic wing structure. A comparison of size shows that a mosquito (right) is about 10 times bigger than a biting midge.

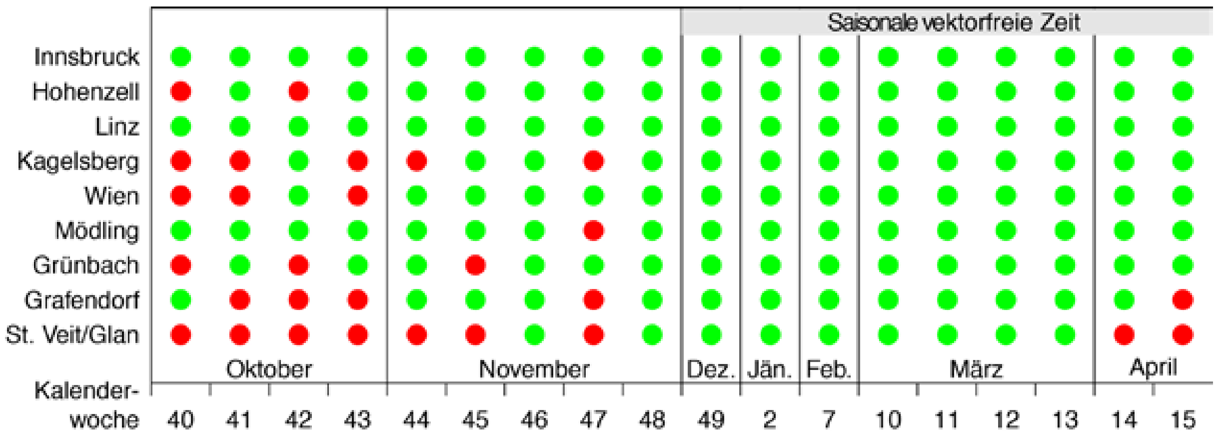

Figure 14:
Activity (red) and inactivity (green) of midges at nine locations in Austria during the 2016/17 season.

SCHMALLENBERG VIRUS (SBV)

The Schmallenberg virus (SBV) is a member of the Bunyaviridae family of the genus Orthobunyavirus and, like the bluetongue virus (BTV) and West Nile virus (WNV), is transmitted via vectors. The virus was first identified in Germany by the Friedrich Loeffler Institute (FLI) at the end of 2011 and - after having spread across large parts of Europe - has so far been detected in cattle, sheep and goats, as well as alpacas, and other ruminants, at zoos, game farms and in the wild. However, SBV antibodies have already been detected in dogs and wild boars, too.

The possibility of the virus being transferred to humans is categorised as fairly unlikely by the European Centre for Disease Prevention and Control (ECDC).

Bloodsucking midges (Cullicoides spp.) act as vectors for SBV as with BTV. Horizontal transmission without vectors does not appear to take place.

The infection may take a subclinical course in adult animals or may cause clinical symptoms, such as di-arrhoea and moderate to severe milk drop, combined with an elevated internal body temperature. Immunocompetent animals eliminate the virus in the body after a short phase of viraemia and, based on the data from the closely related Akabane virus, it is presently estimated that they develop antibodies protecting them against future infection. Usually, the virus can no longer be detected in the blood within as little as six days post infection.

The infection of an immunologically naive animal during pregnancy causes transplacental infection to the foetus. Depending on the stage of pregnancy, this may result in foetal death and reabsorption at very early stages of pregnancy and ranges as far as the development of hydranencephaly and arthrogryposis (after the infection of cattle between the 62nd and 173rd day of pregnancy and in small ruminants between days 28 and 56). In addition, it may result in malformed aborted foetuses or neonates that are not viable in the long-term owing to their deformities.

The first SBV antibodies were detected in an Austrian animal in mid-September 2012 and the spread of initial infections was quickly seen right across Austria. Serological screening for SBV antibodies was carried out in cattle in the autumn of 2013 and 2014 for epidemiological assessment. Antibody prevalence in young animals, in particular, were investigated within the framework of this autumn monitoring programme, so as to obtain an overview of the associated immunological protection among young groups of animals that would be productive in the future. Annual waves of infections of different extents could be seen between late summer and late autumn.

Tests for SBV antibodies and antigens are also carried out in the course of investigations of abortions and export tests.

The results of serological tests for SBV antibodies in the 2017 reporting year were predominantly SBV antibody negative, just like in 2016.

LUMPY SKIN DISEASE (LSD)

Lumpy skin disease (LSD) is a highly infectious viral disease in ruminants and is a notifiable disease just like sheep- and goatpox. The LSD virus (LSDV) belongs to the genus *Capripoxvirus*, along with the *Sheeppox virus* and *Goatpox virus*. The disease affects domestic cattle, zebus, bison and water buffalos, as well as wild ruminants kept in captivity. The mortality rate in domestic cattle in Europe is low at about 5 to 10 %. However, the commercial damage of such an outbreak is very high and relates predominantly to trade restrictions and losses in the manufacturing of animal products (also see EFSA Journal 2015: 13(1):3986; EFSA Journal 2017; 15(4):4773; FAO 2017: LSD-Field Manual).

The bovine Capriopox infection, aka Lumpy skin disease (syn. Dermatitis nodularis), was endemic only in East, South and West Africa for a long time. The first case of lumpy skin disease detected in the EU was in August 2015 in the Evros Delta in Greece. The disease spread rapidly – several outbreaks were reported in Southern Europe in 2016. The affected southern European countries Albania, Bulgaria, Greece, Kosovo, Macedonia (FYROM), Montenegro and Serbia introduced a number of control measures to combat LSD. Bosnia and Herzegovina, Croatia, Hungary and Romania are free of LSD according to ADNS, as is Austria, which has yet to report any cases of lumpy skin disease to date.

According to current epidemiological knowledge, the indirect spread of the pathogen by piercing and biting sangivorous arthropods, insects and mites plays the most important role in the spread of LSD. The diversity of arthropod species as vectors is wide and also includes mites, in addition to horseflies (Tabanidae), flies (Muscidae, Sciomyzidae), biting midges (Culicoides) and mosquitoes (Culicidae). The fight against LSD vectors is a major challenge for the EU countries concerned, given the diversity of the vectors and resulting control methods. Comprehensive vaccination (90 % coverage) with a homologous, attenuated LSDV strain *Neethling* is considered the most effective measure to combat the disease, in addition to the culling of infected and susceptible animals in animal stocks ("total stamping out") and transportation restrictions for susceptible animals and animal products. According to the ADNS, these measures helped reduce the spread of LSD drastically in southern Europe in 2017, with the exception of Albania, where vaccination had not been carried out on a nationwide basis in 2016/17 (Figure 15). Only 500 outbreaks were reported in 2017, that is 49 % of the outbreaks (1,023) reported in 2016. A total of 494 outbreaks were reported in Albania, two in Greece and four in Macedonia.

The BMASGK and AGES have taken a number of measures in preparation for a potential outbreak (preparation of a crisis plan, risk analysis and vaccination plan; dissemination of information via publications, providing sample sets and instructions for biosecurity at holdings etc.). The national Lumpy Skin Disease Ordinance (F.L.G. II No. 315/2017) has been in effect since 1 December, 2017. This ordinance regulates official measures for early identification (LSD monitoring) in the case of disease suspicions and outbreaks, setting up zones and implementing movement restrictions; it also provides information on the implementation of EU regulations and laws and on regaining disease-free status. The National Reference Laboratory for Capripox at the AGES IVET Mödling is responsible for LSD lab tests in line with the regulations. Skin changes, blood and excretions (lacrimal fluid, saliva) are used for the diagnostic tests. Tests can be conducted using internationally approved molecular biology (PCR and sequencing), electron microscopy, virological (isolation by cell culture) and serological methods (SNT, ELISA). The NRL can distinguish between the field and vaccination viruses by means of PCR. The diagnostic methods are also used in differential diagnosis. Differential diagnosis not only helps with the early identification of an epidemic, it also helps maintain diagnostic laboratory test competence and emergency plan competence. As a result, 15 cattle with noticeable skin symptoms were examined as part of the differential diagnosis in 2017 (Figure 16). All the cases tested negative for LSD.

