

APPROVED: 6 November 2018

doi: 10.2903/j.efsa.2018.5492

The European Union summary report on surveillance for the presence of transmissible spongiform encephalopathies (TSEs) in 2017

European Food Safety Authority (EFSA)

Abstract

This report presents the results of surveillance on transmissible spongiform encephalopathies (TSEs) in bovine animals, sheep, goats, cervids and other animal species, as well as genotyping in sheep, carried out in 2017 in the European Union (EU) according to Regulation (EC) 999/2001, and in Iceland, Norway and Switzerland. In total, 1,312,714 cattle were tested by the 28 EU Member States (MSs) which is a decrease of 3% compared with 2016; 18,526 were tested by the three non-MSs. For the first time since bovine spongiform encephalopathy (BSE) has been reported, no cases of classical BSE were reported in 2017. Six atypical BSE cases were reported by three different MSs: Spain 1 H-BSE/2 L-BSE; France 1 H-BSE/1 L-BSE; and Ireland 1 L-BSE. Over the year, 314,547 sheep and 117,268 goats were tested in the EU. In sheep, 933 cases of scrapie were reported: 839 classical and unknown (145 index cases) by eight MSs and 94 atypical (89 index cases) by 13 MSs. Fourteen ovine scrapie cases were reported by Iceland and Norway. Of all classical scrapie cases, 98.2% occurred in sheep with genotypes of susceptible groups. The genotyping of a random sample in 21 MSs showed that 26.5% of the genotyped sheep carried genotypes of the susceptible groups. In goats 567 cases of scrapie were reported: 558 classical (42 index cases) by seven MSs and nine atypical (seven index cases) by five MSs. In total, 3,585 cervids were tested for TSE by ten MSs, mostly by Romania. All results were negative. Eleven cases of chronic wasting disease (CWD) cases were reported in cervids by Norway: nine wild reindeer, one moose and, for the first time ever, one red deer. In total, 185 animals from five species other than cattle, small ruminants and cervids were tested by three MSs, with negative results.

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Keywords: TSE, BSE, CWD, scrapie, classical, atypical, surveillance

Requestor: European Commission

Question number: EFSA-Q-2017-00753

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Acknowledgements: EFSA wishes to thank for the support provided to this scientific output to the EFSA staff members: Yves Van der Stede, Angel Ortiz Pelaez, Valentina Rizzi, Pietro Stella and Frank Boelaert, and to the EFSA contractor: Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta (Unit BEAR – Biostatistica Epidemiologia e Analisi del Rischio and staff: Giuseppe Ru, Francesco Ingravalle, Cristina Bona, Rosanna Desiato, Cristiana Maurella and Eleonora Aiassa).

Suggested citation: EFSA (European Food Safety Authority), 2018. Scientific report on the European Union summary report on surveillance for the presence of transmissible spongiform encephalopathies (TSEs) in 2017. *EFSA Journal* 2018;16(11):5492, 64 pp. <https://doi.org/10.2903/j.efsa.2018.5492>

ISSN: 1831-4732

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Summary

This report of the European Food Safety Authority (EFSA) presents the detailed results of surveillance activities on animal transmissible spongiform encephalopathies (TSEs) carried out during 2017 in the European Union (EU) and in three non-Member States (non-MSs) as well as genotyping data in sheep.

TSE monitoring data for bovine animals, small ruminants and species other than domestic ruminants are reported by country according to Regulation (EC) 999/2001 (the TSE regulation) and consist of testing data (reported monthly) as well as case data. Data on the genotyping of the ovine scrapie cases and of randomly selected sheep were retrieved from the annual reports submitted by the Member States (MSs) and non-MSs in accordance with Article 6.4, and as specified in Chapter B.I of Annex III of the TSE regulation.

A descriptive summary of the reported data is provided at MS level. When possible, descriptions and calculations were stratified according to the available variables, such as surveillance target group (healthy slaughtered animals, animals culled under bovine spongiform encephalopathy (BSE)/TSE control and eradication measures, etc.) or surveillance type (passive vs active), country, sampling year (since 2001 for bovine animals and 2002 for small ruminants), case type (i.e. classical BSE (C-BSE), atypical BSE (H-BSE or L-BSE), classical scrapie (CS) or atypical scrapie (AS)), flock/herd status (infected/non-infected) and age class.

In total, 1,312,714 cattle were tested in 2017 in the EU. BSE testing was concentrated in the group of risk animals (animals with clinical signs at *ante mortem* inspection (AM), emergency slaughtered animals (ES) and fallen stock (FS)) with almost 75% of all cattle tested, FS being the largest contributor with 882,533 cattle tested in 2017. An additional 18,526 cattle were tested by the three non-MS reporting countries, i.e. Switzerland, Iceland and Norway, with no cases reported.

Six atypical cases of BSE were confirmed in three MSs: Spain (1 H-BSE and 2 L-BSE), France (1 H-BSE and 1 L-BSE) and Ireland (1 L-BSE). All of these were from animals born between 1998 and 2004. Since the first reporting of BSE cases, 2017 was the first year in which no cases of classical BSE have been reported world-wide.

In total, 431,815 small ruminants were tested in 2017 in the EU: 314,547 sheep and 117,268 goats.

In sheep, 933 scrapie cases were reported in the EU in 2017, which is an increase of 36.2% compared with 2016. An additional 14 cases of scrapie in sheep were reported by two non-MSs. CS was reported by eight MSs and one non-MS, whereas AS was reported by 13 MSs and one non-MS. Most of the ovine cases (96.5%) were reported by four countries, namely Greece, Spain, Italy and Romania, as it was the case in 2016. In total, 832 ovine cases in the EU were CS cases (89.2%), 94 were AS cases (10.1%) and seven unknown. Among the non-EU reporting countries, 1 CS case was reported by Iceland and 13 AS cases by Norway. In sheep, 25% (234) of all cases in the EU reported in 2017 were index cases, with a much higher proportion in AS cases (89/94: 94.7%) compared to CS cases (145/832: 17.4%).

In goats, 567 scrapie cases were reported in the EU in 2017, which is a reduction of 10% compared with 2016 when 634 cases were reported. This reduction is due mainly to the further decrease in the number of cases reported by Cyprus (from 570 in 2016 to 485 in 2017). CS was reported by seven MSs whereas AS was reported by five MSs. Of the caprine scrapie cases, 558 were CS cases (98%, with Cyprus accounting for 86.7% of these) and nine were AS cases. In goats, only 8.6% of all cases reported in the EU in 2017 were index cases, slightly higher than in 2016 (6.8%), with a higher proportion in AS (7/9: 78%) than in CS (42/558: 7.5%).

Currently, CS is still the most frequently reported type of scrapie in the EU in both species. Focusing on the last ten years (2008–2017), the proportion of cases per 10,000 tested animals ranged for both CS and AS between one and six in either sheep or goats; however, while no trend is detectable for both ovine and caprine AS. For CS, there was a significant decreasing trend in sheep and a significant increasing trend in goats, albeit small in both cases.

In total, 98.2% of the CS cases in sheep reported in 2017 belonged to animals holding genotypes of the susceptible groups (NSP3, NSP30, NSP4 or NSP5). In 2017, the genotyping activity from random samples of the national EU sheep populations was carried out by 21 MSs. After excluding Cyprus which carried out a huge systematic sampling, the collected data showed that 26.5% of the European genotyped sheep still carried genotypes of the susceptible groups and that percentage rose to 41.2% in the four MSs showing the largest caseloads.

European TSE testing in cervids showed a 30% increase during the reporting year compared with 2016 with ten MSs testing 3,585 cervids, 98.5% of these from wild cervids. Romania accounted for nearly 74% of all cervids tested in the EU. All animals tested negative.

Norway further intensified its monitoring for chronic wasting disease (CWD) and tested 25,736 deer leading to the detection of the first case of CWD in a red deer, nine cases in wild reindeer and one in a wild moose.

In total, 185 animals from five different species other than cattle, small ruminants and cervids were tested by three MSs, all with negative results.

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1. Introduction

1.1. Background and Terms of Reference

According to Part I.A, Chapter B.I, Annex III of Regulation (EC) 999/2001¹ (here referred to as the transmissible spongiform encephalopathy (TSE) regulation), the information to be presented by MSs in their annual report, as provided for in Article 6(4), includes:

- 1) The number of suspected cases placed under official movement restrictions in accordance with Article 12(1), per animal species.
- 2) The number of suspected cases subject to laboratory examination in accordance with Article 12(2), per animal species, including the results of the rapid and confirmatory tests (number of positives and negatives) and, with regard to bovine animals, the age distribution of all tested animals. The age distribution should be grouped as follows: 'below 24 months', distribution per 12 months between 24 and 155 months, and 'above 155 months' of age.
- 3) The number of flocks where suspected cases in ovine and caprine animals have been reported and investigated pursuant to Article 12(1) and (2).
- 4) The number of bovine animals tested within each subpopulation referred to in Chapter A, Part I, points 2.1, 2.2, 3.1 and 5. The method of the sample selection, the results of the rapid and confirmatory tests and the age distribution of the tested animals grouped as set out in point 2 should be provided.
- 5) The number of ovine and caprine animals and flocks tested within each subpopulation referred to in Chapter A, Part II, points 2, 3, 5 and 6 together with the method for sample selection and the results of the rapid and confirmatory tests.
- 6) The geographical distribution, including the country of origin if not the same as the reporting country, of positive cases of BSE and scrapie. The year, and where possible the month of birth should be given for each TSE case in bovine, ovine and caprine animals. TSE cases that have been considered atypical should be indicated. For scrapie cases, the results of the primary and secondary molecular testing, referred to in Annex X, Chapter C, point 3.2(c), should be reported, when appropriate.
- 7) In animals other than bovine, ovine and caprine animals, the number of samples and confirmed TSE cases per species.
- 8) The genotype, and, when possible, the breed, of each ovine animal either found positive for TSE and sampled in accordance with Chapter A, Part II, point 8.1, or sampled in accordance with Chapter A, Part II, point 8.2.

According to Chapter B.II, 'the compilation of reports containing the information referred to in B.I and submitted to the Commission (which should send it to the European Food Safety Authority) on a monthly basis in the electronic format agreed between the MSs, the Commission and the European Food Safety Authority or, with regard to the information referred to in point 8 on a quarterly basis, may constitute the annual report as required by Article 6(4), if the information is updated whenever additional information becomes available'.

The EU summary must be presented in a tabled format covering at least the information referred to in Part I.A Chapter B.I for each MS.

1.2. Surveillance of TSE in the European Union

1.2.1. Legal basis

Animals suspected of a TSE should be examined in accordance with Article 12.2 of the TSE regulation. The legal framework for the active surveillance of ruminants for the presence of TSE is laid down in Article 6 of the TSE regulation, and specified in its Annex III, Chapter A.

Of the 27 MSs at that time, Commission Decision 2009/719/EC², allowed 25 MSs (all except Bulgaria and Romania) to apply a revised BSE monitoring programme. Commission Implementing Decision

¹ Regulation (EC) No 999/2001 of the European Parliament and of the Council of 22 May 2001 laying down rules for the prevention, control and eradication of certain transmissible spongiform encephalopathies. OJ L 147, 31.5.2001, p. 1–40.

² Commission Decision 2009/719/EC of 28 September 2009 authorising certain Member States to revise their annual BSE monitoring programmes. OJ L 256, 29.9.2009, p. 35–37, as last amended.

2013/76/EU³ of 4 February 2013, amending Commission Decision 2009/719/EC, authorised these 25 MSs to decide to stop testing slaughtered bovine animals for human consumption. Within EU28, this monitoring programme is also applicable for Croatia.

The legal basis for the sample collection and for the test methods is laid down in Chapter C of Annex X of the TSE regulation. From 2005, Annex X (as amended by Commission Regulation (EC) No. 36/2005⁴) also provides for mandatory discriminatory testing for BSE of TSE cases detected in small ruminants.

Two changes were applied during 2017 following Regulation (EU) 2017/894⁵:

1) Annex III is amended as follows:

a) In Chapter A, in Part II, point 8 is replaced by the following:

'8. Genotyping

The prion protein genotype for the codons 136, 154 and 171 shall be determined for each positive TSE case in sheep. TSE cases found in sheep of genotypes which encode alanine on both alleles at codon 136, arginine on both alleles at codon 154 and arginine on both alleles at codon 171 shall immediately be reported to the Commission. Where the positive TSE case is an atypical scrapie case the prion protein genotype for the codon 141 shall also be determined.'

b) In Chapter B, in Part I(A), point 8 is replaced by the following:

'8. The genotype, and, where possible, the breed, of each ovine animal found positive to TSE and sampled in accordance with Chapter A, Part II, point 8.'

2) In Annex VII, in Chapter C, in Part 1, the following point 8 is added:

'8. Where the MS allows, in accordance with the second paragraph of point 1, the sampling and genotyping of breeding rams in flocks not participating in the breeding programme, the prion protein genotype for the codons 136, 141, 154 and 171 shall be determined for a minimum sample representative of the entire ovine population of the Member State, either:

(a) once every 3 years with a minimum sample of at least 1,560 ovine animals; or

(b) at a frequency and with a sample size determined by the Member State based on compliance with the following criteria:

(i) the sampling design takes into account relevant epidemiological data collected during previous surveys, including data on the prion protein genotype of sheep for the codons 136, 141, 154 and 171 by breed, region, age, sex and flock type;

(ii) the sampling design allows at a minimum to detect a change of 5% in genotype prevalence over a 3-year period, with an 80% power and 95% confidence level.'

However, the two changes have not affected the data collected in 2017 as they came into force on 1 January 2018.

By Commission Implementing Regulation (EU) 2017/736⁶, the national control programme for classical scrapie of Slovenia was approved.

1.2.2. BSE surveillance of bovine animals

As described in the 2016 European Union summary report (EUSR) (EFSA, 2017) on TSE, the BSE surveillance of bovine animals is based on the testing of samples from the following target groups:

³ Commission Implementing Decision 2013/76/EU of 4 February 2013 amending Decision 2009/719/EC authorising certain Member States to revise their annual BSE monitoring programmes. OJ L 35, 6.2.2013, p. 6–7.

⁴ Commission Regulation (EC) No 36/2005 of 12 January 2005 amending Annexes III and X to Regulation (EC) No 999/2001 of the European Parliament and of the Council as regards epidemiological surveillance for transmissible spongiform encephalopathies in bovine, ovine and caprine animals. OJ L 10, 13.1.2005, p. 9–17.

⁵ Commission Regulation (EU) 2017/894 of 24 May 2017 amending Annexes III and VII to Regulation (EC) No. 999/2001 of the European Parliament and of the Council as regards the genotyping of ovine animals. OJ L 138, 25.5.2017, p. 117–119.

⁶ Commission Implementing Regulation (EU) 2017/736 of 26 April 2017 amending Annex VIII to Regulation (EC) No 999/2001 of the European Parliament and of the Council as regards the approval of Slovenia's national control programme for classical scrapie. OJ L 110, 27.4.2017, p. 2–3.

animals clinically suspected of being infected by BSE (SU); animals culled under BSE eradication measures (EM); animals with clinical signs at ante-mortem (AM); emergency slaughtered (ES); fallen stock (FS) and healthy slaughtered animals (HS) for human consumption.

The categories of bovine animals to be submitted for BSE testing are defined in the TSE regulation and are based on a combination of age (age limits have been changed over time) and surveillance target groups. The general rules for BSE surveillance, applied in 2017, are summarised in Table 1. A table summarising the evolution of the changes (age limits for different target groups) was published in the 2015 EU Summary Report (EFSA, 2016).

However, there are still some differences in the application of these general rules owing to specific national rules that provide some residual testing of HS or the testing of at-risk animals at younger age. The age limits (in months) of bovine animals tested for BSE surveillance applied in 2017 by Member State (MS) or non-MSs reporting countries (Iceland, Norway and Switzerland) are shown in Table 2.

Table 1: Criteria for BSE surveillance in bovine animals as applied in 2017 by country, age limit and surveillance target group, based on the TSE Regulation (EC) as amended, Commission Implementing Decision 2013/76/EU of 4 February 2013 and Commission Implementing Decision (EU) 2016/851 of 26 May 2016

Surveillance target group	EU 26	Romania, Bulgaria ^(a)
Animals with clinical signs at <i>ante-mortem</i> (AM); Emergency slaughtered animals (ES); Fallen stock (FS)	> 48 months	> 24 months
Healthy slaughtered animals (HS)	No mandatory testing required	> 30 months
Animal culled under BSE eradication measures (EM)	All	All

(a): Different criteria were applied in 2017 because Bulgaria and Romania were not in the list of the 26 Member States authorised to revise their BSE annual surveillance programmes.

Table 2: Age limits (in months) of bovine animals tested for BSE surveillance applied in 2017 by Member States (MSs) or non-MSs reporting country (Iceland, Norway and Switzerland) and surveillance target group

Member State	Surveillance target group					
	SU	FS	ES	AM	HS	EM
AT	No age limit	> 48 ^(a)	> 24	> 24	No testing	No age limit
BE	No age limit	> 48	> 48	> 48	No testing	> 24
BG	No age limit	> 24	> 24	> 24	> 30	No age limit
CY	No age limit	> 48	> 48	> 48	No testing	> 48
CZ	No age limit	> 24	> 24	> 24	No testing	No age limit
DE	No age limit	> 48	> 48	> 48	No testing	No age limit
DK	No age limit	> 48	> 48	> 48	No testing	> 48
EE	No age limit	> 48	> 48	> 48	No testing	No age limit
EL	No age limit	> 48	> 48	> 48	> 72	No age limit
ES	No age limit	> 48	> 48	> 48	Born before 2001 and coming from herds with BSE positive cases	No age limit
FI	No age limit	> 48	> 48	> 48	No testing	No age limit
FR	No age limit	> 24	> 24	> 24	Born before 01/01/2002	> 24
HR	No age limit	> 48	> 48	> 48	No testing	No age limit
HU	No age limit	> 24	> 24	> 24	No testing	No age limit
IE	No age limit	> 48	> 48	> 48	No testing	> 48
IT	No age limit	> 48	> 48	> 48	No testing	No age limit
LT	No age limit	> 48	> 48	> 48	No testing	No age limit
LU	No age limit	> 48	> 48	> 48	No testing	> 48
LV	No age limit	> 24	> 24	> 24	No testing	No age limit

Member State	Surveillance target group					
	SU	FS	ES	AM	HS	EM
MT	No age limit	> 48	> 48	> 48	No testing	No age limit
NL	No age limit	> 48	> 48	> 48	No testing	No age limit
PL	No age limit	> 48	> 48	> 48	> 108	No age limit
PT	No age limit	> 48	> 48	> 48	No testing	No age limit
RO	No age limit	> 24	> 24	> 24	> 30	No age limit
SE	No age limit	> 48	> 48	> 48	No testing	No age limit
SI	No age limit	> 48	> 48	> 48	No testing	No age limit
SK	No age limit	> 24	> 24	> 24	No testing	No age limit
UK	No age limit	> 48	> 48	> 48	No testing	No age limit
CH	No age limit	> 48	> 48	> 48	> 48	> 48
IS	No age limit	> 48	> 48	> 48	No testing	No age limit
NO	No age limit	> 48	> 48	> 48	No testing	No age limit

SU: animals clinically suspected of being infected with BSE; FS: fallen stock; ES: emergency slaughtered; AM: animals with clinical signs ante-mortem; HS: healthy slaughtered; EM: animals culled under BSE eradication measures.

(a): If surveillance target group is FS and animals are born in Romania, Bulgaria or Switzerland then the age limit is > 24 months.

1.2.3. TSE surveillance of small ruminants

As described in the 2016 EUSR on TSE (EFSA, 2017), the surveillance⁷ of ovine and caprine animals for the presence of TSE is performed based on testing samples obtained from the following surveillance target groups: animals clinically suspected of being infected by TSE (SU); animals culled under TSE eradication measures (EM); animals not slaughtered for human consumption (NSHC); healthy animals slaughtered for human consumption (SHC).

Historical data and data for the reporting year have been summarised as shown in Table 3.

⁷ The term TSE surveillance in small ruminants is used as both scrapie and BSE have been detected naturally in small ruminants. When reporting TSE cases in small ruminants, the TSE type assigned is scrapie, unless stated otherwise.

Table 3: Target surveillance groups in small ruminants to be reported for surveillance for TSE based on the infection status of flock/herd/holding, the case type detected and the control measures taken according to the TSE Regulation

Reported flock/herd status	Index case	Case type	Control measures taken	Sampled population	Surveillance target group to be reported
Non-infected flock/herd ^(b)	Yes	CS or AS	n/a	Slaughtered for human consumption. Annex III, Chapter A, Part II, point 2	SHC
				Not slaughtered for human consumption. Annex III, Chapter A, Part II, point 3	NSHC
				TSE suspects	SU
TSE-infected flock/herd under official control at sampling ^(c)	No	CS	Killing and complete destruction of all animals (option 1) Annex VII, Chapter B, point 2.2.2 (b) or killing and complete destruction of the susceptible animals only (option 2 ^(a)) Annex VII, Chapter B, point 2.2.2 ^(c)	Culled and destroyed under options 1 or 2	EM
				Slaughtered for human consumption after application of option 1 or option 2 ^(a)	SHC
				TSE clinical suspects Chapter 4, Article 12, points 1–2	SU
TSE-infected flock/herd under official control at sampling ^(c)	No	CS	Follow-up after implementation of control measures according to Annex VII, point 2. Intensified TSE monitoring protocol (Annex VII, point 3) after option 1 or option 2, or if derogation of option 2 was established, after complete destruction or slaughtering for human consumption of identified animals.	Slaughtered for human consumption point 3.1. (a)	SHC
				Not slaughtered for human consumption point 3.1. (b)	NSHC
				TSE clinical suspects Chapter 4, Article 12, points 1–2	SU
TSE-infected flock/herd under official control at sampling ^(c)	No	CS	Follow-up after implementation of control measures according to Annex VII, point 2. Intensified TSE monitoring protocol (Annex VII, point 4) after option 3.	Slaughtered for human consumption point 4.1. (a)	SHC
				Not slaughtered for human consumption point 4.1. (b)	NSHC
				TSE clinical suspects Chapter 4, Article 12, points 1–2	SU
TSE-infected flock/herd under official control at sampling ^(c)	No	CS	Intensified TSE monitoring protocol pending the implementation of control measures according to the derogation in point 2.2.2.(c)(iii) and after the implementation of the control measures	Slaughtered for human consumption. Points 4.1. (a) and 3.1.(a)	SHC
				Not Slaughtered for human consumption. Points 4.1. (b) and 3.1.(b)	NSHC
				TSE clinical suspects Chapter 4, Article 12, points 1–2	SU

Reported flock/herd status	Index case	Case type	Control measures taken	Sampled population	Surveillance target group to be reported
TSE-infected flock/herd under official control at sampling ^(c)	No	AS	Intensified TSE monitoring protocol after the detection of an atypical scrapie case (Annex VII point 2.2.3)	Slaughtered for human consumption point 2.2.3	SHC
				Not slaughtered for human consumption point 2.2.3	NSHC
				TSE clinical suspects Chapter 4, Article 12, points 1–2	SU

TSE: transmissible spongiform encephalopathy; CS: classical scrapie; AS: atypical scrapie; EM: animals culled under TSE eradication measures; NSHC: Animals not slaughtered for human consumption; SHC: animals slaughtered for human consumption SU: animals clinically suspected of being infected by TSE.

(a): Option 2 can only be applied to sheep (genotyping and culling).

(b): Sheep flocks or goat herds that are not under control measures or intensified TSE protocols or a sheep flock or goat herd that has never been infected with scrapie and for which every new detected case will be an index case.

(c): Sheep flocks or goat herds that are under control measures or intensified TSE protocols or a sheep flock or goat herd that has been infected during reporting year.

The minimal sample sizes for NSHC and SHC are set in Tables A and B of Annex III, chapter A, Section II, point 3 and point 2(a), respectively. The application of the quotas according to sheep and goat populations in each MS is displayed in Table 4. MSs may choose to replace up to a maximum of 50% of their SHC ovine and caprine animals by animals obtained from NSHC, e.g. dead ovine and caprine animals over the age of 18 months and up to a maximum of 10% of their ovine and caprine animals tested in SHC and NSHC by animals (> 18 months of age) killed as part of disease eradication campaign(s) at a ratio of 1:1.

Table 4: Minimum sample size for the TSE surveillance in small ruminants by Member State (MS) or non-MSs reporting countries (Iceland, Norway and Switzerland) in 2017

Member State	Sheep			Goats		
	Population size ^(a)	Surveillance target group		Population size ^(a)	Surveillance target group	
		SHC	NSHC		SHC	NSHC
AT	100–750	0	1,500	40–250	0	100% up to 500
BE	100–750	0	1,500	40–250	0	100% up to 500
BG	> 750	10,000	10,000	40–250	0	100% up to 500
CY	100–750	0	1,500	40–250	0	100% up to 500
CZ	100–750	0	1,500	< 40	0	100% up to 100
DE	> 750	10,000	10,000	40–250	0	100% up to 500
DK	40–100	0	100% up to 500	< 40	0	100% up to 100
EE	40–100	0	100% up to 500	< 40	0	100% up to 100
EL	> 750	10,000	10,000	> 750	10,000	10,000
ES	> 750	10,000	10,000	> 750	10,000	10,000
FI	40–100	0	100% up to 500	< 40	0	100% up to 100
FR	> 750	10,000	10,000	> 750	10,000	10,000
HR	100–750	0	1,500	40–250	0	100% up to 500
HU	> 750	10,000	10,000	< 40	0	100% up to 100
IE	> 750	10,000	10,000	< 40	0	100% up to 100
IT	> 750	10,000	10,000	> 750	10,000	10,000
LT	40–100	0	100% up to 500	< 40	0	100% up to 100
LU	< 40	0	100% up to 100	< 40	0	100% up to 100
LV	< 40	0	100% up to 100	< 40	0	100% up to 100
MT	< 40	0	100% up to 100	< 40	0	100% up to 100
NL	100–750	0	1,500	250–750	0	1500
PL	100–750	0	1,500	< 40	0	100% up to 100
PT	> 750	10,000	10,000	250–750	0	1500
RO	> 750	10,000	10,000	> 750	10,000	10,000
SE	100–750	0	1,500	< 40	0	100% up to 100
SI	40–100	0	100% up to 500	< 40	0	100% up to 100
SK	100–750	0	1,500	< 40	0	100% up to 100
UK	> 750	10,000	10,000	40–250	0	100% up to 500
CH	–	–	–	–	–	–
IS	100–750	3,000	1,500	> 40	0	100% up to 100
NO	> 750	10,000	10,000	40–250	0	100% up to 500

TSE: transmissible spongiform encephalopathy; NSHC: animals not slaughtered for human consumption; SHC: animals slaughtered for human consumption.

Norway tested according a population (thousand head) of > 750 and 40–250 in sheep and goats respectively.

(a): Thousand head.

(–): No surveillance system (in CH only suspect animals are tested).

1.2.3.1. Genotyping in sheep

The prion protein genotype for the codons 136, 154 and 171 should be determined for each positive TSE case in sheep.

As described in Section 1.2.1, in 2017, the Regulation (EC) 894/2017 amended the TSE regulation with regards to representative genotyping activities in the ovine populations. However, as it has come into force on 1 January 2018, up to 2017, the MSs were still asked to determine the prion protein genotype for the codons 136, 141, 154 and 171 of a minimum sample of ovine animals. For MSs with an adult sheep population of > 750,000 animals, this minimum sample should be at least 600 animals. For other MSs, the minimum sample should be at least 100 animals. The samples may have been chosen from animals slaughtered for human consumption, from dead-on-farm animals or from live animals. The sampling should be representative of the entire ovine population, according to Point 8.2, Section II, Chapter A, Annex III of the TSE regulation.

1.2.4. TSE surveillance in cervids and other species

According to the Commission Regulation (EU) 2017/1972⁸ – amending Annexes I and III of the TSE regulation – MSs which have a wild and/or farmed and/or semi-domesticated population of moose and/or reindeer (Estonia, Finland, Latvia, Lithuania, Poland and Sweden) shall carry out a 3-year monitoring programme for chronic wasting disease (CWD) in cervids, from 1 January 2018 to 31 December 2020. However, 'the collection of samples for the monitoring programme may, however, start in 2017'. The three-year monitoring programme for CWD in cervids is described in detail in Annex III, chapter A, Part III of the TSE regulation.

MSs may, on a voluntary basis, carry out monitoring for TSE in animal species other than bovine, ovine, caprine and cervids according Annex III, Chapter A, Part IV of the TSE regulation.