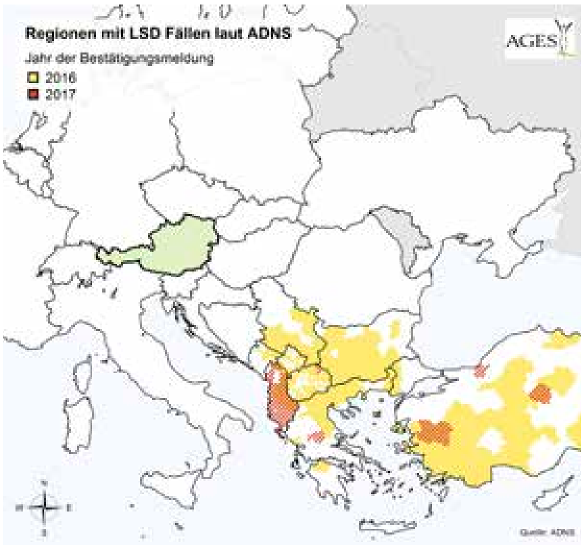

Figure 15:
Comparison of the spread of lumpy skin disease in Southern Europe in 2016 & 2017; Graphics © AGES/DSR (I. Kopacka)

Figure 16:
Diagnosis of exclusion – Austrian cattle with skin leucosis

AVIAN INFLUENZA (AI)

Avian influenza or fowl plague was observed for the first time in Italy in 1878. The pathogens are Influenza viruses. Sixteen haemagglutinin and nine neuraminidase subtypes are known to date. Influenza A viruses, subtypes H5 and H7 occur in chickens, turkeys and numerous wild bird species. Ducks, geese and other wild birds rarely develop the disease or exhibit any symptoms, but they are important with respect to the spread of the pathogens.

H5N8 was found in Germany at the start of 2015 and three cases of avian influenza, types H5N1, H5N2 and H5N5, occurred simultaneously in the south west of France between the end of 2015 and beginning of 2016.

The Austrian authorities worked intensively with poultry farmers and their specialist organisations, and with ornithologists to discover any infiltration of the animal disease into Austria's stocks as early as possible. Increased vigilance and increased biosecurity measures at holdings and along the entire meat and egg production chain reduces the risk of the virus entering and spreading along it.

At the beginning of November 2016, a number of dead wild water birds were found suddenly along the shores and in the region of Lake Constance (Bodensee). Laboratory analyses showed that the cause of death of the wild birds sent for testing was predominately an acute infection with an influenza A virus of the highly pathogenic subtype H5N8 (HPAIV H5N8).

This was also true for the shore regions in Germany and Switzerland, as well as in Austria. On 11 November 2016, avian influenza was confirmed for the first time at an Austrian poultry holding near the shores of Lake Constance. An area along the shore of Lake Constance was defined as showing increased risk and a mandatory indoor confinement of poultry and increased biosecurity measures were put into force. Further infection of other farms in Vorarlberg was prevented through the measures taken in accordance with Council Directive 2005/94/EC and the extension of the area of increased risk. The restriction zones around the infected holding was lifted again on 24 December 2016.

During the 2016/17 epidemic, HPAIV H5N8 was detected in only two agricultural holdings in Austria. The two outbreaks were far apart both in chronological (10 Nov. 2016 versus 17 Jan. 2017) and geographical terms (Vorarlberg and Burgenland), however, they both occurred in immediate proximity to a lake (Lake Constance and Neusiedlersee) in a region where dead wild water birds were found that tested positive for avian influenza.

Further cases of HPAIV H5N8 also occurred in wild birds in November 2016 in the provinces of Salzburg and Upper Austria. As a result, extensive cross-provincial areas near lakes and certain waterways in Salzburg, Upper Austria and Vorarlberg were defined as increased risk and remained so at the start of the reporting year 2017.

The pan-European AI screening programme consists of an active and a passive component. A total of 3,755 blood samples were tested for AI antibodies in 2017 – 3,731 of which using ELISA and 24 samples were tested using the haemagglutination inhibition test (HAI). Nineteen samples were tested by virus isolation in eggs.

Figure 17:
Dissection and sampling for subsequent further laboratory tests on turkeys at the National Reference Laboratory for Avian Influenza in Mödling.

COMMERCIAL POULTRY

In the **active surveillance programme**, serological testing was undertaken on the slaughter blood of 1,251 laying hens from 125 holdings (including 62 free-range holdings), 370 parent hens from 37 parent holdings, 600 fattening turkeys from 60 holdings, 1,443 geese and ducks from 84 holdings, and 67 ostriches from 10 holdings. No AI antibodies were detected. An additional 202 poultry samples were tested for the AI virus genome, and AI viruses type H5N8 were detected in 17 samples.

WILD BIRDS

In **passive surveillance**, 897 samples from dead wild birds were tested for Avian Influenza A virus genome using real time RT-PCR. Genomes of highly-pathogenic AI viruses type H5N8 were found in 134 dead wild birds and in 12 birds the genomes of non-pathogenic AI viruses were detected.
Swab samples of 15 live wild birds were examined using real-time RT-PCR as part of the **active surveillance programme**.

Table 12:
Numbers of tests for Avian Influenza in Austria in 2017

Surveillance	Poultry	Wild Birds		Routine diagnostics	Sum
	active	active	passive		
AB – ELISA	3,731			615	4,370
AB – HAI				24	
AIV Realtime RT-PCR	202	15	897		1,114
HPAI H5N8 Viruses	17	0	134		151
LPAI H5N* Viruses	0	0	1		1
Non-pathogenic AIV	0	0	11		11
Virus isolation – egg culture				19	19
Total	3,933	15	897	658	

NEWCASTLE DISEASE (NCD)

Newcastle disease (NCD, atypical fowl pest) is a highly contagious acute to chronic avian disease. The virus belongs to the paramyxovirus family. A distinction is made between the apathogenic, lentogenic (marginally pathogenic), mesogenic (medium virulence) and velogenic (highly virulent) virus types.
The disease is characterised by rhinitis symptoms, CNS symptoms and diarrhoea. High morbidity and mortality may be expected, particularly among pigeons. The NCD virus is discharged in large quantities in faeces, eye, nasal and pharyngeal secretions, as well as all body fluids, and it is spread both directly and indirectly. The incubation period is four to seven days. The symptoms depend on the virulence of the pathogen.

NCD is a notifiable disease. The appearance of clinically suspicious symptoms must be reported to the official veterinarian, who will submit samples for diagnosis. Only highly pathogenic types of virus are reported as an epidemic, when the virus has a pathogenicity index (ICPI) of 0.7 or above, and a velogenic pathotype of the virus strain is identified using sequencing.

Different provisions apply to commercial poultry from those applicable to pigeons kept in captivity (carrier pigeons). Prophylactic immunisation is permitted in Austria, and is also carried out on chickens, turkeys and pigeons (carrier pigeons and breeding pigeons).
The laboratory diagnosis is determined by detecting the pathogen from tracheal / oropharyngeal swabs and cloacal swabs, as well as from organs (CNS, lung, liver, spleen, gut) by propogating viruses in embryonated eggs and subsequent haemagglutination (HA) and haemagglutination inhibition (HAI) tests, as well as molecular biology methods (RT-PCR and additional pathotyping).

The detection of antibodies using ELISA and HAI is possible, but must be evaluated depending on if vaccination has been permitted.

Table 13:
Number of samples tested for NCD in Austria in 2017

Ab – HAI/Ab - ELISA	Virus isolation – egg culture	PCR
0 / 31	4 (2 cases in pigeons positive)	93 (21 pigeons positive)

Antibody detection is performed primarily to check the effectiveness of the vaccination.

The virus detection test was positive for 21 samples from pigeons and wild pigeons.

PSITTAOSIS (ORNITHOSIS, PARROT DISEASE)

This disease is notifiable when detected in psittaciforms (parrots and parakeets). The disease is known as ornithosis in other bird species. Psittacosis is a zoonosis.

The pathogen is the gram-negative bacterium Chlamydophila psittaci. It appears in different forms and is inevitably intracellular. The individual species of Chlamydophila adapt very well to their host: *Chl. psittaci* to psittacidae, *Chl. abortus* to sheep/goats, *Chl. trachomatis* to the human eye, and many more. The disease occurs globally.

Humans are usually infected through the inhaling of infectious faeces and dust. The resulting symptoms are commonly general fever followed by pneumonia.

All secretions and excretions are infectious. The pathogen is usually picked up via a droplet infection, in other words by inhalation of infectious faeces and dust or aerosols.

The incubation period is usually 3-29 days, but periods of up to 100 days have also been observed. Symptoms in birds include pneumonia, coughing, emaciation, ruffled feathers, diarrhoea, ophthalmic and nasal discharge. Death can occur from between a few days to several weeks, or the disease may become chronic with the animals appearing to recover, but continuing to discharge pathogenic agents.

Prevention involves birds being quarantined and tested for Chlamydophila. Standard hygiene measures for working with animals must be observed.

Laboratory diagnostics to detect *Chlamydophila sp.* are performed using immunohistochemistry testing (IHC) and pathogen tests, including the differentiation of species by means of molecular biology (PCR). When dissecting birds, an enlarged spleen and liver are specific indicators of psittacosis, thus, such changes must always be taken into account in differential diagnostics.

A total of 25 molecular biologic examinations were carried out in the reporting year 2017 – five of which tested positive for *Chlamydophila psittaci*.

ZOONOSIS: CAMPYLOBACTER, VTEC/EHEC AND SALMONELLA

The protection of human health against diseases and infections that can be directly or indirectly transferred between animals and humans (zoonoses) is of the utmost importance. Priority should be given to those zoonoses that constitute the greatest risk to human health. However, monitoring systems should also facilitate the recognition of emerging or re-emerging zoonoses and new strains of pathogens. Worrying developments in resistance to antimicrobial substances (for example, medicines and feed additives with an antimicrobial action) should be monitored. It should be ensured that this monitoring covers not only zoonotic pathogens, but also other pathogens should they constitute a hazard to public health. The monitoring of indicator organisms is generally advisable. These organisms form a reservoir for resistance genes that they can transmit to pathogenic bacteria.

As the focus of surveys of the prevalence of selected zoonotic pathogens has shifted across the whole of the EU to the monitoring and combating of antimicrobial resistance, national zoonosis monitoring has been adapted accordingly. Implementing Decision 2013/652/EU has been in force since 2014, regulating the monitoring and reporting of antimicrobial resistance in zoonotic and commensal bacteria in animals and foodstuffs. Table 14 provides an overview of the combinations of pathogens and animal populations/food categories to be tested.

Table 14:
Overview of combinations of strains of bacteria and animal populations/food categories, 2014-2020

Species	***C. jejuni***	***E. coli***	***Salmonella* spp.**	**ESBL-/AmpC-, carbapenemase-producing *E. coli*[1]**
Broiler flocks	2014, 2016 etc.	2014, 2016 etc.	2014, 2016 etc.	2016, 2018 etc.
Layer flocks	-	-	2014, 2016 etc.	-
Fattening turkey flocks[2]	2014, 2016 etc.	2014, 2016 etc.	2014, 2016 etc.	2016, 2018 etc.
Fattening pigs	-	2015, 2017 etc.	-	2015, 2017 etc.
Bovines under 1 year[2]	-	2015, 2017 etc.	-	2015, 2017 etc.
Broiler carcases	-	-	2014, 2016 etc.	-
Fattening turkey carcases[2]	-	-	2014, 2016 etc.	-
Carcases of fattening pigs	-	-	2015, 2017 etc.	-
Carcases of bovines under one year of age[2]	-	-	2015, 2017 etc.	-
Samples of fresh meat of broilers	-	-	-	2016, 2018 etc.
Samples of fresh meat of pigs	-	-	-	2015, 2017 etc.
Samples of fresh meat of bovines	-	-	-	2015, 2017 etc.

[1] 300 samples of each of the food producing animal populations (300 flocks or holdings) or food thereof
[2] if more than 10.000 t/y slaughtered

Sampling at farms
Sampling at abattoirs
Sampling at retailers

In 2017, a number of caecum samples from fattening pigs and cattle under one year of age were examined for the indicator bacteria *E. coli* and ESPL-/AmpC-/carbapenemase-producing *E. coli* in the veterinary field. The testing of slaughtered cattle under one year was not mandatory for Austria in accordance with Commission Decision 652/2013/EU, given that meat production from such cattle amounts to under 10,000 tons slaughter weight per year. The isolates recovered were tested for their sensitivity to antimicrobial substances in line with the requirements, and the results will be published in the Austrian Resistance Report 2017 (AURES 2017) in detail. The test results are illustrated in Tables 15 and 16.

Table 15:
Results of the tests for ESBL-/AmpC-/Carbapenemase-producing *E. coli* in fattening pigs and cattle under the age of one, 2017

Category	Samples received	Samples analysed	Isolates obtained
Fattening pigs	341[1]	291 (100 %)	181 (62 %), of which 171 ESBL- (59 %), 10 AmpC- (3 %), 0 Carbapenemase-producing *E. coli*
Bovines under 1 year	346[1]	303 (100 %)	68 (22 %), of which 62 ESBL- (20 %), 6 AmpC- (2 %), 0 Carbapenemase-producing *E. coli*

[1] not all samples conformed with the technical specifications or the animals sampled came from a holding from which one animal had already been sampled earlier; the epidemiologic unit is the original holding, only one sample may be taken from this holding per year.

The national control programme for salmonella in poultry stipulates that the target serovars *S.* Enteritidis, *S.* Typhimurium including its monophasic variant, *S.* Infantis, *S.* Hadar and *S.* Virchow may be detected in a maximum of 1 % of the flocks of parent animals of chickens (*Gallus gallus*). The target serovars *S.* Enteritidis and S. Typhimurium, including its monophasic variant, may be detected in a maximum of 2 % of the flocks of laying hens, as well as in a maximum of 1 % of the flocks of broilers and fattening turkeys. The programme was developed in accordance with the Poultry Hygiene Regulation 2007, as amended, and EU Regulation 2160/2003. The results for *Salmonella* sp. and the target serotypes per poultry population are depicted in Table 16.

Table 16:
Results of the tests for salmonella in parental animals of Gallus gallus, laying hens, broilers and turkeys, 2017

	Parent Broilers	Parent Laying Hens	Laying Hens	Broilers	Turkeys
Number of Flocks	123	34	2,880	5,088	444
N *Salmonella* spp.	3	0	33	183	12
% *Salmonella* spp.	1,9		1,1	3,6	2,7
N SE/ST positive flocks	2[1]	0[1]	16	3	0
% SE/ST positive flocks	1,3[2]		0,6	< 0,1	0

SE … *S.* Enteritidis
ST … *S.* Typhimurium incl. monophasic variant

[1] 5 Target serotypes: *S.* Enteritidis, *S.* Typhimurium incl. monophasisc variant, *S.* Infantis, *S.* Hadar and *S.* Virchow
[2] Calculation of the prevalence refers to all parent animals and all five target serotypes (broiler and laying parent animals)

The target serovars were detected in 1.3 % of the flocks of breeding chickens (two flocks with *S.* Infantis), in 0.6 % of flocks of laying hens (15 flocks with *S.* Enteritidis and one with *S.* Typhimurium), in 0.1 % of broilers (three flocks with *S.* Enteritidis) and 0 % of fattening turkeys. Consequently, the targets set for laying hens, broilers and turkeys by the EU were achieved, although the targets for breeding chickens were missed. *Salmonella* spp. was isolated from three breeding flocks (1.9 %), 33 flocks of laying hens (1.1 %), 183 broiler flocks (3.7 %) and 12 turkey flocks (2.7 %).

The success of the control programme is demonstrated clearly in turkeys with the reduction of *Salmonella* spp.-positive flocks from 10.1 % in 2013 to 3.6 % to 2.5 % in the years 2014 to 2017. All other poultry populations showed a trend towards a worsening of the situation in recent years, underscoring that the measures put in place, such as immunisation programmes and the application of strict hygiene inspections at farms, must not be softened: the number of salmonella-positive flocks rose slightly in parent animal populations (from two to three) when compared to last year. The share of salmonella-positive flocks in laying hen flocks decreased slightly when compared to 2016 (from 1.52 % to 1.15 %). However, the share of laying hen flocks with target serovars has increased from 0.35 % to 0.56 % since 2014. In broilers, the share of salmonella and target serovar-positive flocks slightly decreased in 2016, however, the highest ever number of salmonella-positive flocks was counted at n=183 and an increasing trend (2016: 3.8 % positive flocks) has been recorded since 2011 (2.4 %).