1.3. Testing protocols

The testing protocol for BSE surveillance in bovine animals is described in pages 8 and 9 of the 2016 EUSR on TSE (EFSA, 2017). The testing protocol for TSE surveillance in small ruminants is described in pages 13 and 14 of the 2016 EUSR on TSE (EFSA, 2017).

2. Data and methods

2.1. Origin of the data

The raw data are electronically submitted by MSs and non-MSs. The data that must be submitted consist of testing data and case-based data for bovine animals and small ruminants according to the reporting periods (monthly basis) as described in Chapter B.I of Annex III.

Electronically submitted data (including cervid data since 2016) are stored in the EU database and can be consulted using business intelligence tools (Business Objects). The electronically submitted data were extracted from the EU database and further processed and validated by EFSA to summarise the information and to elaborate the summary tables presented in the current EUSR.

The remaining data (e.g. genotype data, bovine animals tested according the required age classes, surveillance of TSE in animals other than bovine animals, ovine and caprine animals) were provided by the MSs in their annual reports submitted in accordance with Article 6.4 of, and as specified in Chapter B.I, Annex III to, the TSE regulation. Genotype data for positive scrapie ovine cases and for animals representative of the entire ovine population of the MSs were retrieved from the EU database and national annual reports respectively. Data from both the cases and the sample of genotyped sheep were provided as described in the TSE Regulation Chapter A, Part II, point 8.

Finally, information on the population of small ruminants in 2017 as presented in Table 4 and the number of BSE cases world-wide (Table 7) were obtained from the last available report on the monitoring and testing of ruminants for the presence of TSE in the EU (EC, 2016) and OIE (<http://www.oie.int/wahis>), respectively.

During validation of the data with the MSs additional information was asked with relation to the reporting according to (i) Annex III, Chapter B, Section 1.A, point 1 of the TSE regulation: the number

⁸ Commission Regulation (EU) 2017/1972 of 30 October 2017 amending Annexes I and III to Regulation (EC) No 999/2001 of the European Parliament and of the Council as regards a surveillance programme for chronic wasting disease in cervids in Estonia, Finland, Latvia, Lithuania, Poland and Sweden and repealing Commission Decision 2007/182/EC.

of suspected cases placed under official movement restrictions in accordance with Article 12(1), per animal species; (ii) Annex III, Chapter B, Section 1.A, point 3 of the TSE regulation: the number of flocks for which suspected cases in ovine and caprine animals have been reported and investigated pursuant to Article 12(1) and (2)); and (iii) the number of ovine and caprine flocks tested within each subpopulation referred to in Chapter A, Part II, points 2, 3, 5 and 6. The results of this questionnaire are summarised in Appendix D.

The data in this report refer only to the samples collected and confirmed cases reported between 1 January 2017 and 31 December 2017 in the EU and the three additional non-MS reporting countries (Iceland, Norway and Switzerland). EFSA validated the 2017 data by checking for inconsistencies between the data in the annual reports and the electronically extracted data, and by comparing the reported data with previous years. Data providers in the reporting countries were consulted during this validation. The data validation was started in April 2018 and finalised on 20 June 2018. The results and tables presented in the current EUSR are based on the data retrieved from the EU database on 28 June 2018. An additional consultation with MSs was conducted between 28 September 2018 and 12 October 2018. If data were corrected by the MSs in the report but not updated in the EU database, the corrections were only mentioned by means of footnotes in the current EUSR.

For some tables and figures, historical data (data between 2001 and 2017 with focus on the last four years in cattle and the last 10 years in sheep) were extracted from the EU TSE database. As certain MSs and non-MSs may calculate their annual statistics using different reporting criteria (e.g. based on the date of final test results rather than the date of sampling), the data summarised in this report may differ slightly from the national figures published by single MSs for 2017. In addition, subsequent submissions of updated/amended data by MSs may have resulted in differences in the figures included in this report when compared with the same data presented in previous EU summary reports.

2.2. Presentation of the data

The current report should be considered the EC summary report for 2017 in compliance with Section II, Chapter B, Annex III of the TSE regulation.

The 28 EU MSs or EU28, and non-MSs belonging to EFTA reporting countries as non-MSs. The non-MSs in this report are Iceland, Norway and Switzerland. The data reported by Switzerland include those of Lichtenstein. The countries are quoted in this report by using the country codes from the Nomenclature of Units for Territorial Statistics (NUTS) or the English name according to Regulation (EC) No 1059/2003⁹.

For some tables and figures, the surveillance target groups were combined: FS, ES and AM in bovine animals have been included in the group 'risk animals'. The word 'risk animals' is used here to indicate those animals whose probability of being detected with the disease is higher than in the surveillance target group of HS animals; however, this does not imply that the risk animals experienced a higher level of exposure than normal (Doherr et al., 2001). The same holds for small ruminants from the NSHC target group (Bird, 2003) when tested from non-infected flocks/herds.

2.3. Methods

2.3.1. Descriptive methods

To describe the results of the TSE surveillance programme in the EU in 2017, a number of figures and tables have been produced along with a short narrative text to describe the main findings. The report is split into three sections: bovine animals (cattle), small ruminants (sheep and goats) and species other than bovine, ovine and caprine animals (e.g. cervids). Both EU aggregated data and data at the national level are presented. Where it was considered relevant, multiyear and historical data are shown: surveillance data were available for the period 2001–2017 for bovine animals, for 2002–2017 for small ruminants, and only for the reporting year (2017) for other species.

For bovine animals, summary statistics were obtained based on the total number of tests performed in 2017 by MS and surveillance target group. In addition, historical data relating to the number of tested animals and confirmed cases since 2014 are presented in detail whereas those on the 2001–2013 period have been summed up. This four-year period has been selected as during the

⁹ Regulation (EC) No 1059/2003 of the European Parliament and of the Council of 26 May 2003 on the establishment of a common classification of territorial units for statistics (NUTS). OJ L 154, 21.6.2003, p. 1–41.

period 2014–2017 a harmonised EU-wide, active BSE surveillance was applied and restricted to at risk animals of ≥ 48 months of age, even though few exceptions are still in place in some countries as shown in Table 2. Additional epidemiological parameters have been estimated: for example, absolute number of cases or proportions (cases per million tests) by case type (e.g. C-BSE, H-BSE, L-BSE) and/or surveillance target group, and proportions (cases per million tests) by age-class and by year, among others. These have been used to describe the development of the BSE epidemic and to put into context the findings of the reporting year.

The average number of cases detected per million tests at the EU level in both the risk animals and HS target groups (period 2008–2017) have been used to check if any significant temporal trend was detectable. For this purpose, a Poisson regression model has been fitted for each BSE type (C-BSE, H-BSE and L-BSE) separately, using the number of cases as dependent variable and the year as a continuous independent variable. The number of tests was taken into account in the model (offset). The target group (risk animals vs HS), potentially affecting the probability of detecting the disease, was added to the model as covariate to adjust for any confounding effect. A $p \leq 0.05$ was considered statistically significant. The relative risk (RR) obtained by exponentiating the beta coefficient associated with the 'year' variable, was used as a measurement of the annual variation in the probability of detection, i.e. the temporal trend for the entire period. In the model, the RR indicates the average annual change in the proportion of cases per animals tested corresponding with the annual probability of detecting the disease: a $RR > 1$ indicates an average annual increase in the number of cases per million whereas a $RR < 1$ indicates an average annual decrease.

To obtain relevant epidemiological information about the BSE cases detected in 2017, EFSA asked for additional information from the individual MSs concerned via a small questionnaire.

For small ruminants, summary statistics are presented in this report, and where possible, stratified according to the relevant variables in the database such as: surveillance target group (SHC, NSHC, SU, EM), flock/herd status (infected, non-infected, other, unknown), surveillance type (passive surveillance restricted to SU vs active surveillance restricted to SHC and NSHC in non-infected flocks/herds), country, year (since 2002), case type (CS or AS), index case (yes/no). In particular, when historical data have been considered for trend analysis, the last 10-year period (2008–2017) has been included in the analysis.

Based on the minimum testing requirements for TSE surveillance in small ruminants (Table 4), a check has been carried out of the compliance of each MS. For assessing compliance, the following criteria have been applied:

- For testing in the NSHC surveillance target group: if the difference between observed testing and expected testing (minimum requirements) was positive, then the MS is compliant with the testing requirements.
- For testing in the SHC surveillance target group: if the difference between observed testing and expected testing (minimum requirements) was positive, the MS is compliant; when the difference was negative, a further calculation was performed to check if the MS's compliance had been achieved by applying the derogation provided by the TSE regulation (according to point II.2(c), Chapter A, Annex III of the TSE regulation) i.e. replacing up to 50% of its minimum SHC sample size by testing dead ovine or caprine animals over the age of 18 months at the ratio of 1:1 and in addition to the minimum sample size for NSHC.

A MS has been considered to meet the minimum requirements when the above criteria have been met in both target groups.

The reporting system of TSE surveillance data does not allow the collation of the number of newly infected flocks and herds during the reporting year but only the number of index cases, considered to be a proxy for the number of incident scrapie cases.

TSE data of small ruminants from the last ten years (period 2008–2017) have been used to check if any significant temporal trend was detectable. As per BSE, a Poisson regression model has been fitted for ovine and caprine animals separately, using the number of cases as dependent variable and the year as a continuous independent variable. The number of tests was taken into account in the model (offset). The target group (NSHC vs SHC), potentially affecting the probability of detecting the disease, was added to the model as covariate to adjust for any confounding effect. A $p \leq 0.05$ was considered statistically significant for both the statistical analyses. The RR obtained by exponentiating the beta coefficient associated with the 'year' variable was used as a measurement of the annual variation in the probability of detection, i.e. the temporal trend for the entire period. In the model the RR indicates the average annual change in the proportion of cases per animals tested corresponding with the

annual probability of detecting the disease: a $RR > 1$ indicates an average annual increase in the number of cases per million whereas a $RR < 1$ indicates an average annual decrease.

The mean age of the AS cases has been compared with that of CS cases in sheep and goats by applying a two-sample t-test with unequal variances. A $p \leq 0.05$ was considered statistically significant.

Finally, the classification originally developed by Great Britain's National Scrapie Plan (NSP) was used to summarise and describe the data on genotyping.

In order to describe and plot the reported data, some assumptions were made for reporting the results in bovine animals and small ruminants (sheep and goats):

- To plot the temporal evolution of BSE cases (C-BSE, L-BSE and H-BSE), cases for which the type was reported as 'unknown' or was missing were considered for reporting purposes as C-BSE, since most of these were reported before 2005.
- To plot the reported scrapie cases according to the flock/herd status, it was assumed that flocks/herds with status reported as 'unknown', 'other' or blank were considered for reporting purposes as 'non-infected flocks/herds'.
- To describe the evolution of the total number of scrapie index cases, it was assumed that all index cases ('yes') were confirmed in non-infected flocks/herds. If an index case was reported as 'no' or 'unknown', it was considered for reporting purposes as 'infected flocks/herds'.
- To describe the results of the discriminatory TSE testing, it was assumed that all scrapie cases with 'BSE-like', 'non BSE-like' or 'inconclusive' results in the primary or secondary molecular tests have been submitted for discriminatory testing.

3. Assessment

3.1. BSE surveillance in bovine animals

About 116.5 million bovine animals have been tested for BSE in EU since 2001. In 2017, there was a 3% reduction in the number of tested bovine animals in the EU, from 1,352,585 in 2016 to 1,312,714, mainly due to a reduction in the HS target group (31,449 less than in 2016). Apart from Romania and Bulgaria, that have tested in total 195,306 healthy slaughtered animals over 30 months of age (54.4% of all tested in the HS group in the EU), Poland tested a substantial amount of HS animals (> 108 months of age, 124,492, 34.6% of all tested in the HS group in the EU).

The three non-MSs (Iceland, Norway and Switzerland) tested 18,526 cattle in 2017.

There was also a decrease of 1% in the number of animals tested in the risk group (AM+ES+FS) over 48 months of age, from 960,179 in 2016 to 951,316 in 2017. However, for the last three years, cattle in the risk group accounted for more than two thirds of all cattle tested: 65.5%, 71% and 72.5% in 2015, 2016 and 2017, respectively. As in previous years, in 2017, cattle from FS accounted for most of the risk animals (882,533: 93%).

The number of cattle tested for BSE per reporting country for each target group in 2017 is shown in Table 5, whereas details of the number of tested bovine animals per MS and per age category for each of the target groups are summarised in Appendix A.

For the first time since BSE cases have been reported, no C-BSE cases were detected world-wide in 2017. However, in the EU six atypical BSE cases, four L-BSE and two H-BSE, were reported by three different MSs: Spain (1 H-BSE and 2 L-BSE), France (1 H-BSE and 1 L-BSE) and Ireland (1 L-BSE). One additional L-type case has been reported in the United States of America.

The number of atypical cases is similar to those found in 2015 (2 H-BSE cases, in Slovenia and the UK and 1 L-BSE case in Spain) and 2016 (4 H-BSE cases: 3 in France and 1 in Spain). Focussing on the last four years (Figure 1), the proportion of cases per million tests ranged between 0 and 5. All the EU atypical cases were detected in old animals, born between 1998 and 2004 (average age: 186 months; range: 146–226 months) and tested in the FS target surveillance group that accounts, as mentioned above, for most of the tested animals.

Table 6 reports the main clinical and epidemiological information on the positive cases: the presence of clinical symptoms, herd size, herd type, animal and feed type. The geographical and temporal distribution of the BSE cases by type (period 1991-2017, with a focus on the last four years) is shown in Tables 7–9.

Time series analysis carried out over the last ten-year period (period 2008–2017) shows a significant decreasing trend in the occurrence of C-BSE (annual $RR = 0.62$, i.e. an annual decrease of 38% in the proportion of cases per tested animals; $p < 0.0001$), whereas no significant trend for the

two atypical BSE forms was found (H-BSE: annual RR = 0.99, $p = 0.85$; L-BSE: annual RR = 1.04, $p = 0.51$).

The geographical distributions of the cumulative number of cases and the cumulative proportion of cases per million tests of C-BSE cases born after the total (reinforced) feed ban (BARB), H-BSE and L-BSE for the period 2001–2017, are shown in Appendix B.