Figure 18:
Filling peptone water into a plastic bag with boot swab samples

Figure 19:
Carbapenemase-producing *E. coli* on selective agar

TRICHINAEA MONITORING

Trichinosis is a food-borne, human disease with outcomes ranging from mild to fatal. It is caused by microscopically small nematode worms of the genus Trichinella. Four species of trichinae are known in Europe and are differentiated using molecular diagnostic methods. Humans are infected by eating raw or insufficiently heated meat products (e.g. bacon, sausages) from animals that may be carriers of these parasites. The principal hosts for these parasites are domestic and wild pigs and horses, as well as various wild animals (including foxes, bears and badgers) and rodents (rats).

The trichinae are predominantly found in the muscles of these animals, usually enveloped in a capsule (with the exception of Trichinella pseudospiralis). The larvae are ingested with food and released from the muscle during the digestion process in the stomach. The larvae then bore into the intestinal wall where they develop to the adult stage, capable of reproduction. Subsequently, the females give birth to large numbers of live larvae that disperse throughout the body in the bloodstream. They tend to lodge in the skeletal musculature where a capsule forms around the larvae. The symptoms of the disease in humans initially involve fever, abdominal pain and diarrhoea, followed by muscle and joint pain, in particular, together with a typical facial oedema in the advanced stage of the disease. Humans are considered highly receptive hosts and the severity of the infection depends on the number of larvae ingested, on the one hand, and on the specific resistance of the host, on the other. The disease can be treated with drugs and treatment is more likely to be successful the earlier it is commenced.

Trichinosis is a parasitic disease found throughout the world. Several hundred people develop this zoonosis in Europe each year, and the majority of cases occur in the EU Member States of Bulgaria and Romania and are frequently caused by meat products derived from wild pigs. Human cases of the disease are very rare in Austria. Only "imported" cases of trichinosis have been recorded by the health authorities in Austria during the past 40 years. These have involved people who became infected with trichina larvae abroad or who brought infected meat products back to Austria, usually after visiting their home country, and became ill in Austria after eating these products.

There is an obligation under European legislation (Implementation Regulation (EU) No. 1375/2015) for animals that might be carriers of trichinae and that are intended for human consumption be tested for trichina larvae after slaughter or death and prior to the marketing of the meat to protect consumers and human health. More than 5 million domestic pigs, about 1,000 horses and the majority of wild pigs killed by hunters are tested for trichinae in Austria every year, pursuant to this statutory requirement. Testing uses the so-called digestion technique in which a quantity of muscle from the carcass that has to be examined (usually from the pillar of the diaphragm) is defined precisely by weight and then broken down by artificial digestion. The sediment of the digestion fluid is examined microscopically for the presence of trichina larvae. Should there be positive trichina detection, the whole carcass is confiscated by the competent veterinary authority and passed on for verifiable disposal. Trichinae have only been detected in wild pigs in a few instances in Austria in recent years, and, with two exceptions, the positive animals were of foreign origin. These animals were wild pigs from Germany and Hungary that had been butchered in Austria for onward sale. No positive trichina findings have been reported for decades in Austrian breeding or fattening pigs or horses.

Scientific studies have shown that the parasite is also found in the Austrian fox population, and that there is a clear west-east divide in terms of its distribution. The continuous monitoring of these wild animals, by random sampling, is recommended from an epidemiological standpoint in order to observe any changes in the prevalence and the geographical occurrence of this zoonotic parasite.

No trichinae were detected in breeding or fattening pigs or horses and wild boars in Austria in 2017.

Figure 20:
Positive result of the digestion method – *Trichinella pseudospiralis*

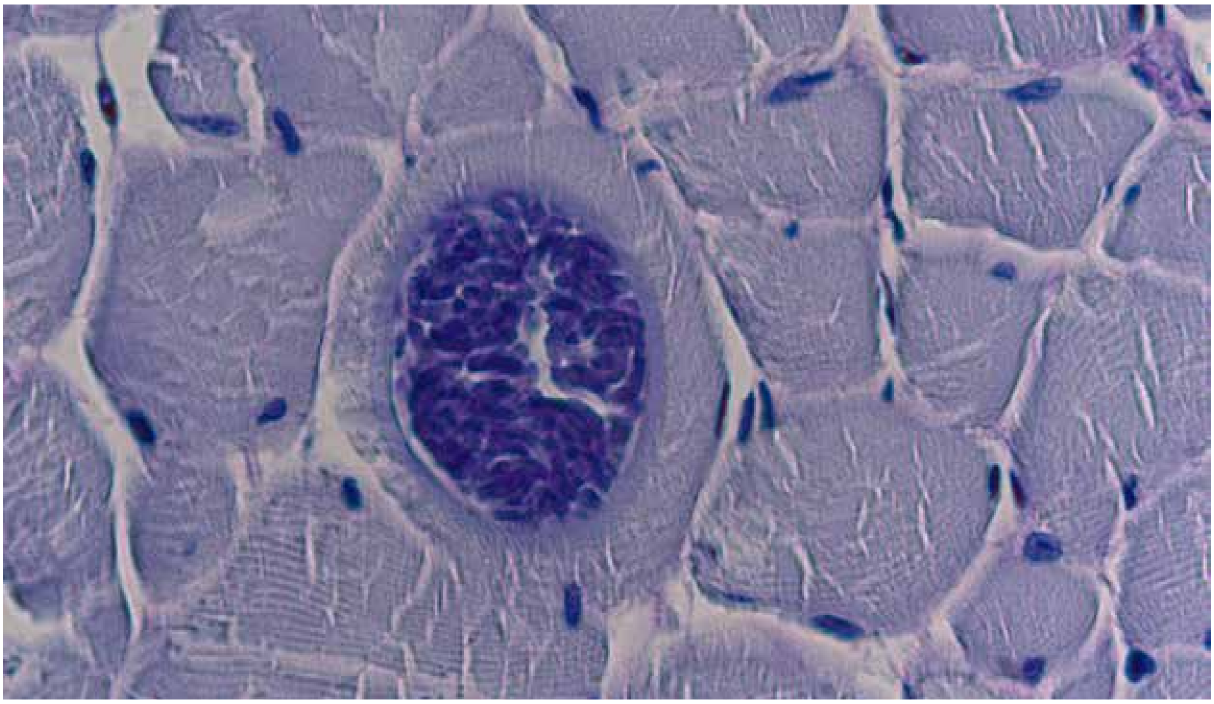

Figure 21:
Histologic examination, PAS stains – *Trichinella pseudospiralis*

RABIES

Thanks to the good epidemiological situation in Austria's neighbouring countries and the fact that Austria has been declared rabies-free since 2008, monitoring was switched from a random sampling plan to the examination of indicator animals and clinical suspect cases in 2013 (after the oral vaccination of foxes was suspended). Indicator animals include foxes, badgers, racoons and racoon dogs killed on the roads or found dead. Clinically suspect cases are confirmed by the official veterinarian and recorded in the VIS (Veterinary Information System).

The overall risk of an outbreak of rabies in Austria as a result of the disease situation in immediately adjacent neighbouring countries is classed as low, the possibility of its release as a result of legal or illegal animal imports or of latent persistence of rabies in the population is classed as very low. The exposure risk of the animal population is classed as ranging from moderate (import via movement of wild animals, persistence of the wild animal population) to small (domestic pet imports) and negligible (import via humans), but overall as moderate.

However, the consequences of a new rabies outbreak must be assessed as severe, given the considerable financial and logistical costs of achieving rabies-free status again and the highly probable, fatal end of an infection with the rabies virus.

A total of 352 animals were tested for rabies using FAT (fluorescence antibody test) in 2017, 130 of which were suspect cases (i.e. either from a clinical or laboratory diagnostic perspective). All the tests yielded negative results.

Foxes were the species most frequently submitted for testing at 173 animals, followed by 99 bats, 23 cats, 18 dogs, 12 badgers, 7 martens, 4 cattle, 4 squirrels, 3 horses, 3 chamois, 1 racoon and 6 other animals. No racoon dogs were submitted for testing.
No statistically proven statement could be made with respect to the occurrence of rabies in the Austrian bat population in 2017. All 99 bats tested negative for rabies.

A total of 46 animals that had bitten humans were tested in 2017. A PCR test was carried out on 46 of these animals and in 41 cases a Rabies Tissue Culture Inoculation Test (RTCIT), in addition to the FAT. All the tests yielded negative results.