Table 5: Number of bovine animals tested for BSE by reporting country and surveillance target group in 2017 in the EU and other reporting countries

Country	Surveillance target group							Total
	Risk animals				Other			
	ES	AM	FS	Subtotal (ES + AM + FS)	HS	SU	EM	
AT	3,165	44	13,794	17,003	135	17	0	17,155
BE	799	7	24,612	25,418	6	10	0	25,434
BG	3,860	1	658	4,519	25,321	0	98	29,938
CY	11	0	1,155	1,166	5	0	0	1,171
CZ	1,001	0	19,070	20,071	85	2	0	20,158
DE	9,278	0	147,639	156,917	395	453	0	157,765
DK	1,295	0	21,036	22,331	59	1	0	22,391
EE	71	51	3,263	3,385	0	0	0	3,385
EL	8	0	873	881	9,867	6	1,492	12,246
ES	226	15	58,465	58,706	287	4	5	59,002
FI	43	0	11,551	11,594	1	0	0	11,595
FR	7,010	0	199,969	206,979	26,390	4	0	233,373
HR	198	0	4,713	4,911	184	4	0	5,099
HU	115	417	10,847	11,379	912	10	0	12,301
IE	0	517	59,412	59,929	0	16	0	59,945
IT	16,213	502	38,104	54,819	430	1	0	55,250
LT	13	17	3,101	3,131	0	0	0	3,131
LU	0	0	2,414	2,414	0	2	0	2,416
LV	136	430	3,134	3,700	0	1	0	3,701
MT	54	0	148	202	0	0	0	202
NL	5,216	0	41,888	47,104	36	2	0	47,142
PL	3,624	670	33,407	37,701	124,492	13	0	162,206
PT	1,926	1,293	19,657	22,876	473	1	0	23,350
RO	2,704	2,873	3,552	9,129	169,985	100	0	179,214
SE	172	17	8,184	8,373	0	2	0	8,375
SI	395	125	5,722	6,242	63	14	0	6,319
SK	23	0	7,492	7,515	1	0	0	7,516
UK	3,814	434	138,673	142,921	10	3	0	142,934
Total EU	61,370	7,413	882,533	951,316	359,137	666	1,595	1,312,714
CH	4,727	0	6,160	10,887	0	33	0	10,920
IS	0	0	30	30	759	0	0	789
NO	5,221	89	1,507	6,817	0	0	0	6,817
Total non-MSs	9,948	89	7,697	17,734	759	33	0	18,526
Total	71,318	7,502	890,230	969,050	359,896	699	1,595	1,331,240

BSE: bovine spongiform encephalopathy; SU: animals clinically suspected of being infected with BSE; FS: fallen stock; ES: emergency slaughtered; AM: animals with clinical signs at ante-mortem; HS: healthy slaughtered; EM: animals culled under BSE eradication measures.

Table 6: Clinical and epidemiological description of the six atypical BSE cases detected in 2017

Country	ES – atypical1	ES – atypical2	ES – atypical3	FR – atypical1	FR – atypical2	IE – atypical
Surveillance target group	Fallen stock	Fallen stock	Fallen stock	Fallen stock	Fallen stock	Fallen stock
Case type	H-BSE	L-BSE	L-BSE	L-BSE	H-BSE	L-BSE
Month and year of birth	June 1999	February 2002	January 2003	July 2003	December 2004	March 1998
Age at detection (in months)	221	182	169	173	146	226
BARB status	No	No	No	No	No	No
Clinical Symptoms	No clinical symptoms	No clinical symptoms	No clinical symptoms	No clinical symptoms	Problems at hind limbs	Stiff gait, ill thrift despite normal appetite, recumbency and euthanasia
Cattle type	Beef suckler	Mixed (dairy and beef)	Beef suckler	Beef suckler	Beef suckler	Beef suckler
Breed	Mixed	Conjunto mestizo	Morucha	Limousine	Aubrac	Aberdeen Angus X
Was the case confirmed at herd/holding where the animal was born?	No	Yes	Yes	No	Yes	No, animal was sold as a calf
Location (NUTS3) of natal herd or herd where case found	Region of Castille-Leon, province of Salamanca	Region of Cantabria, province of Cantabria	Region of Castile-Leon, province of Salamanca.	Region of Dordogne	Region of Lozère	Birth herd was County Cork, case identified in Co. Galway
Herd size	213	51	134	140	135	57
Herd type	Beef suckler	Mixed (dairy and beef)	Beef suckler	Beef suckler	Beef suckler	Beef suckler
Feeding system during first year of life	Mixed (suckle, grazing, feed)	Concentrate / forage	Mixed (suckle, grazing, feed)	Mixed (suckle, grazing, feed)	Mixed (suckle, grazing, feed)	Whole milk at birth herd followed by hay/silage at case herd
Feed cohorts? Tested? If Yes: Results (number tested; number positives)	Yes (all cohort slaughtered or fallen dead in the holding)	Yes (5 tested/0 positive/5 negative)	Yes (2 tested/0 positive/2 negative)	No	No	Yes (2,0,2)
Birth cohorts? Tested? If Yes: Results (number tested; number positives)	Yes (all cohort slaughtered or fallen dead in the holding)	Yes (5 tested/0 positive/5 negative)	Yes (2 tested/0 positive/2 negative)	No	No	No, none alive (0;0;0)
Offspring? Tested? If Yes: Results (number tested; number Positives)	Not tested (no offspring alive when the case was detected)	Not available	Yes (1 tested/0 positive/1 negative)	Yes (2 tested /0 positive /2 negative)	No	Not tested, none remaining alive

Country	ES – atypical1	ES – atypical2	ES – atypical3	FR – atypical1	FR – atypical2	IE – atypical
Sire? Tested? (Yes/No). If Yes: Results (positive? Negative?)	Not available	Not available	Not available	Yes (negative)	Yes (negative)	Unknown
Dam? Tested (Yes/No). If Yes: Results (positive? Negative?)	Yes (negative)	Yes (negative)	Yes (negative)	Yes (negative)	Yes (negative)	Yes, negative

BSE: bovine spongiform encephalopathy; H-BSE: H-type BSE; L-BSE: L-type BSE.

Table 7: Total number of reported BSE cases (classical-BSE + atypical H-BSE + atypical L-BSE) in the EU and world-wide by year (period up to 1991–2017) and country

Country	Year					Total
	Up to 2013	2014	2015	2016	2017	
AT	11	0	0	0	0	11
BE	133	0	0	0	0	133
CZ	30	0	0	0	0	30
DE ^(a)	419	2	0	0	0	421
DK ^(a)	16	0	0	0	0	16
EL	1	0	0	0	0	1
ES	810	2	1	1	3	817
FI	1	0	0	0	0	1
FR ^(a)	997	3	0	4	2	1,006
IE ^(a)	1,659	0	1	0	1	1,661
IT ^(a)	147	0	0	0	0	147
LU	3	0	0	0	0	3
NL ^(b)	88	0	0	0	0	88
PL	75	0	0	0	0	75
PT	1,085	1	0	0	0	1,086
RO	0	2	0	0	0	2
SE ^(c)	1	0	0	0	0	1
SI	8	0	1	0	0	9
SK	27	0	0	0	0	27
UK	184,591	1	2	0	0	184,594
Total EU-28	190,102	11	5	5	6	190,129
BRA	1	1	0	0	0	2
CAN ^(a)	19	0	1	0	0	20
ISR	1	0	0	0	0	1
JPN	36	0	0	0	0	36
LI	2	0	0	0	0	2
NO	0	0	1	0	0	1
CH ^(a)	467	0	0	0	0	467
USA ^(a)	4	0	0	0	1	5
Total Non EU	530	1	2	0	1	534
Total	190,632	12	7	5	7	190,663

BSE: bovine spongiform encephalopathy; BRA: Brazil; CAN: Canada; ISR: Israel; JPN: Japan; USA: United States of America. Each cell reports the total number of BSE cases (C-BSE + H-BSE + L-BSE).

Grey-shaded cells indicate the year(s) and Member State where at least one BARB (i.e. born after the total feed ban) case was detected (EFSA BIOHAZ Panel, 2017) in the period 2014–2017.

Member States that have never reported BSE cases (Bulgaria, Cyprus, Estonia, Croatia, Hungary, Lithuania, Latvia and Malta) are not included in the table.

(a): Included imported cases: CAN one case in 1993; Denmark one case in 1992; France one case in 1999; Germany one case in 1992, three cases in 1994, two cases in 1997; Ireland five cases in 1989, one case in 1990, two cases in 1991 and 1992, one case in 1994 and one case in 1995; Italy two cases in 1994 (2), 2001 (2) and 2002 (2); Portugal one case in 1990, 1991, 1992, 2000 and 2004 and three cases in 1993; Slovenia one case in 2004; Switzerland one case in 2012; USA one case in 2003.

(b): NL: The number of classical scrapie for NL should be updated in the database for 2001 from 18 cases to 19 cases. Therefore, the total of the Netherlands for the column up to 2013 is 88 instead of 87.

(c): Gavier-Widen et al. (2008).

Source: data on non-EU cases and cases in EU Member States for the period 1987–2002 were made available by the European Commission (EC, 2016), Data were retrieved from the EU TSE Database and the OIE website (<http://www.oie.int/wahis>) The table with all historical cases can be found on <https://doi.org/10.5281/zenodo.1436520>

Table 8: Total number of reported classical BSE cases in the EU and non-MS reporting countries by year (period 2001–2017) and country

Country	Year					Total
	Up to 2013	2014	2015	2016	2017	
AT	5	0	0	0	0	5
BE	133	0	0	0	0	133
CZ	29	0	0	0	0	29
DE	416	0	0	0	0	416
DK	15	0	0	0	0	15
EL	1	0	0	0	0	1
ES	797	1	0	0	0	798
FI	1	0	0	0	0	1
FR	968	0	0	1	0	969
IE	1,655	0	1	0	0	1,656
IT	142	0	0	0	0	142
LU	3	0	0	0	0	3
N	84	0	0	0	0	84
PL	60	0	0	0	0	60
PT	1,078	1	0	0	0	1,079
SI	8	0	0	0	0	8
SK	27	0	0	0	0	27
UK	184,576	1	1	0	0	184,578
Total EU28	189,998	3	2	1	0	190,004
CH	464	0	0	0	0	464
Total non-MSs	464	0	0	0	0	464
Total	190,462	3	2	1	0	190,468

BSE: bovine spongiform encephalopathy.

Each cell reports the total number C-BSE cases.

Grey-shaded cells indicate the year(s) and Member State where at least one BARB (i.e. born after the total feed ban) case was detected (EFSA BIOHAZ Panel, 2017) for the period 2014–2017.

Member States that have never reported C-BSE cases (Bulgaria, Cyprus, Croatia, Estonia, Hungary, Latvia, Lithuania, Malta, Romania and Sweden) are not included in the table.

The table with all historical cases can be found on <https://doi.org/10.5281/zenodo.1436520>

Table 9: Total number of reported BSE atypical cases in EU and non-MS reporting countries by year (period 2001–2017), type and country

Country code	Year										Total	
	Up to 2013		2014		2015		2016		2017		H	L
	H	L	H	L	H	L	H	L	H	L		
AT	1	2									1	2
CZ	1	0									1	0
DE	1	2	1	1							2	3
DK	0	1									0	1
ES	7	6		1		1	1		1	2	9	10
FR ^(a)	14	15	1	2			3		1	1	19	18
IE	4	0								1	4	1
IT	0	5									0	5
NL	1	3									1	3
PL ^(b)	2	12									2	12
PT	7	0									7	0
RO	0	0		2							0	2

Country code	Year										Total	
	Up to 2013		2014		2015		2016		2017			
	H	L	H	L	H	L	H	L	H	L	H	L
SE	1	0									1	0
SI	0	0			1						1	0
UK	6	9			1						7	9
Total EU-28	45	55	2	6	2	1	4	0	2	4	55	66
NO	0	0			1						1	0
CH	1	0									1	0
Total non-MSs	1	0			1						2	0
Total	46	55	2	6	3	1	4	0	2	4	57	66

BSE: bovine spongiform encephalopathy.

Each cell reports the total number of H-BSE and L-BSE cases.

MSs that have never reported atypical BSE cases (Belgium, Bulgaria, Cyprus, Croatia, Estonia, Hungary, Greece, Finland, Luxembourg, Latvia, Lithuania, Malta, Slovakia and, Iceland) are not included in the table.

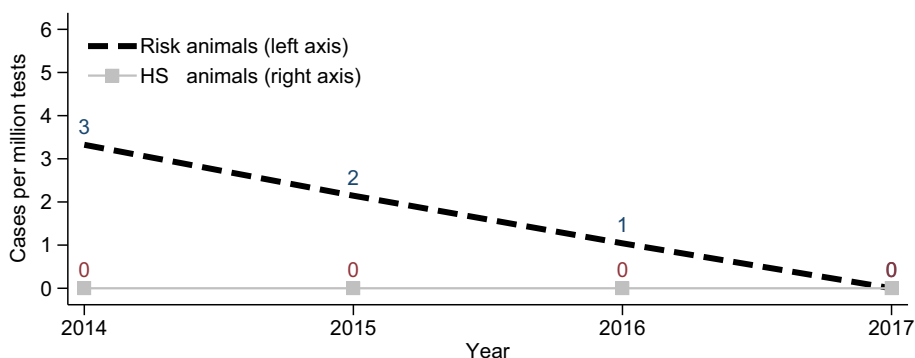
(a): In 2010, France had two BSE L-type cases and one BSE H-type case due to a misclassification. This should be updated in the database. The total for France in the column up to 2013 is 14 (H-BSE) and 15 (L-BSE).

(b): In 2012, Poland reported an atypical BSE case without specifying the type.

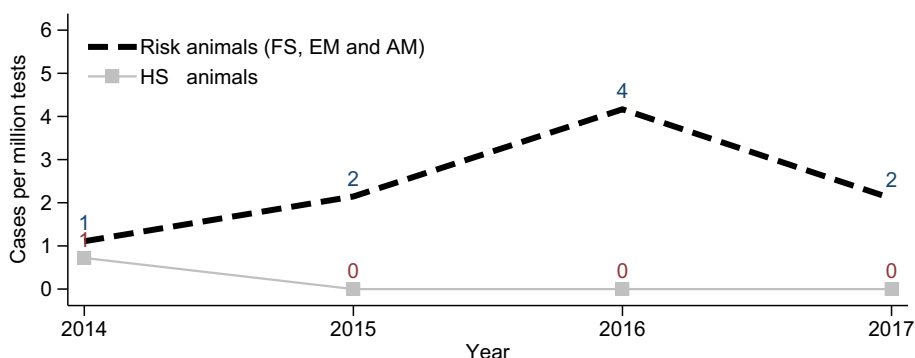
Source: data were retrieved from the EU TSE Database and from the OIE for Switzerland.

The table with all historical cases can be found on <https://doi.org/10.5281/zenodo.1436520>

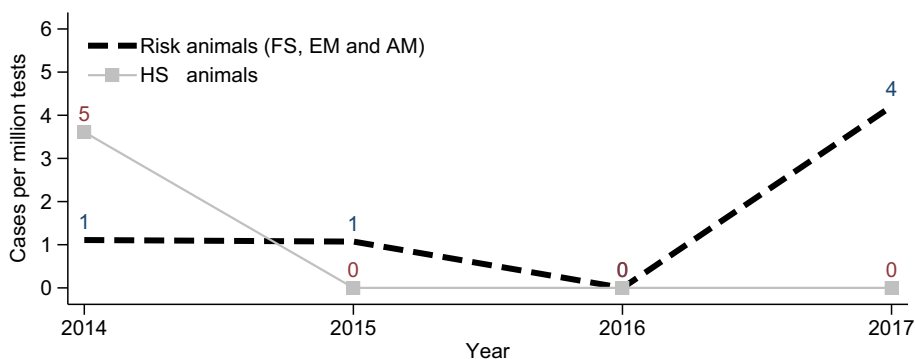
A: C-BSE



B: H-BSE



C: L-BSE



The annual absolute number of cases is reported on top of the lines for each year.

Figure 1: Cases per million tested bovine animals by surveillance target group and by case type over the period 2014–2017 in the EU

3.2. TSE surveillance in small ruminants

Since 2002, more than 9 million small ruminants have been tested as part of the official EU TSE surveillance. In 2017, 431,815 small ruminants were tested by the 28 MSs: 314,547 sheep (72.8%) and 117,268 goats (27.2%).

In 2017, there was an 8.7% increase (34,623 samples) in the number of tested small ruminants in the EU, compared with that of 2016. This increase was in sheep with a 10% increase (314,547 tested in 2017 compared with 286,351 in 2016, particularly in TSE-infected flocks with a 76.1% increase and to a lower extent in non-TSE-infected flocks with a +6.1% increase). In goats, there was a 5.8% increase (117,268 in 2017 compared with 110,832 in 2016, with a 18.9% decrease in TSE-infected herds and a 6.9% increase in non-TSE-infected herds).

The numbers of sheep and goats tested for TSE by reporting country, surveillance target group and flock/herd status in 2017 are summarised in Tables 10 and 11, respectively. Taking into account the number of samples tested in the SHC and NSHC target groups, and those required according to the TSE regulation (Table 4), 19 MSs fulfilled the requirements for sheep testing and 18 MSs fulfilled the requirements for goat testing.

In 2017, for each sheep tested in a TSE-infected flock, there were nearly 11 sheep tested in non-TSE-infected flocks, compared with nearly 18 tested in non-TSE-infected flocks in 2016. This difference is due to the increase in the number of tested sheep from TSE-infected flocks under restrictions which has increased (+11,752), probably due to the larger number of confirmed cases, mainly in Greece, Italy, Romania and Spain.

In 2017, for each goat tested in a TSE-infected herd, there were 31 goats tested in non-TSE-infected herds, compared with nearly 24 goats tested in non-TSE-infected herds in 2016. This is due to the decrease in the number of tested goats from TSE-infected herds under restrictions (−845). The main contributors to goats tested from TSE-infected herds were France, Italy and Spain.

Table 10: Number of sheep tested for TSE by reporting country, surveillance target group and flock status in 2017 in the EU and non-MS reporting countries

Flock status	TSE-infected flocks					Other flocks ^(a)					Unknown ^(a)					Total	
	EM	NSHC	SHC	SU	Subtotal TSE-infected flocks	EM	NSHC	SHC	SU	Subtotal Other flocks	EM	NSHC	SHC	SU	Subtotal unknown		Subtotal non-infected flocks
AT		19	6		25		2,606	132		2,738					0	2,738	2,763
BE					0		1,405		2	1,407					0	1,407	1,407
BG					0		386	18,343		18,729					0	18,729	18,729
CY					0		3,300	1,373		4,673					0	4,673	4,673
CZ					0		3,320	55		3,375					0	3,375	3,375
DE					0					0	39	11,624	8,021	43	19,727	19,727	19,727
DK					0		503	1	1	505					0	505	505
EE					0					0		380			380	380	380
EL	1,628	71	4	28	1,731					0	9	3,068	3,249	148	6,474	6,474	8,205
ES	6,594				6,594		13,084	10,541	11	23,636					0	23,636	30,230
FI					0		1,643			1,643					0	1,643	1,643
FR			18		18		19,134	5,931	1	25,066					0	25,066	25,084
HR					0		1,475	1		1,476					0	1,476	1,476
HU		3,075	413		3,488		6,321	8,449	1	14,771					0	14,771	18,259
IE	210	101	293	0	604		160		1	161	0	10,329	10,244	0	20,573	20,734	21,338
IT	5,513	379	433	11	6,336	17	11,293	11,923	2	23,235					0	23,235	29,571
LT					0		1,320			1,320					0	1,320	1,320
LU					0		84			84					0	84	84
LV					0		208			208					0	208	208
MT					0		136	105		241					0	241	241
NL					0					0	0	1,512	0	1	1,513	1,513	1,513
PL					0		10,140	12,283	3	22,426					0	22,426	22,426
PT					0					0		15,059	6,299		21,358	21,358	21,358
RO		233	4,642	23	4,898		11,692	11,195	19	22,906		5,291	7,058	34	12,383	35,289	40,187
SE					0		1,410			1,410					0	1,410	1,410
SI		3			3		2,075	197	10	2,282					0	2,282	2,285

Flock status	TSE-infected flocks					Other flocks ^(a)					Unknown ^(a)					Total	
	EM	NSHC	SHC	SU	Subtotal TSE-infected flocks	EM	NSHC	SHC	SU	Subtotal Other flocks	EM	NSHC	SHC	SU	Subtotal unknown		Subtotal non-infected flocks
SK		1,267	1,439		2,706		11,478			11,478					0	11,478	14,184
UK		579			579		15,038	6,349		21,387					0	21,387	21,966
Total EU	13,945	5,727	7,248	62	26,982	17	118,211	86,878	51	205,157	48	47,263	34,871	226	82,408	287,565	314,547
CH					0				1	1					0	1	1
IS					0					0		77	3,563	6	3,646	3,646	3,646
NO					0	325	6,766	11,518		18,609					0	18,609	18,609
Total non-MSs	0	0	0	0	0	325	6,766	11,518	1	18,610	0	77	3,563	6	3,646	22,256	22,256
Total	13,945	5,727	7,248	62	26,982	342	124,977	98,396	52	223,767	48	47,340	38,434	232	86,054	309,821	336,803

EM: animals culled under TSE eradication measures; NSHC: animals not slaughtered for human consumption; SHC: animals slaughtered for human consumption; SU: animals clinically suspected of being infected by TSE.

(a): Sheep flocks reported as 'unknown' and 'other' with relation to flock status are assumed to be non-infected flocks.

Table 11: Number of goats tested for TSE by reporting country, surveillance target group and herd status in 2017 in the EU and non-MS reporting countries

Herd status	TSE-infected herds					Other herds ^(a)					Unknown ^(a)					Total	
	EM	NSHC	SHC	SU	Subtotal TSE-infected herds	EM	NSHC	SHC	SU	Subtotal Other herds	EM	NSHC	SHC	SU	Subtotal Unknown		Subtotal non-infected herds
AT					0	0	760	32	0	792					0	792	792
BE					0		552		1	553					0	553	553
BG					0		127	1,441		1,568					0	1,568	1,568
CY	243				243		5,172	2,875		8,047					0	8,047	8,290
CZ					0		546			546					0	546	546
DE					0					0	5	1,684	235	8	1,932	1,932	1,932
DK					0		106			106					0	106	106
EE					0					0		57			57	57	57
EL	368	1		5	374					0	16	977	1,186	45	2,224	2,224	2,598
ES	918				918	0	9,559	7,847		17,406					0	17,406	18,324
FI					0		199			199					0	199	199
FR	123		638		761		16,797	4,987		21,784					0	21,784	22,545
HR					0		351			351					0	351	351
HU		2			2		132	123	1	256					0	256	258
IE					0		7			7		147			147	154	154
IT	623	17	302	4	946	24	7,111	20,246		27,381					0	27,381	28,327
LT					0		34			34					0	34	34
LU					0		103			103					0	103	103
LV					0		6			6					0	6	6
MT					0		109	101		210					0	210	210
NL					0					0	0	1,504	0	0	1,504	1,504	1,504
PL					0		3,521	320		3,841					0	3,841	3,841
PT					0					0		1,528	68		1,596	1,596	1,596
RO			63		63		4,256	8,295	7	12,558		2,902	6,010	3	8,915	21,473	21,536
SE					0		152			152					0	152	152
SI					0		435	74	6	515					0	515	515

Herd status	TSE-infected herds					Other herds ^(a)					Unknown ^(a)					Total	
	EM	NSHC	SHC	SU	Subtotal TSE-infected herds	EM	NSHC	SHC	SU	Subtotal Other herds	EM	NSHC	SHC	SU	Subtotal Unknown		Subtotal non-infected herds
SK		1	5		6		274			274					0	274	280
UK		295	78		373		518			518					0	518	891
Total EU	2,275	316	1,086	9	3,686	24	50,827	46,341	15	97,207	21	8,799	7,499	56	16,375	113,582	117,268
CH					0				1	1					0	1	1
IS					0					0		0	16		16	16	16
NO					0		300	0	0	300					0	300	300
Total non-MSs	0	0	0	0	0	0	300	0	1	301	0	0	16	0	16	317	317
Total	2,275	316	1,086	9	3,686	24	51,127	46,341	16	97,507	21	8,799	7,515	56	16,391	113,899	117,585

EM: animals culled under TSE eradication measures; NSHC: animals not slaughtered for human consumption; SHC: animals slaughtered for human consumption; SU: animals clinically suspected of being infected by TSE; TSE: transmissible spongiform encephalopathy.

(a): Goat herds reported as 'unknown' and 'other' with relation to flock status are assumed to be non-infected flocks.

In total, 933 scrapie cases in sheep were reported in the EU in 2017 (Table 12), a 36.2% increase (+248 cases), compared with 2016 when 685 cases were reported. They were reported by 17 MSs. An additional 14 cases of scrapie in sheep were reported by two non-MSs.

CS was reported by eight different MSs and one non-MS: Bulgaria, Cyprus, Greece, Ireland, Italy, Romania, Slovakia, Spain, and Iceland; whereas AS was reported by 13 MSs and one non-MS: Austria, Czech Republic, Germany, France, Hungary, Ireland, Italy, Poland, Portugal, Slovakia, Spain, Sweden, United Kingdom and Norway. Most of the ovine cases (96.5%) were reported by four countries, namely Greece, Italy, Romania and Spain, as it was the case in 2016.

In total, 832 sheep scrapie cases in the EU in 2017 were CS cases (89.2%), 94 were AS cases (10.1%) and seven unknown. Among the non-EU reporting countries, one CS case was reported by Iceland and 13 AS cases by Norway. Table 12 shows the number of scrapie cases in sheep by country, case type, index case status and surveillance target group in 2017. The geographical distribution of AS and CS in sheep is shown in Appendix C.

In sheep, 25% (234) of all cases in the EU reported in 2017 were index cases, with a much higher proportion in AS cases (89/94: 94.7%) than in CS cases (145/832: 17.4%), probably due to the high within-flock spread of CS. Using the absolute number of index cases as a proxy for the flock-level incidence in sheep and comparing 2016 with 2017, there was an increase in CS index cases (from 112 to 145, +29.5%) and a decrease in AS index cases (from 106 to 89, -16%).

In total, 567 scrapie cases in goats were reported in the EU in 2017, a 10% reduction (-67) compared with 2016 when 634 cases were reported. This change is due mainly to the further decrease in the number of cases in goats in a single reporting country, Cyprus, from 570 in 2016 to 485 in 2017. Cases were reported by nine MSs. In particular, CS was reported by seven MSs: Bulgaria, Cyprus, Greece, Italy, Romania, Spain and the United Kingdom; whereas AS was reported by five MSs: Cyprus, Germany, France, Italy and Spain. As mentioned previously, most of the CS cases were reported by Cyprus (86.7%).

In total, 558 caprine cases in the EU in 2017 were CS cases (98%) and nine were AS (2%). Table 13 shows the number of scrapie cases in goats by country, case type, index case status and surveillance target group in 2017. The geographical distribution of AS and CS in goats is shown in Appendix C.

In goats, 8.6% (49) of all cases reported in the EU in 2017 were index cases, slightly higher than in 2016 (6.8%), with a higher proportion in AS (7/9: 78%) than in CS (42/558: 7.5%). More than 40% of the European caprine index cases are reported from Cyprus. Using the absolute number of index cases in goats as a proxy for the herd-level incidence in goats and comparing 2016 with 2017, there was an increase in CS cases (from 30 to 42, mostly in Cyprus and Greece) and a decrease in AS cases (from 13 to 7).

In general, considering the total number of cases by type and without restricting the calculation to index cases only, CS is still the most frequently reported type of scrapie in the EU in both the species: in 2017 the CS/AS ratio was 8.9:1 in sheep (twice the ratio of 2016) and 55.8:1 in goats (47.8:1 in 2016). If, for goats, Cyprus is excluded, the CS/AS ratio in goats is similar to that in sheep: 8.2:1.