A total of 581 serum samples from cats and dogs were examined for rabies antibodies using the FAVN (fluorescence antibody virus neutralisation test) in 2017, in the course of animal movement inspections. Of these, 490 samples displayed a sufficiently high antibody titre of more than 0.5 IU/ml (5 quarantined animals), 52 samples had a lower titre and no antibodies could be detected in 22 animals (6 quarantined animals), the remaining samples could not be evaluated.

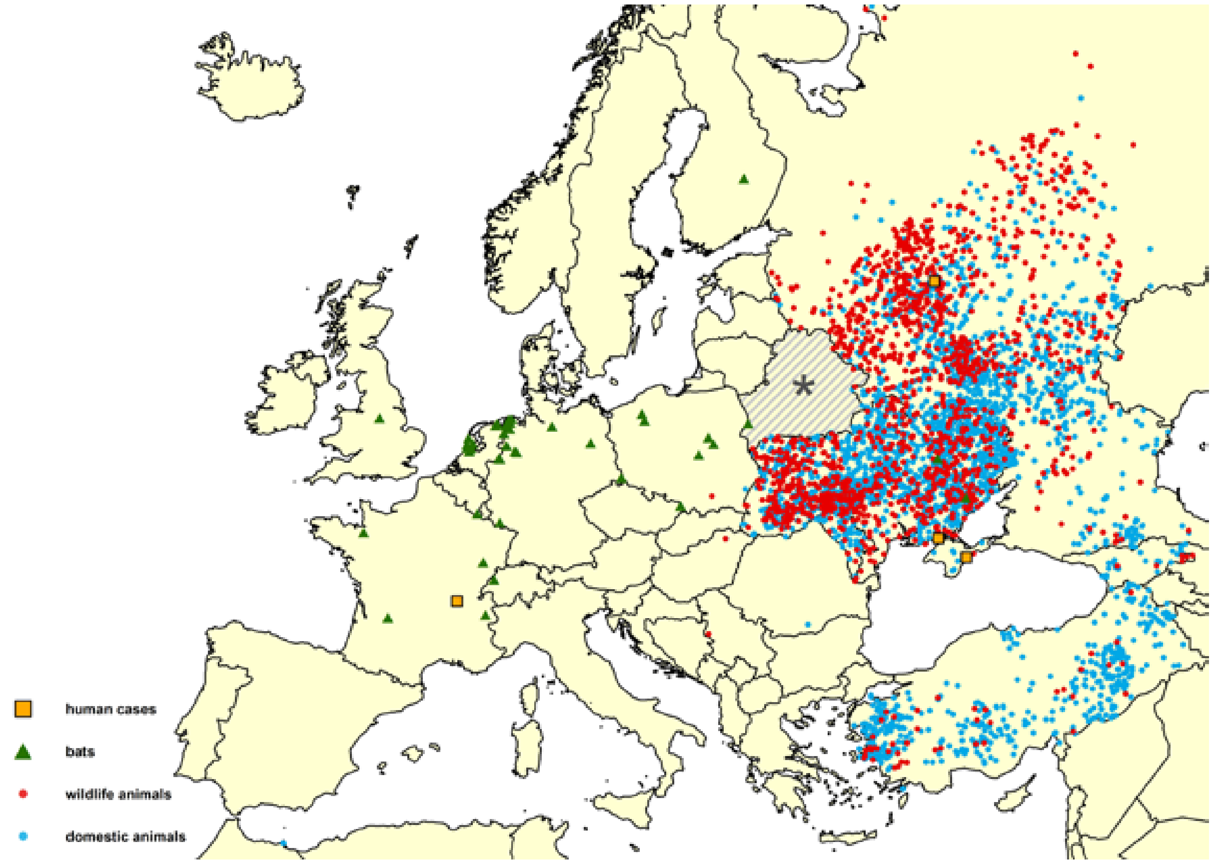

Figure 22:
Prevalence of rabies in Europe in 2017 (Source: Rabies Information System of the WHO Collaboration Centre for Rabies Surveillance and Research, © Friedrich-Loeffler-Institut) * = no data received

AGES (Mödling) was commissioned with establishing an inspection / quarantine station for live animals by the BMASGK in 2016, as part of the official monitoring programme.

Animals seized by border officials are kept under surveillance in Mödling for a number of weeks to several months until it can be confirmed that they do not pose a risk to Austria's animal health status.

EU entry regulations must be met for dogs, cats and ferrets. Every animal must be vaccinated against rabies and the vaccination must be valid. Additionally, a serum test (FAVN) is used to check the success of the vaccination, followed by a waiting period of three months between blood sampling and official movement. In 2017, five cats and one dog were held at the AGES inspection centre in Mödling.

WEST NILE VIRUS (WNV)

The West Nile virus (WNV) was first described in humans in the North of Uganda's West Nile District in 1937. Currently, WNV strains are classified in four genetic lines, with lineage 1 being subdivided into three clusters, 1a, 1b and 1c. Endemic occurrence of lineage 1 WNV in humans and horses has been confirmed in the north of the Italian province of Ferrara since 2008. In Europe, lineage 2, which originated in Africa, was isolated for the first time in birds of prey in Hungary in 2004 and has since been detected in various species of animals (corvids, horses, cattle, sheep, dogs). Lineage 3 WNV ("Rabensburg virus") has been detected in midges from the Czech Republic.

WNV is transmitted from infected birds via midge bites to humans and animals which are dead-end hosts. The disease has an incubation period of two to 14 days. In horses with the clinical disease, the infection is lethal for up to 40 % of animals.

In humans, the infection is asymptomatic or the symptoms are similar to those of mild flu in more than 80 % of cases, with just a few exceptions. According to the ECDC, 204 WNV human cases were reported in Europe in the reporting year 2017, mainly from Italy, Hungary, Greece, Serbia, Austria and Romania. Additionally, the overall 127 WNV cases detected in horses in Europe were also included in the publication for the first time.

Clinical lineage 2 WNV infections were detected for the first time in raptors in Austria in 2008 and, since that time, a WNV monitoring programme for wild birds has been conducted at IVET Mödling on behalf of the BMGF, as well as for horses since 2011.
The programme focuses on raptors (Falconiformes), passerines (Passeriformes) and corvids (Corvidae, ravens and crows) that are considered to play an essential role in the spread of the pathogen. In addition, other bird species are tested for WNV, such as free-range geese and ducks from at-risk regions from the passive avian influenza monitoring programme via abattoir blood samples.

In 2013 and 2014, the PCR examinations of wild birds and raptors detected lineage II WNV in one northern goshawk in each of the two years. Lineage II WNV was also identified in two northern goshawks at the University of Veterinary Medicine Vienna in August 2015. A total of 129 birds were tested using WNV or Flavivirus PCR in 2017. WNV lineage 2 was detected again in 12 birds (6 falcons, 2 goshawks, 2 bearded vultures, 1 great grey owl, 1 canary) (data source AGES and Vetmeduni Vienna). Indications of longer circulating WNV antibodies could be found (IgG AK ELISA questionable, IgM Flavivirus ELISA negative) in two slaughter blood samples taken from ostriches on a farm in the province of Lower Austria as part of the serological tests carried out in 126 wild birds and free-range geese in 2017.

The occurrence of any type of clinical equine encephalomyelitis in Austria is notifiable and all forms of equine encephalomyelitis are also tested for WNV and other flaviviruses on a routine basis. There had been no clinical cases in horses in Austria until 2015. WNV was confirmed for the first time in a horse in the east of Austria in August 2016 - the animal affected showed clinical symptoms, responded well to treatment at the University of Veterinary Medicine Vienna and could be cured.

A horse from Lower Austria had to be put to sleep at the University of Veterinary Medicine Vienna in October 2016 because of progressive neurological symptoms. The animal showed symptoms of viral meningoencephalitis during the pathomorphological examination at the NRL in Mödling (Figure 21). However, the etiologic diagnosis "WNV infection" could only be confirmed in January 2017. This was the first documented case of WNV-associated encephalitis in an Austrian horse. Three more clinically relevant cases of equine WNV infections could be detected in Lower Austria in late summer / early autumn 2017. One horse had to be put down and based on its clinical symptoms, it had clearly suffered from WNV-associated meningoencephalitis. The two other horses recovered from the disease, however, serological tests confirmed that a WNV infection had occurred. All equine WNV cases in Austria have been cases of WNV lineage 2 to date.

Clinical WNV cases in horses have also been reported in Italy, Hungary, France, Greece, Portugal and Spain over the past 15 years – most of them were accompanied by simultaneous human infections.
A total of 148 horse blood samples were tested for flavivirus antibodies as part of the serological blood screening programme in 2017. Forty-two of these samples reacted positively in the IgG Flavivirus ELISA, but negatively in the IgM Flavivirus ELISA. Many of them also showed a positive result in the FSME AK ELISA. Horses can be vaccinated against WNV (lineage 1) in Austria.

Figure 23:
Brain removal in a suspect horse in the dissection theatre under strict safety precautions

EQUINE INFECTIOUS ANAEMIA (EIA)

Equine infectious anaemia (EIA) is a viral disease of equidae (horses and donkeys) transmitted by midges. EIA is listed as a notifiable animal disease in Austria (Art. 16 of the Austrian Animal Diseases Act). The AGES Institute for Veterinary Disease Control (IVET) Mödling has been designated as the National Reference Laboratory (NRL) for it. In addition, there are other private laboratories and the Institute of Virology at the University of Veterinary Medicine, Vienna, which undertake EIA diagnostics for tests relating to the transportation of livestock.

The following test systems are used for antibody detection in Austria:

1) Coggins test (agar gel – immunodiffusion assay) and
2) ELISA (competitive ELISA)

In Europe, the Coggins test is mandatory for international animal movement. Polymerase chain reaction (PCR) from EDTA blood is used for virus detection.

Table 17:
EIA Tests using the Coggins Test at the National Reference Laboratory in Mödling from 2010 to 2017.

Year	2010	2011	2012	2013	2014	2015	2016	2017
Tests	149	199	157	154	121	120	150	142

There was no EIA monitoring programme for equidae was in place in Austria in 2017. Two positive cases (in 2002) have been reported in Austria to date in a holding in Lower Austria (district of Wiener Neustadt). A total of 1 PCR and141 antibody tests were performed for EIA in 2017, including a suspect sample submitted by the BH Kufstein. All 137 horses and four donkeys tested were negative, including all the imported animals tested, as well as private examinations, such as export tests.

VIRAL HAEMORRHAGIC SEPTICAEMIA (VHS)

VHS is a notifiable viral disease caused by a novirhabdovirus. Rainbow trout (Oncorhynchus mykiss), Pacific salmon (Oncorhynchus species), trout (Salmo trutta), grayling (Thymallus thymallus), the Coregonus species (Coregonus spp.), pike (Esox lucius) and various marine fish species are considered susceptible, according to Annex I, List II, Aquaculture Disease Ordinance (Aquakultur - Seuchenverordnung), Federal Law Gazette II, No. 315/2009. The clinically visible signs of the disease are mostly seen in rainbow trout. The clinical course of the disease affects all age classes. Losses of up to 90 % are possible in young fish (fry) and at temperatures of <14 °C. Genotype virulence and the condition and immune status of the fish, together with stress situations relating to living conditions are also decisive with respect to the outbreak and course of this disease, in addition to temperature.

A total of two cases of VHS were diagnosed at the National Reference Laboratory for Fish Disease at the University of Veterinary Medicine, Vienna, in 2017.

INFECTIOUS HAEMATOPOETIC NECROSIS (IHN)

IHN is a notifiable viral disease of various salmonid species, caused by a novirhabdovirus. Rainbow trout (Oncorhynchus mykiss), Atlantic salmon (Salmo salar), and various species of Pacific salmon are considered susceptible, according to Annex I, List II, Aquaculture Disease Ordinance (Aquakultur - Seuchenverordnung), Federal Law Gazette II, No. 315/2009. The clinical course of the disease affects all age groups, but particularly the size group <100 g. The course of the disease is temperature-dependent: within the critical temperature range (10 to 15°C), losses of up to 100 % may be observed among fish in the susceptible size group. Stress-inducing factors, such as stock density, transportation and sorting, promote outbreaks of the disease.

There were no IHN outbreaks in Austria in 2017.

KOI HERPESVIRUS INFECTION (KHVI)

KHVI, known colloquially as koi disease, is a highly infectious, notifiable viral disease that affects commercial carp (common carp, Cyprinus carpio) and coloured carp (koi). Carp of all age groups can be affected and losses may range between 80 % and 100 %. It can cause substantial economic losses and is extremely important in the international trade and transportation of carp.
The pathogenic agent is known as Koi herpesvirus (KHV). The scientific name is Cyprinid herpesvirus 3 (CyHV–3) from the family of Herpesviridae. Viruses of varying virulence have been confirmed depending on their origin (European, Asian, Israeli), but a comparison of genomes from different regions shows that they are virtually identical.

The first koi herpesvirus infection in Austria was reported in 2015. There were no koi herpesvirus infections in 2017. The import of infected koi carp poses a major risk in terms of introducing the pathogen.

AQUAKULTUR-REGISTER

A public register of approved fish farms in Austria can be found at http://aquakultur.ehealth.gv.at/. The legal basis of the Aquaculture Register is Directive 2006/88/EC; the formal requirements can be found in Commission Decision of 30 April, 2008 implementing Council Directive 2006/88/EC as regards an internet-based information page to make information on aquaculture production businesses and authorised processing establishments available by electronic means (2008/392/EC).

The registers for the other Member States published on the EU Commission homepage are available at http://ec.europa.eu/food/animal/liveanimals/aquaculture/register_aquaculture_establishments_en.htm

The publication of all approved fish farms and processing facilities is intended to facilitate internal EU animal trade in the field of aquaculture.

AMERICAN FOULBROOD (*PAENIBACILLUS LARVAE*)

American foulbrood is a brood disease caused by the *Paenibacillus larvae* bacteria and can be found around the globe. Outbreaks or suspected outbreaks are notifiable under the Bienenseuchengesetz (Austrian Bee Diseases Act) (Federal Law Gazette No. 290/1988, as amended). The clinical symptoms are an incomplete brood nest (brood cells with sunken, perforated cell caps, ropy masses in sealed brood cells (Figure 24) and firmly attached scales.

If the disease cannot be confirmed on-site, test material must be sent to the test centres listed in the Bee Diseases Act. At present, these tests are carried out at the AGES Institute for Seeds and Plants, Plant Protection Services and Bees, Apiculture and Bee Protection Department, Spargelfeldstrasse 191, A-1220 Vienna.

P. larvae is a gram-negative, peretrichous, flagellated, rod-shaped bacterium that develops spores in its permanent form; these are highly resistant and can remain infectious for over 40 years.

An outbreak of the disease has extensive economic consequences for the beekeeper involved and also for beekeepers located within the restricted area (establishment of a restricted area with a 3 km radius, restrictions in bee migration, costly and time-consuming remedial and disinfection measures).
No drug is licensed in Austria to combat American foulbrood.

American foulbrood is treated either by destroying colonies that have been infected or decontaminating them by means of the "shook swarm" procedure and additional, concomitant disinfection measures and the replacement of the entire comb structure

A DETAILED DESCRIPTION OF THIS CAN BE FOUND IN THE RICHTLINIEN ZUR BEKÄMPFUNG DER AMERIKANISCHEN FAULBRUT (GUIDELINES FOR COMBATING AMERICAN FOULBROOD), SEE LINK:

https://www.verbrauchergesundheit.gv.at/tiere/recht/oe/bienen.html

There are various strains and genotypes of *P. larvae* which differ in terms of virulence, and this also influences symptoms and discovery by the beekeeper or bee expert. Research projects have detected five different genotypes in Austria to date. They are not routinely distinguished in the course of the analysis of official samples. If the ERIC I genotype is present, most of the diseased larvae reach the capping and only die afterwards, resulting in a massive formation of spores. Typical signs are capped cells with ropy masses and static cells (see Figure 25). The disease can spread like wildfire though the colony.

In the case of ERIC II genotype, diseased larvae usually die before sealing and the cells containing dead brood are cleared out. This results in an incomplete brood nest. Since this is a nontypical symptom, there is a risk that the disease will not be recognised for a fairly long time.

Control measures should be taken as soon as possible following an outbreak, as the pathogen can be dispersed by bees landing at the wrong colony or through the robbing of honey residues by bees from stronger colonies. As a result, unattended, rundown apiaries could be a potential source for the spread of American foulbrood. Such apiaries and comb material that is stored in a way that it is freely accessible to bees is often discovered when controlling the 3 km restricted zone.