Table 12: Number of scrapie cases in sheep by country, case type, index case status, surveillance target group in 2017 in the EU and non-MS reporting countries

Case type	Atypical scrapie (AS)								Classical scrapie (CS)								Unknown		Total		
	No			Yes				Total AS	No				Yes				Total CS	No		Total	
	EM	NSHC	Subtotal	NSHC	SHC	SU	Subtotal		EM	NSHC	SHC	SU	Subtotal	NSHC	SHC	SU		Subtotal		EM	Un-known
AT			0	1			1	1								0			0	0	1
BG			0				0	0							1	1			0	0	1
CY			0				0	0		1	1					2			0	0	2
CZ			0	1			1	1								0			0	0	1
DE			0	3	1		4	4								0			0	0	4
EL			0				0	0	78	87	8	31	204	31	5	7	43	247		0	247
ES	1		1	3	7	1	11	12	235				235	7	3	2	12	247		0	259
FR			0	3			3	3					0			0		0	0	0	3
HU		4	4	6	4		10	14					0			0		0	0	0	14
IE			0		1		1	1	2	7			9	2		2		11		0	12
IT			0	1	2		3	3	191		1		192	19	22		41	233	7	7	243
PL			0	5	2		7	7					0			0		0	0	0	7
PT			0	25	4		29	29					0			0		0	0	0	29
RO			0				0	0		14	5	15	34	7	25	10	42	76		0	76
SE			0	2			2	2					0			0		0	0	0	2
SK			0	5			5	5		6	5		11	4		4		15		0	20
UK			0	11	1		12	12					0			0		0	0	0	12
Total EU 28	1	4	5	66	22	1	89	94	506	115	20	46	687	70	56	19	145	832	7	7	933
IS			0				0	0					0		1	1		1		0	1
NO			0	7	6		13	13					0			0		0		0	13
Total non-MSs	0	0	0	7	6	0	13	13	0	0	0	0	0	0	1	0	1	1	0	0	14
Total	1	4	5	73	28	1	102	107	506	115	20	46	687	70	57	19	146	833	7	7	947

EM: animals culled under TSE eradication measures; NSHC: Animals not slaughtered for human consumption; SHC: animals slaughtered for human consumption; SU: animals clinically suspected of being infected by TSE; TSE: transmissible spongiform encephalopathy.

Only the reporting countries in which scrapie cases in sheep were detected in 2017 are included in the table.

Table 13: Number of scrapie cases in goats by country, case type, index case status, surveillance target group in 2017 in the EU and non-MS reporting countries

Case type	Atypical scrapie (AS)								Classical scrapie (CS)								Total		
	No				Yes				Total AS	No				Yes				Total CS	
	EM	NSHC	SHC	Subtotal	NSHC	SHC	Subtotal	EM		NSHC	SHC	SU	Subtotal	NSHC	SHC	SU			Subtotal
BG				0			0	0					0	2			2	2	2
CY		1		1			0	1	198	179	90		467	17			17	484	485
DE				0		1	1	1					0				0	0	1
EL				0			0	0	6	2		7	15	3	3	4	10	25	25
ES	1			1		1	1	2	30				30	3	1		4	34	36
FR				0	2		2	2					0				0	0	2
IT				0	1	2	3	3	3				3	1	4		5	8	11
RO				0			0	0					0		2		2	2	2
UK			0	0			0	0			1		1	2			2	3	3
Total EU 28	1	1	0	2	3	4	7	9	237	182	90	7	516	28	10	4	42	558	567

EM: animals culled under TSE eradication measures; NSHC: animals not slaughtered for human consumption; SHC: animals slaughtered for human consumption; SU: animals clinically suspected of being infected by a TSE; TSE: transmissible spongiform encephalopathy.

Only the reporting countries in which scrapie cases in sheep were detected in 2017 are included in the table.

No cases of scrapie were reported in non-MSs (Switzerland, Iceland and Norway).

Focusing on the last ten years, the evolution in the number of scrapie cases detected at EU level is shown for each species and by case type in Figure 2. After the 2006 peak in the number of reported scrapie cases in sheep with 2,596 CS cases (when the number of tests also peaked), CS cases have decreased from 1,444 in 2011 to 554 in 2016. The increase observed in 2017 (839 cases) is mainly due to CS cases from TSE-infected flocks in Greece, Italy, Romania and Spain (694 in 2017 vs 452 in 2016).

In goats, this trend in CS cases is less clear but is mainly affected by one single MS (Cyprus), where the number of detected cases has consistently declined since the peak in 2013 when 1,678 cases were reported by Cyprus and 1,799 in all other MSs. Since then, the total number of cases has decreased consistently to 621 in the reporting year.

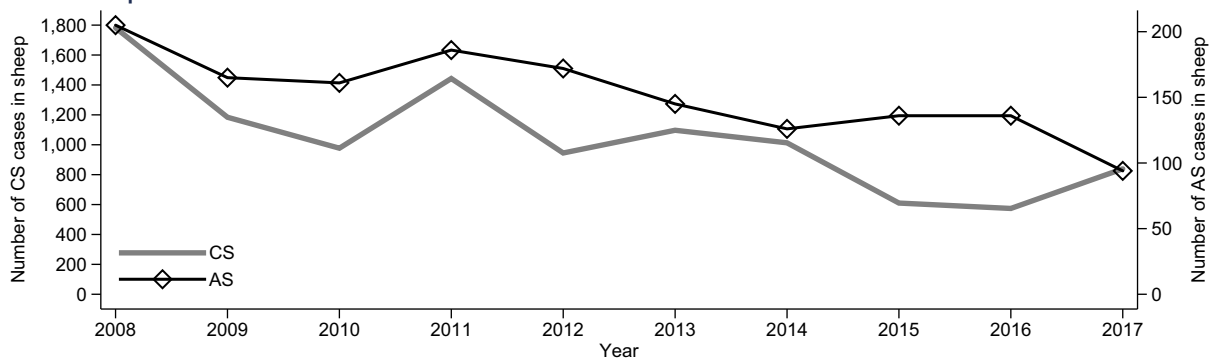
In sheep, the average age of AS cases (80.2 months) is significantly higher ($p < 0.001$) than that of CS cases (46.4 months). Similarly, in goats the average age of AS cases (81.9 months) is significantly higher ($p < 0.001$) than that of CS cases (50.8 months). When comparing sheep with goats, there is no difference in the average age for AS ($p = 0.62$), whereas the average age for CS in sheep was significantly lower than for goats ($p < 0.00001$).

Tables 14 and 15 show the cases of classical and AS, respectively, in sheep between 2002 and 2017. Tables 16 and 17 show the cases of classical and atypical scrapie, respectively, in goats between 2002 and 2017.

In sheep, in 2017 the number of index cases of CS and AS per 10,000 tests carried out by target group at EU level was: (1) for CS: 4.23 in NSHC, 4.6 in SHC and 685.9 in SU; (2) for AS: 3.99 in NSHC, 1.81 in SHC and 36.1 in SU.

In goats, in 2017 the number of index cases of CS and AS per 10,000 tests carried out by target group at EU level was: (1) for CS: 4.70 in NSHC, 1.86 in SHC and 563.4 in SU; (2) for AS: 0.50 in NSHC and 0.74 in SHC.

A: Sheep



B: Goats

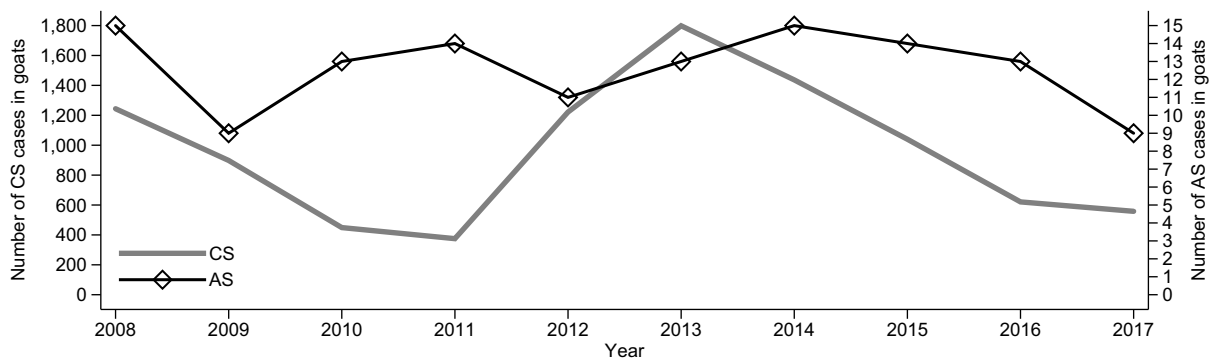


Figure 2: Number of scrapie TSE cases in the EU reported by case type in the period 2008–2017 in (A) sheep and (B) goats

Table 14: Total number of classical scrapie (CS) cases in sheep by year and country between 2002 and 2017 in the EU and non-MS reporting countries

Country	Up to 2010	2011	2012	2013	2014	2015	2016	2017	Total CS
BE	38								38
BG	6		2		3			1	12
CY	3,130	12	9	8	25	13	7	2	3,206
CZ	56								56
DE	115					1			116
EL	2,663	879	565	601	557	252	227	247	5,991
ES	822	40	33	48	36	69	91	247	1,386
FR	1,492	5	2	4	28	1	2		1,534
HU	8			1	1				10
IE	499	40	8	7	19	1	1	11	586
IT	1,471	211	192	260	241	141	143	240	2,899
NL	398	1		2					401
PT	15	4	1	6			7		33
RO	72	112	127	154	95	98	75	76	809
SI	176								176
SK	92	6			6	3	10	15	132
UK	1,848	133	6	6		2			1,995
Total EU 28	12,901	1,443	945	1,097	1,011	581	563	839	19,380
IS	173				2	29	11	1	216
NO	13								13
Total non-MSs	186	0	0	0	2	29	11	1	229
Total	13,087	1,443	945	1,097	1,013	610	574	840	19,609

Only the reporting countries in which classical scrapie cases in sheep were detected are included in the table.

The table with all historical cases can be found on <https://doi.org/10.5281/zenodo.1436520>

Table 15: Total number of atypical scrapie (AS) cases in sheep by year and country between 2002 and 2017 in the EU and non-MS reporting countries

Country	Up to 2010	2011	2012	2013	2014	2015	2016	2017	Total AS
AT	0	4	3	2	2	1	1	1	14
BE	8								8
BG	2		2				2		6
CZ	1				1	3	2	1	8
DE	61	19	8	7	10	10	5	4	124
DK	7	5					1		13
EE	1	1							2
EL	11	4	5	3	5	2	2		32
ES	123	19	20	18	6	12	13	12	223
FI	8		1	1	1		2		13
FR	483	24	22	10	6	5	4	3	557
HR	0			1		1			2
HU	38	12	11	9	22	14	23	14	143
IE	11	1	4	4	7	7	1	1	36
IT	59	7	5	7	2	6	5	3	94
NL	5	7	5	1					18
PL	6	4	2	5	13	9	8	7	54
PT	421	40	44	37	20	30	28	29	649
SE	23	3	3	3	7	3	3	2	47
SI	2	1		1	1	2	3		10

Country	Up to 2010	2011	2012	2013	2014	2015	2016	2017	Total AS
SK	5	4	3	4	3	3	5	5	32
UK	221	24	28	18	11	17	14	12	345
Total EU 28	1,496	179	166	131	117	125	122	94	2,430
IS	4	1	0	2	0	1	0		8
NO	81	6	6	12	9	10	14	13	151
Total non-MSs	85	7	6	14	9	11	14	13	159
Total	1,581	186	172	145	126	136	136	107	2,589

Only the reporting countries in which atypical scrapie cases in sheep were detected are included in the table.
The table with all historical cases can be found on <https://doi.org/10.5281/zenodo.1436520>

Table 16: Total number of classical scrapie (CS) cases in goats by year and country between 2002 and 2017 in the EU and non-MS reporting countries

Country	Up to 2010	2011	2012	2013	2014	2015	2016	2017	Total CS
BG	4					1	2	2	9
CY	4340	295	1,116	1,678	1,364	923	570	484	10,770
EL	293	56	69	68	31	22	11	25	575
ES	48	10	3	2	8	16	19	34	140
FI	8								8
FR	98		5	25		40			168
IT	46	5	7	7	7	21	8	8	109
RO	2		1	3	1	1	3	2	13
SI	4								4
UK	130	9	21	16	26	16	8	3	229
Total EU 28	4,973	375	1,222	1,799	1,437	1,040	621	558	12,025
IS	0	0	0	0	0	0	0	0	0
NO	0	0	0	0	0	0	0	0	0
Total non-MSs	0	0	0	0	0	0	0	0	0
Total	4,973	375	1,222	1,799	1,437	1,040	621	558	12,025

Note: only the reporting countries in which classical scrapie cases in goats were detected are mentioned in the table.
The table with all historical cases can be found on <https://doi.org/10.5281/zenodo.1436520>

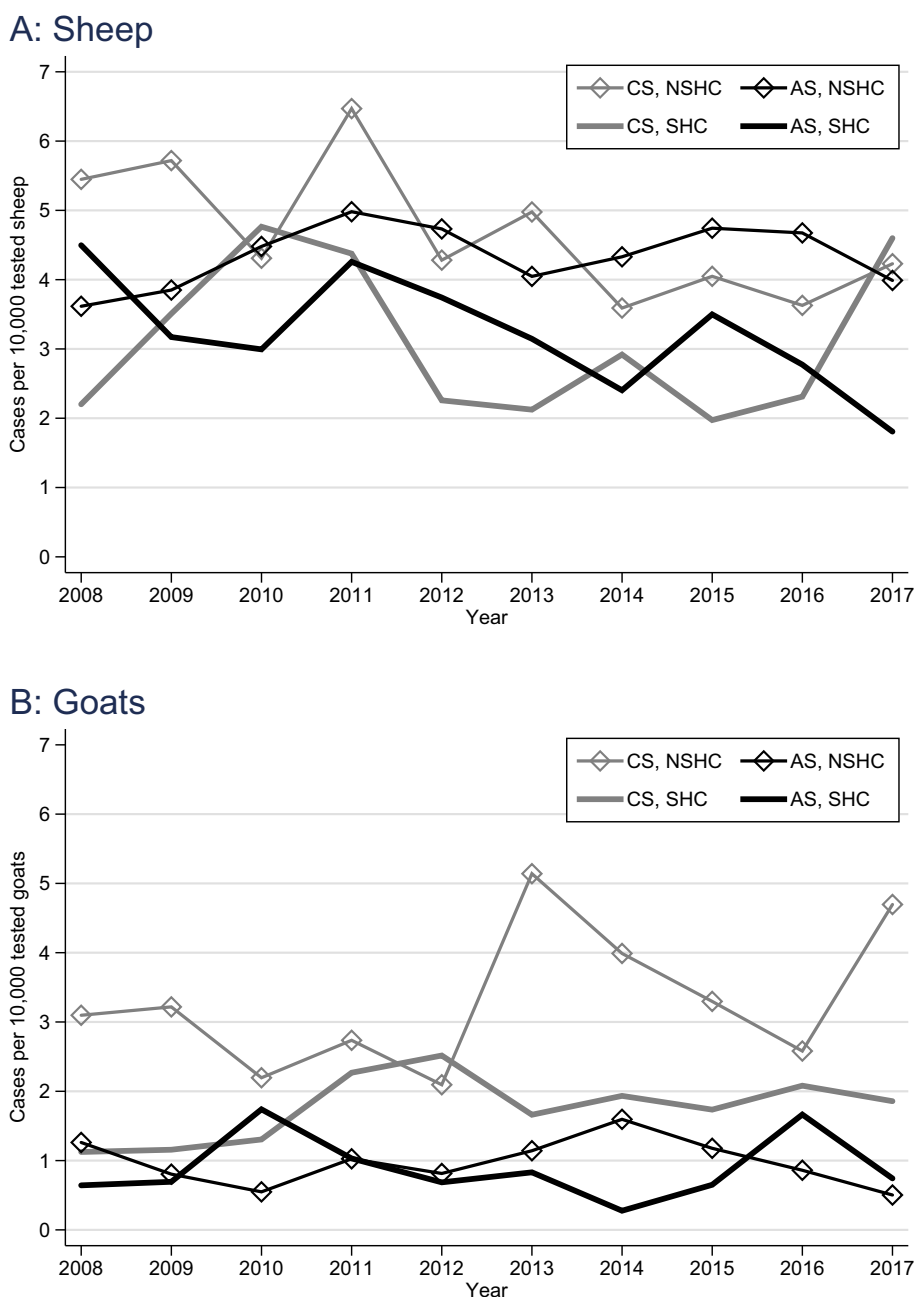
Table 17: Total number of atypical scrapie (AS) cases in goats by year and country between 2005 and 2017 in the EU and non-MS reporting countries

Country	Up to 2010	2011	2012	2013	2014	2015	2016	2017	Total AS
AT	0				1				1
CY	0					1		1	2
DE	0				1			1	2
EL	0			1	1	1	1		4
ES	22	3	3	4	7	5	5	2	51
FI	1								1
FR	28	6	6	3	5	5	3	2	58
IT	10	4		3		1	3	3	24
PT	8	1	2	2			1		14
SI	0					1			1
Total EU 28	69	14	11	13	15	14	13	9	158
NO	1								1
Total non-MSs	1	0	0	0	0	0	0	0	1
Total	70	14	11	13	15	14	13	9	159

Only the reporting countries in which atypical scrapie cases in goats were detected are included in the table.
The table with all historical cases can be found on <https://doi.org/10.5281/zenodo.1436520>

Over the last 10 years (2008–2017), the proportion of cases per 10,000 tested animals for both CS and AS and for both species ranged between 1 and 6. Figure 3 shows the ten-year evolution by target group of the number of scrapie cases per 10,000 tests of sheep and goats in TSE non-infected flocks/herds. Based on those data, the outputs of the Poisson regression model did not detect any statistically significant trend for both ovine and caprine AS ($p = 0.13$ and 0.14 , respectively). For CS, there is a statistically significant decreasing trend in sheep (annual RR = 0.97, i.e. an average 3% annual decrease in the probability of detecting CS, $p = 0.002$) and a statistically significant increasing trend in goats (RR = 1.05, i.e. an average 0.5% annual increase in the probability of detecting AS per year, $p = 0.02$).

Based on the same model, the probability of detecting CS in the NSHC surveillance target group was higher than in the SHC one in both sheep and goats (RR: 1.5, $p < 0.001$ in sheep and RR: 1.9, $p > 0.0001$ in goats). In AS, a statistically significant higher probability was only observed in sheep (RR = 1.3, $p < 0.0001$).



Note: This figure is restricted to active surveillance data, i.e. testing performed in NSHC and SHC target groups from non-infected flocks/herds or not previously known as infected. CS: classical scrapie; AS: Atypical scrapie; NSHC: animals not slaughtered for human consumption; SHC: animals slaughtered for human consumption.

Figure 3: Number of scrapie cases per 10,000 tests in the EU in (A) sheep and (B) goats in non-TSE-infected flocks/herds, reported by case type and target group in the period 2008–2017

Tables 18 and 19 summarise the number of discriminatory tests performed by country in 2017 for both sheep and goats. In sheep, 679 (81%) of the CS cases were submitted for discriminatory testing. In sheep, apart for a small proportion of inconclusive results (seven from Italy), all scrapie cases submitted for discriminatory testing were confirmed as being CS cases (BSE excluded). In goats, 85 (15.2%) of the CS cases were submitted for discriminatory testing. All goat cases subjected to discriminatory testing were confirmed as CS cases.

Table 18: Number of discriminatory tests and results in sheep in 2017 by reporting country

Country	Total cases	No. of classical scrapie and unknown	No. of atypical scrapie	Cases submitted for discriminatory testing						Cases not submitted for discriminatory testing or blank
				BSE-not-excluded	BSE-excluded	Inconclusive	Total	% of total classical TSE cases ^(a)	% of total atypical TSE cases ^(b)	
AT	1		1	0	0	0	0	0.0%	0.0%	1
BG	1	1		0	1	0	1	100.0%	0.0%	0
CY	2	2		0	0	0	0	0.0%	0.0%	2
CZ	1		1	0	1	0	1	0.0%	100.0%	0
DE	4		4	0	0	0	0	0.0%	0.0%	4
EL	247	247		0	73	0	73	29.6%	0.0%	174
ES	259	247	12	0	259	0	259	100.0%	100.0%	0
FR	3		3	0	0	0	0	0.0%	0.0%	3
HU	14		14	0	0	0	0	0.0%	0.0%	14
IE	12	11	1	0	11	0	11	100.0%	0.0%	1
IT	243	240	3	0	236	7	243	100.0%	100.0%	0
PL	7		7	0	0	0	0	0.0%	0.0%	7
PT	29		29	0	0	0	0	0.0%	0.0%	29
RO	76	76		0	76	0	76	100.0%	0.0%	0
SE	2		2	0	0	0	0	0.0%	0.0%	2
SK	20	15	5	0	15	0	15	100.0%	0.0%	5
UK	12		12	0	0	0	0	0.0%	0.0%	12
Total EU 28	933	839	94	0	672	7	679	81%	17.02%	254
IS	1	1		0	1	0	1	100.0%	0.0%	0
NO	13		13	0	0	0	0	0.0%	0.0%	13
Total non-MSs	14	1	13	0	1	0	1	100.0%	0.0%	13
Total	947	840	107	0	673	7	680	81%	14.95%	267

BSE: bovine spongiform encephalopathy; TSE: transmissible spongiform encephalopathy.

Only the reporting countries in which scrapie cases were detected in 2017 are included in the table.

(a): Indicates the proportion of classical TSE cases that are submitted to discriminatory testing by each MS.

(b): Indicates the proportion of atypical TSE cases that are submitted to discriminatory testing by each MS. Czech Republic, Italy and Spain submitted, respectively, 1, 12 and 3 atypical scrapie cases for discriminatory testing.

Table 19: Number of discriminatory tests and results in goats in 2017 by reporting country

Country	Total cases	No. of classical scrapie and unknown	No. of atypical scrapie	Cases submitted for discriminatory testing						Cases not submitted for discriminatory testing or blank
				BSE-not-excluded	BSE-excluded	Inconclusive	Total	% of total classical TSE cases ^(a)	% of total atypical TSE cases ^(b)	
BG	2	2		0	2	0	2	100.0%	0.0%	0
CY	485	484	1	0	18	0	18	3.7%	0.0%	467
DE	1		1	0	0	0	0	0.0%	0.0%	1
EL	25	25		0	13	0	13	52.0%	0.0%	12
ES	36	34	2	0	36	0	36	100.0%	100.0%	0
FR	2		2	0	0	0	0	0.0%	0.0%	2
IT	11	8	3	0	11	0	11	100.0%	100.0%	0
RO	2	2		0	2	0	2	100.0%	0.0%	0
UK	3	3	0	0	3	0	3	100.0%	0.0%	0
Total EU 28	567	558	9	0	85	0	85	15.2%	50.0%	482

BSE: bovine spongiform encephalopathy; TSE: transmissible spongiform encephalopathy.

(a): Indicates the proportion of classical TSE cases that are submitted to discriminatory testing by each MS.

(b): Indicates the proportion of atypical TSE cases that are submitted to discriminatory testing by each MS; Spain and Italy submitted, respectively, 2 and 3 atypical scrapie cases for discriminatory testing.

Only the reporting countries in which scrapie cases were detected in 2017 are included in the table.

3.2.1. Genotyping in sheep

The classification of genotypes of the sheep prion protein *PRNP* gene used in this report and based on to the Great Britain's National Scrapie Plan (NSP) is summarised in Table 20.

Table 20: Classification of the genotypes of the sheep *PRNP* gene according to Great Britain's NSP and the three-tiers of report groups

NSP group	Genotype	Comment	Report group
NSP1	ARR/ARR	Genetically most resistant	Resistant
NSP2	ARR/ARQ; ARR/ARH; ARR/AHQ	Genetically resistant	Semi-resistant
NSP3	ARQ/ARQ	Genetically little resistant (ARQ/ARQ may be scientifically reviewed)	Susceptible
NSP3 Other (NSP30)	AHQ/AHQ; ARH/ARH; ARH/ARQ; AHQ/ARH; AHQ/ARQ		Susceptible
NSP4	ARR/VRQ	Genetically susceptible	Susceptible
NSP5	ARQ/VRQ; ARH/VRQ; AHQ/VRQ; VRQ/VRQ	Genetically highly susceptible	Susceptible

Table 21 shows the genotypes of sheep scrapie cases in 2017 in the EU and other reporting countries.

In total, 766 (98.2%) of the 780 cases of CS in sheep with known genotype reported in the EU in 2017 (94.6% of the total CS caseload) were from the susceptible genotype groups (NSP3, NSP30, NSP4 and NSP5), consistent with the pattern observed in all cases reported over the last 10 years. For AS, the same genotype groups (NSP3, NSP30, NSP4 and NSP5) accounted for 57.6% of all cases. Figure 4 shows the frequency distribution of genotypes of sheep scrapie cases by case type, year and NSP group in the period 2008–2017 in the reporting countries.

Table 22 shows the genotypes obtained in 2017 from the random samples of tested sheep in the reporting countries. In 2017, seven MSs and two non-MSs did not carry out the genotyping activity. In the subset of EU MSs that carried out the activity in 2017, excluding data from Cyprus (where genotyping is conducted systematically in the breeding sheep population), 26.5% of the sheep population is susceptible to CS (i.e. belongs to groups NSP3, NSP30, NSP4 or NSP5). This percentage rose to 41.2% in the group of four MSs (Greece, Italy, Romania and Spain) that account for the highest caseload in 2017, whereas it is 23% in the remaining 23 MSs.

Considering the past ten years of random sampling, the resistant genotype group (NSP1; black colour in the bars of Figure 5) accounts for between 27.8% (in 2008) and 50.6% (in 2015) of the total number of sheep genotyped.

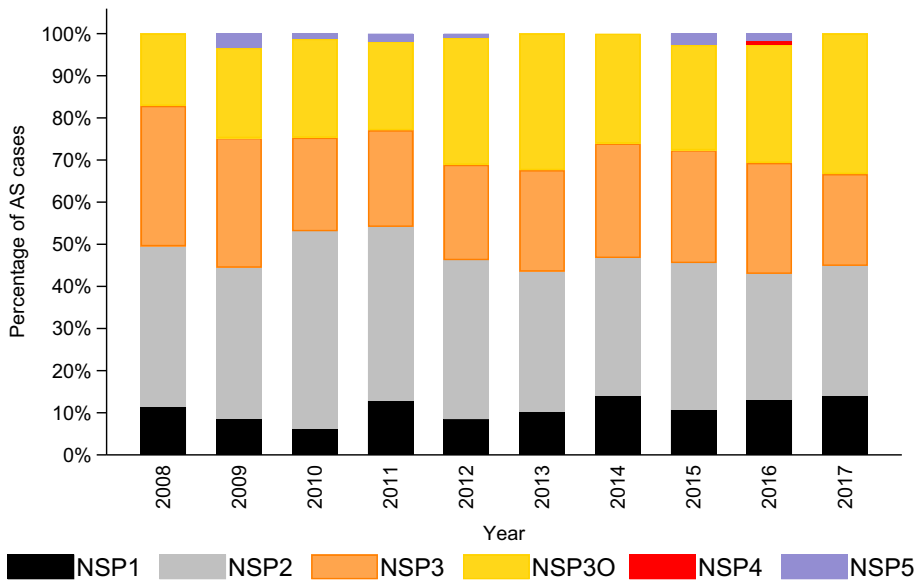
Table 21: Distribution of genotypes of confirmed scrapie cases in sheep in 2017 by reporting country and NSP group

NSP group	Atypical scrapie								Classical scrapie							
	NSP1	NSP2	NSP3	NSP30	NSP4	NSP5	Unknown	Total	NSP1	NSP2	NSP3	NSP30	NSP4	NSP5	Unknown	Total
AT		1						1								0
BG								0							1	1
CY								0		1					1	2
CZ		1						1								0
DE			2				2	4								0
EL								0	8	175	36		9	19	247	
ES	1	4	4	1			2	12	3	203	5			36	247	
FR	1	1					1	3							0	
HU	1	1	3	9				14							0	
IE				1				1		4	2		5		11	
IT		1	1	1				3		220	13		5	2	240 ^(a)	
PL	2	3	2					7							0	
PT	2	4	2	3			18	29							0	
RO								0	1	53	2		20		76	
SE				1			1	2							0	
SK	1	1	2	1				5	1	12			2		15	
UK		3		5			4	12							0	
Total EU 28	8	20	16	22	0	0	28	94	0	14	667	58	0	41	59	839
IS								0			1				1	
NO	3	4	1	4			1	13							0	
Total non-MSs	3	4	1	4	0	0	1	13	0	0	1	0	0	0	0	1
Total	11	24	17	26	0	0	29	107	0	14	668	58	0	41	59	840

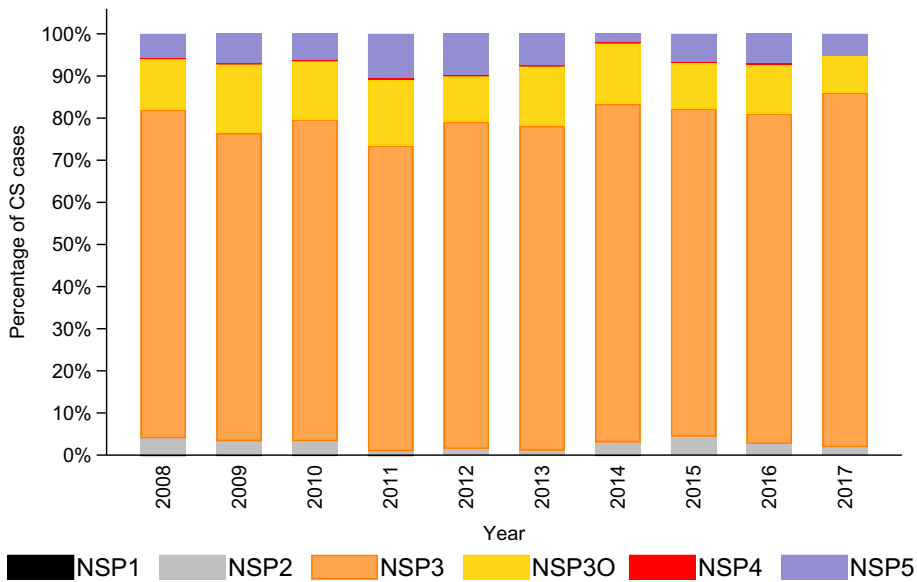
Note: The validation and extraction of the 2017 data to produce these summary tables was based on extraction on 28 June 2018.