Figure 24:
Ropey masses in American foulbrood (match test)

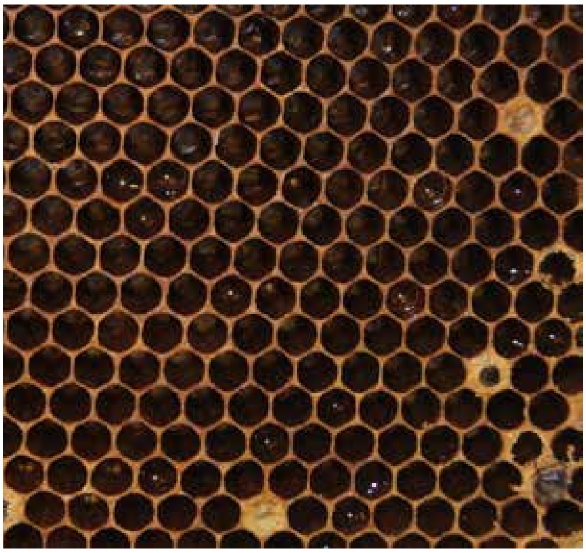

Figure 25:
American foulbrood: Static cells; brood cells with sunken, perforated capping

At total of 70 new outbreaks were recorded in Austria in 2017. This is another decrease in outbreaks when compared to 2016 (124 outbreaks). The course of outbreaks in recent years can be seen in Figure 26.

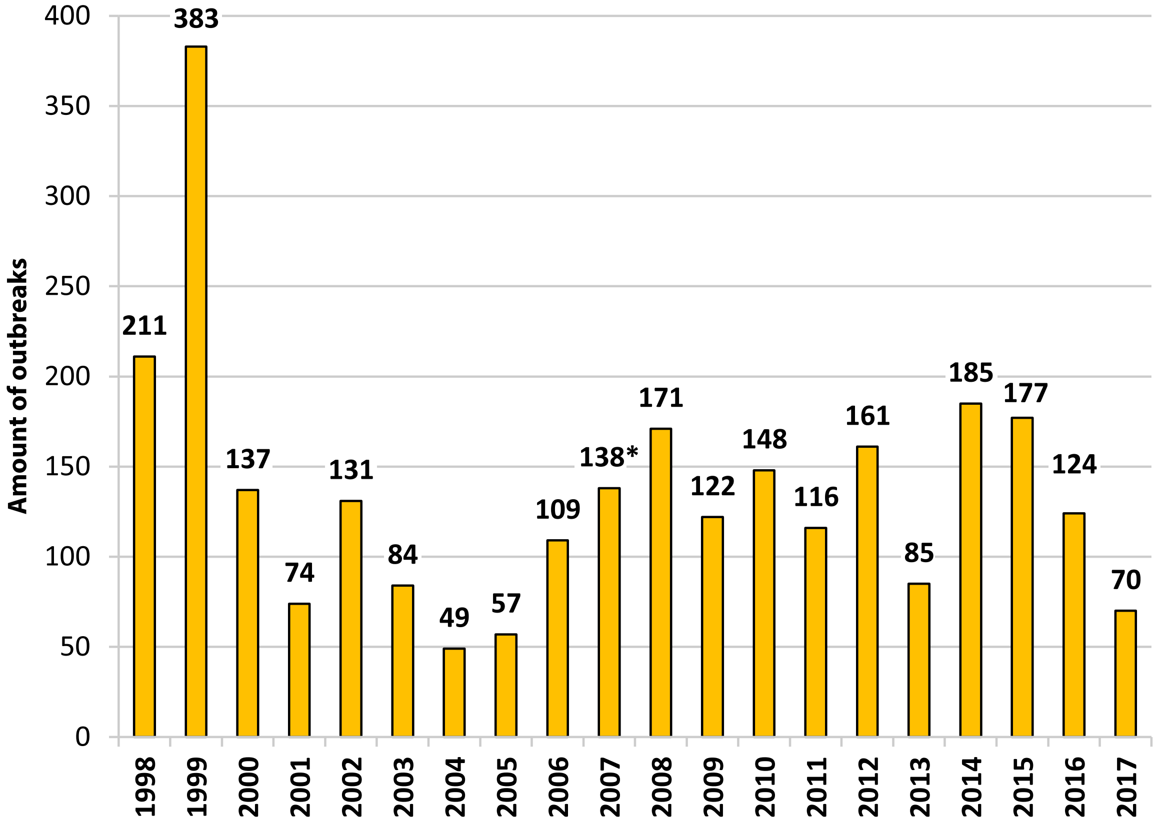

Figure 26:
A long-term overview of outbreaks of American foulbrood in Austria (source: BMASGK, AGES)

SMALL HIVE BEETLE INFESTATION (*AETHINA TUMIDA* MURRAY)

Synonyms: SHB

The infestation of bee colonies with small hive beetle is notifiable under the Bee Diseases Act (F.L.G. No. 290/1988, as amended).

If it is suspected that small hive beetle is present, the official veterinarian should send the suspect material to the test centres named in the Bee Diseases Act after destruction.

NATIONAL REFERENCE LABORATORY FOR BEE DISEASES IN AUSTRIA:

AGES Institute for Seeds and Plants, Plant Protection Services and Bees, Apiculture and Bee Protection Department Spargelfeldstrasse 191, A-1220 Vienna; tel.: 05 0555-33122

The official veterinarian must decide whether to request a test to rule out or confirm the suspected disease, based on the clinical symptoms and epidemiological setting. In the case of a test to rule out the disease, the entry in the VIS is made as "TKH-V uncertain". The transportation and test costs are borne by the federal government just as they are for tests for suspected disease.

THE EU REFERENCE LABORATORY FOR BEE HEALTH HAS DRAWN UP GUIDELINES WHICH ARE AVAILABLE ON THE AGES WEBSITE:

https://www.ages.at/themen/krankheitserreger/bienenbeutenkaefer/

The small hive beetle (Coleoptera: Nitidulidae) is a honey bee pest. Clinical symptoms are feeding tunnels made by the larvae in the cells, brood combs destroyed by larval feeding, contaminated, fermented honey and a rotting smell.

The adult beetles (Figure 27) are 5 to 7 mm long and 2.5 to 3.5 mm wide (about one-third of the size of a worker bee (Figure 28). The brood, honey, pollen and even fruit serve as food sources for the beetles and their larvae (Figure 29). The eggs are laid in the hive and hatch into larvae – this is the stage that is harmful to the bee colony. Pupation takes place in the ground in front of the hive. The beetles can fly independently up to 15 km in order to infest bee colonies.

Given favourable conditions, the small hive beetle can proliferate massively in a bee colony, in honeycomb storage systems, and in honeycombs stored before centrifuging.
In practice, the most sensitive diagnosis method for identifying a beetle infestation in Italy was the exa-mination of the bee colonies by trained personnel in comparison to the use of beetle traps in bee colonies. The disease has already spread to third countries (the USA, Canada, Australia, Mexico, Central America, the Caribbean, Brazil, the Philippines, Hawaii) from its original distribution area of South Africa, where it does no damage, and major losses have been reported in these third countries in some cases.

Since the small hive beetle was detected on 5 September 2014 in the region of Calabria in southern Italy for the first time, Italian veterinary authorities have introduced massive control measures in coordination with the EU authorities, but were not able to eradicate the pest. While the annual number of SHB positive apiaries has not grown since 2014, the distribution area in the region of Calabria has increased slightly. The detection of the SHB in wild bee colonies (2014, 2016, 2017) has raised questions about the usefulness of the eradication efforts made. Protected zones were set up around the infested areas where the transporting of bees and beekeeping materials is prohibited (a radius of 10 km in the region of Consenza, a 30 km radius in the area of Gioia Tauro). The monitoring zone and a 100 km area around it in which transportation of bee colonies is prohibited (see EU regulations for trading live bees and bumble bees in the common market which state that "bees/bumble bees must come from an area of at least 100 km radius which is not subject to any restrictions associated with the suspicion or confirmed occurrence of the small hive beetle and where these infestations are absent" (part 2 of ANNEX E of the Council Directive 92/65 EEC)) has encompassed the entire region of Calabria since 2018. Additionally, so-called sentinel colonies that are examined by the veterinary authorities on a regular basis have been placed in this region since 2015.

The minimum distances to areas infested by the small hive beetle for the transportation of queens in cages (individual queens with a maximum of 20 attendants) were reduced with the amendments made to the regulations for trade with bees and bumble bees on 20 November 2017: the minimum distance to the borders of a protected zone with a radius of minimum 20 km around an area with a regular SHB presence must be at least 30 km. This means a minimum of 50 km distance to a confirmed case. However, this only applies if the area is subject to regular official inspections with precisely defined statistical reliability. The only restriction for the movement of bumble bee colonies is that breeding must be carried out in a facility sealed off from the outside world (link: EU Implementation Regulation 2017/2174 of 20 November 2017 amending Annex E of Regulation 92/65 EEC)

Europe has established various monitoring programmes for early detection, such as APINELLA in Switzerland. A monitoring programme using molecular biologic methods/PCR is carried out in Austria as part of an EU project (BPRACTICES): 60 honey farms from different Austrian focus regions are to be examined over the next three years.

The Italian "Istituto Zooprofilattico Sperimentale delle Venezie" publishes the current state of the distribution of the small hive beetle in southern Italy on its website: http://www.izsvenezie.it/aethina-tumida-in-italia/

A total of 33 honeycomb and bee samples were tested for small hive beetle infestation as part of official submissions in 2017 and all the samples were negative. One beetle sample taken from a bee colony was also submitted in 2017, but could be cleared of SHB suspicion immediately. The sample was Tribolium castaneum (red flour beetle), a pest for stored products. Suspicious beetles, larvae or eggs must be killed (by placing the sample in 70 % alcohol or a freezer overnight) before sending.

Current reports on the introduction and spread of the pest in various countries show that the beetle is even able to reach remote areas. Possible distribution routes are the global trade in queens, package bees, bee colonies, swarms, honeycombs, beeswax and beekeeping equipment. However, other routes must also be considered (worldwide ship and container transportation, soil, and fruit). The extent to which alternative hosts (e.g. bumble bees) are also actively infested under natural conditions and might contribute to the spread is unclear.

Its distribution in North America extends to the border with Canada. This illustrates the risk that it might also become indigenous in Europe in areas with similar climatic conditions. According to estimates in the EFSA study (EFSA Journal 2015;13(12):4328), two-generation cycles are likely to be possible in temperate latitudes in Europe.

Figure 27:
Small hive beetle – adult

Figure 28:
Size comparison between small hive beetle – bees

Figure 29:
Small hive beetle larvae

VARROOSIS (PARASITOSIS CAUSED BY *VARROA DESTRUCTOR*)

The symptoms of varroosis are caused by a mass infestation of bee colonies by Varroa destructor. Varroosis outbreaks are notifiable under the Austrian Bee Diseases Act (F.L.G. No. 290/1988, as amended), if they occur to an epidemic extent.

V. destructor has a horizontal, oval shape and is 1.1 x 1.6 mm in size (Figure 34). Egg laying, development and mating all take place in the sealed brood cell. When the bees hatch, the mother mite leaves the cell with several daughters and infests adult bees (Figures 30 and 31).

The mite parasitises both the adult bees and the brood and sucks haemolymph. This may result in pathogens being transmitted, causing secondary diseases (e.g. viral diseases). Thus, the deformed wing virus (DWV) cripples the bee brood (Figure 32) or adult bees (wings are undeveloped or not fully developed, Figure 33), for instance. Additional harmful effects of the varroa mite are a shortening of the lifespan of individual bees, a reduction in the performance of the colony and the creation of infertile drones. A varroa infestation may increase by a factor of more than 100 in a single season as a result of proliferation in the colony and the introduction of mites from other colonies. The successful combating of a varroa infestation can only be achieved using a multi-stage design, which should be conducted comprehensively and simultaneously by all beekeepers. This design includes biotechnical measures during the nectar-foraging period, primary mite elimination after the last honey extraction process and residual mite elimination in the winter when there is no brood. Infestation monitoring using mesh-protected floor panels provides information about natural mite decline and the success of the control measures.

Varroa was detected for the first time in Austria in 1983 and it can be expected to occur in every apiary in the country today.

With the amendment of the Austrian Medicinal Products Act, pharmacologically active substances used to combat varroa have had to be authorised as veterinary medicines (Tierarzneimittel – TAM) from 01.01.2014 onwards.

However, a veterinarian may import products licensed as veterinary drugs for bees in other EU states, if no suitable licensed product is available in Austria ("treatment emergency"). It is also possible to use a magistral preparation made up by a pharmacy to a prescription by a veterinarian. Only those substances may be used in this instance that are listed in Commission Regulation (EU) No. 37/2010 of 22 December, 2012 on pharmacologically active substances and their classification regarding maximum residue limits in foodstuffs of animal origin for all food-producing species (formic acid, lactic acid, thymol) and for bees (oxalic acid). A total of 11 authorised products have been made available in Austria to date (as of 9 March, 2018).

It is essential to bear in mind when selecting a product and prior to its purchase that in certain areas the varroa mite has acquired resistance to some active substances (e.g. Apitraz indications on the information sheet!).

A total of 73 officially submitted samples (brood, bees, debris) were tested for varroa infestation. Six new varroa outbreaks were notified.

Figure 30:
Female varroa mites on bee larvae

Figure 31:
Bee with adult varroa mites between abdominal segments

Figure 32:
Bee pupae crippled by varroa

Figure 33:
Heavily varroa-infested bee showing typical changes to its wings (signs of chronic bee paralysis virus/CBPV)

Figure 34:
Varroa mite (horizontal oval) in comparison to tropilaelaps mite (longitudinal oval)

TROPILAELAPS MITE INFESTATION (PARASITOSIS CAUSED BY *TROPILAELAPS* SPP.)

There are various species of tropilaelaps mites. Any infestation with one of these species is notifiable under the Austrian Bee Diseases Act (F.L.G. No. 290/1988, as amended).

No infestation with tropilaelaps mites has yet taken place in Europe. However, there is a serious risk that they will be introduced as a result of the international bee trade.

THE EU REFERENCE LABORATORY FOR BEE HEALTH HAS DRAWN UP GUIDELINES WHICH ARE AVAILABLE ON THE AGES WEBSITE:

https://www.ages.at/themen/krankheitserreger/tropilaelapsmilben/

The clinical symptoms are malformations, such as stunted abdomens and wings, deformed or missing limbs, crawling bees that are incapable of flight at the hive entrance, incomplete brood nest and dead brood. An Apis mellifera colony may die out after just one year of infestation.

If it is suspected that tropilaelaps mites are present, the suspect material should be sent to the test centres named in the Bee Diseases Act, after the killing of the animals. At present, these tests are carried out at the AGES Institute for Seeds and Plants, Plant Protection Services and Bees, Apiculture and Bee Protection Department (= National Reference Laboratory).
Adult tropilaelaps mites (Figure 34) are 1 x 0.5 mm in size, reddish brown in colour and move quickly in the hive. Four species have been identified to date: *T. thaii*, *T. koenigerum*, *T. clareae* and *T. mercedesae*. Originally, they were only found in tropical and subtropical regions of Asia in colonies of *Apis dorsata Apis laboriosa* and *Apis cerana*. Today, colonies of *Apis mellifera* brought to Asia have also been infested with Tropilaelaps mites (*T. koenigerum*, *T. clareae* and *T. mercedesae*).
Their westernmost location is Iran.

Tropilaelaps mites feed only on bee brood by sucking the haemolymph, but not on adult bees. Reproduction takes place in the bee brood cells, very much like the varroa mite. They can survive for a maximum of nine days without brood. This is why a brood-free period stops their numbers rising. If increasing climate change results in the loss of the current brood-free period in the winter months in our bee colonies, there is a very real risk that this mite could settle permanently here if it is introduced.

The test methods for varroa can also be used for tropilaelaps (checking the brood and mesh-protected floor panels for mites that look suspicious).
Biotechnical methods, such as interrupting the brood, are available as potential measures to combat the mites. Varroacides are also used in Asia.

The most effective method for preventing tropilaelaps infestation is to avoid importing any bees from the mites' natural distribution regions or from areas in which they have been introduced.

Officially submitted brood and bee samples were tested for tropilaelaps mites. All the samples tested negative.

SPORADICALLY OCCURRING ANIMAL DISEASES

The following animal diseases were detected sporadically in the reporting year:

8 outbreaks of blackleg
3 outbreaks of mange in sheep

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