(a): include 7 cases of 'unknown' case type.

A: AS cases



B: CS cases



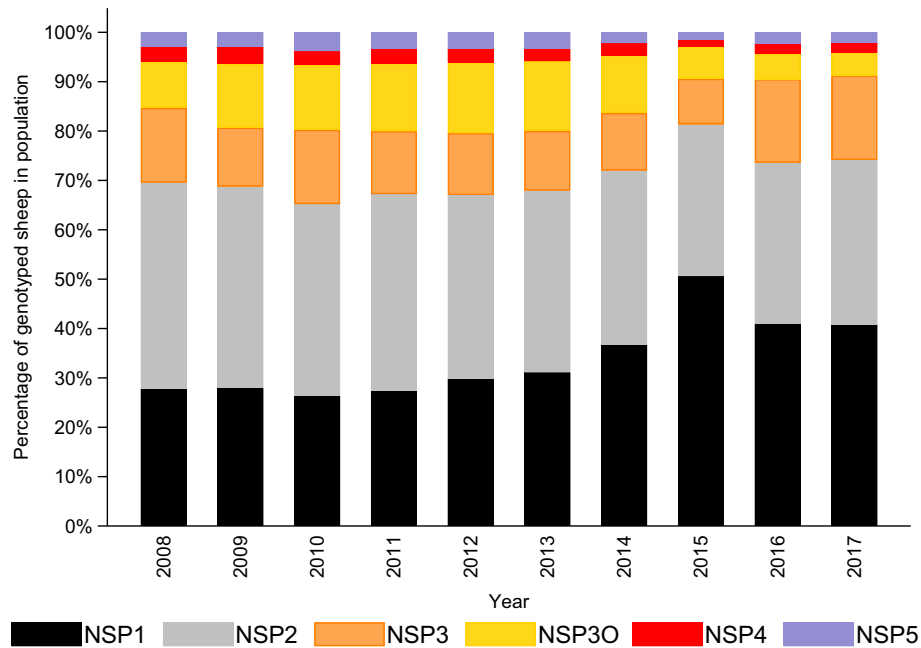
(A) Atypical scrapie; (B) Classical scrapie. NSP1: Resistant (black); NSP2: Semi-resistant (grey); NSP3 (orange) + NSP3O (yellow) + NSP4 (red) + NSP5 (purple): susceptible as referred to in Table 20.

Figure 4: Frequency distribution of genotypes of sheep scrapie cases by case type, year and NSP group in the period 2008–2017 in the reporting countries

Table 22: Distribution of genotypes in randomly selected sheep in the EU and other reporting countries in 2017 by Member State and National Scrapie Plan (NSP) group, in accordance with Regulation (EC) 999/2001 Annex III, Chapter A, Part I, point 8.2

Country	Number of genotyped animals (% of sample within country)							Total
	NSP1	NSP2	NSP3	NSP3O	NSP4	NSP5	Other	
AT	17 (16.0%)	30 (28.3%)	32 (30.2%)	18 (17.0%)	3 (2.8%)	2 (1.9%)	4 (3.8%)	106
BE	141 (69.5%)	48 (23.6%)	4 (2.0%)	7 (3.4%)	1 (0.5%)	0 (0.0%)	2 (1.0%)	203
BG	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported
CY ^(a)	59,861 (87.2%)	7,314 (10.7%)	311 (0.5%)	142 (0.2%)	557 (0.8%)	51 (0.1%)	440 (0.6%)	68,676
CZ	27 (50.9%)	20 (37.7%)	6 (11.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	53
DE	1,076 (69.7%)	381 (24.7%)	53 (3.4%)	13 (0.8%)	16 (1.0%)	3 (0.2%)	2 (0.1%)	1,544
DK	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported
EE	67 (41.6%)	60 (37.3%)	21 (13.0%)	7 (4.3%)	3 (1.9%)	3 (1.9%)	0 (0.0%)	161
EL	46 (12.4%)	118 (31.7%)	65 (22.2%)	17 (5.8%)	7 (2.4%)	12 (4.1%)	28 (9.5%)	293
ES	89 (14.4%)	208 (33.7%)	211 (34.2%)	36 (5.8%)	9 (1.5%)	15 (2.4%)	49 (7.9%)	617
FI	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported
FR	315 (49.5%)	183 (28.8%)	55 (8.6%)	5 (0.8%)	8 (1.3%)	13 (2.0%)	57 (9.0%)	636
HR	4 (4.0%)	28 (28.0%)	39 (39.0%)	17 (17.0%)	4 (4.0%)	8 (8.0%)	0 (0.0%)	100
HU	386 (64.3%)	158 (26.3%)	29 (4.8%)	17 (2.8%)	5 (0.8%)	5 (0.8%)	0 (0.0%)	600
IE	213 (33.1%)	278 (43.2%)	53 (8.2%)	58 (9.0%)	25 (3.9%)	17 (2.6%)	0 (0.0%)	644
IT	135 (20.0%)	307 (45.5%)	177 (26.2%)	39 (5.8%)	5 (0.7%)	9 (1.3%)	3 (0.4%)	675
LT	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported
LU	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported
LV	45 (40.9%)	41 (37.3%)	23 (21%)	0 (0%)	1 (0.9%)	0 (0%)	0(0%)	110
MT	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported
NL	628 (62.9%)	262 (26.3%)	45 (4.5%)	33 (3.3%)	24 (2.4%)	6 (0.6%)	0 (0.0%)	998
PL	30 (30.0%)	49 (49.0%)	19 (19.0%)	1 (1.0%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	100
PT	69 (11.0%)	241 (38.3%)	223 (35.5%)	45 (7.2%)	20 (3.2%)	29 (4.6%)	2 (0.3%)	629
RO	61 (10.1%)	227 (37.5%)	209 (34.5%)	37 (6.1%)	19 (3.1%)	36 (5.9%)	17 (2.8%)	606
SE	3 (3.0%)	0 (0.0%)	77 (77.0%)	0 (0.0%)	0 (0.0%)	20 (20.0%)	0 (0.0%)	100
SI	6 (6.3%)	35 (36.5%)	54 (56.3%)	0 (0.0%)	0 (0.0%)	1 (1.0%)	0 (0.0%)	96
SK	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported
UK	229 (38.2%)	256 (42.7%)	35 (5.8%)	58 (9.7%)	13 (2.2%)	9 (1.5%)	0 (0.0%)	600
Total EU 28	63,448 (81.8%)	10,244 (13.2%)	1,741 (2.3%)	550 (0.7%)	721 (0.9%)	239 (0.3%)	604 (0.8%)	77,547
IS	0 (0.0%)	0 (0.0%)	160 (72.4%)	39 (17.6%)	0 (0.0%)	22 (10.0%)	0 (0.0%)	221
Total non-MSs	0 (0.0%)	0 (0.0%)	160 (72.4%)	39 (17.6%)	0 (0.0%)	22 (10.0%)	0 (0.0%)	221
Total	63,448 (81.6%)	10,244 (13.2%)	1,901 (2.4%)	589 (0.8%)	721 (0.9%)	261 (0.3%)	604 (0.8%)	77,768

(a): Data of Cyprus are different from those of other MSs since Cyprus systematically genotypes the breeding sheep population.



Data from Cyprus were excluded. NSP1: Resistant (black); NSP2: Semi-resistant (grey); NSP3 (orange) + NSP3O (yellow) + NSP4 (red) + NSP5 (purple): susceptible as referred to in Table 20.

Figure 5: Frequency distribution of the three genotype groups in sheep sampled for genotyping in the EU in the period 2008–2017 according to Regulation (EC) 999/2001 Annex III, Chapter A, Part I, point 8

3.3. TSE surveillance in cervids and other species

In 2017, 3,585 cervids were tested for TSEs in the EU by ten MSs with Belgium, Denmark, Latvia, Spain and the United Kingdom reporting for the first time since 2011 and Romania accounting for more than 74.8% of the total. This supposed a 30% increase compared with 2016. Tested cervids were mostly from wild populations (98.5%). All animals tested by MSs were negative.

Norway further intensified its testing programme in wild and captive cervids and tested 25,736 deer leading to the detection of the first case of CWD in a red deer. In addition, nine cases in wild reindeer and one in moose were reported in 2017. Table 23 shows the number of cervids tested in 2017 by species, management system and reporting country.

Three MSs, namely Estonia, Finland and Spain, reported results on samples tested for TSE in species other than cattle, small ruminants and cervids. In total, 185 samples were collected and tested from the following species: cat (*Felis catus*), mink (*Mustela lutreola*), fox (genus *Vulpes*), racoon dog (*Nyctereutes procyonoides*) and bison (*Bison bison*). None of these tested positive (Table 24).

Table 23: Number of cervids tested in the reporting countries in 2017 by species, management system and country (number of positives for CWD in brackets)

Country	WILD DEER species ^(a)									SEMI-DOMESTICATED/FARMED DEER species ^(a)									
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	Sub total	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	Sub total	Total
BE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
DK	0	0	0	27	0	3	2	1	33	0	0	0	0	0	0	0	0	0	33
ES	0	0	0	15	0	38	6	0	59	0	0	0	0	0	0	0	0	0	59
FI	0	13	47	12	20	0	0	0	92	16	0	1	0	0	0	1	4	22	114
HU	0	0	0	21	0	2	1	0	24	0	0	0	0	0	0	0	0	0	24
IT	1	0	0	362	0	131	16	0	510	13	0	0	0	0	1	2	2	18	528
LV	0	0	0	1	0	1	0	0	2	0	0	0	0	0	0	0	0	0	2
RO	0	0	0	2,069	0	508	34	26	2,637	0	0	0	0	0	1	3	3	7	2,644
SE	21	0	134	11	0	4	6	0	176	0	0	0	0	0	0	0	0	0	176
UK	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	2
TOTAL EU	22	13	181	2,519	20	687	65	27	3,534	30	0	1	0	0	5	6	9	51	3,585
IS	54	0	0	0	0	0	0	0	54	0	0	0	0	0	0	0	0	0	54
NO	2,931 (9)	0	5,464 (1)	1970	0	3,641(1)	0	350	14,356	10,925	0	3	0	0	431	21	0	11,380	25,736
TOTAL non-MSs	2,985(9)	0	5,464(1)	1970	0	3,641(1)	0	350	14,410 (11)	10,925	0	3	0	0	431	21	0	11,380	25,790
Total	3,007 (9)	13	5,645 (1)	4489	20	4,328 (1)	65	377	17,944 (11)	10,955	0	4	0	0	436	27	9	11,431	29,375

CWD: chronic wasting disease

(a): Species: **A**: Eurasian tundra reindeer (*Rangifer tarandus tarandus*); **B**: Finnish (Eurasian) forest reindeer (*Rangifer tarandus fennicus*); **C**: moose (or Eurasian/European elk) (*Alces alces alces*); **D**: roe deer (*Capreolus capreolus*); **E**: white-tailed deer (*Odocoileus virginianus*); **F**: red deer (*Cervus elaphus*); **G**: fallow deer (*Dama dama*); **H**: Other or unknown.

Table 24: Numbers of animals^(a) in species other than ruminants tested for TSE in EU Member States in 2017

Country	Raccoon dog (<i>Nyctereutes procyonoides</i>)	Fox (genus <i>Vulpes</i>)	Mink (<i>Mustela lutreola</i>)	Cat (<i>Felis catus</i>)	Bison (<i>Bison bison</i>)	Total
EE			10			10
ES					1	1
FI	12	29	58	75		174
Total EU	12	29	68	75	1	185

TSE: transmissible spongiform encephalopathy.

(a): All tests were negative.

4. Conclusions

As part of the BSE surveillance system in cattle in the EU, more than 1.3 million cattle were tested in 2017. Despite a minimum decrease of 3% in the sampling efforts compared with 2016, the testing throughput combined with a risk-based strategy (about 75% of all tests were targeting risk animals) contributed to maintain the sensitivity of the BSE surveillance system considering the EU as a single epidemiological unit. That allowed the consolidation of the current situation in which few cases of atypical BSE are detectable, whereas C-BSE continues declining: 2017 was the first year in which no cases of classical BSE have been reported world-wide (and the second year in the UK). From an epidemiological point of view, no statistical departure from known temporal or geographical trends has been detected in 2017 with atypical cases similar to those recently reported both in number and in characteristics. Six atypical cases of BSE (4 H-BSE and 2 L-BSE cases) were confirmed in 2017 in three MSs: Spain (three), France (two) and Ireland (one). All of these were from animals born between 1998 and 2004. An additional L-BSE case was reported by the USA. Despite the age limit of over 48 months applied to tested animals in the risk groups in most of the MSs, all the cases were detected in animals older than 14 years and reported by the three MSs that account for 33.6% of all the testing activity.

Circa 430,000 small ruminants were tested in 2017 in the EU, as part of the TSE surveillance system, leading to an overall testing of more than 9 million tests since 2002. Nineteen MSs complied with the EU monitoring requirements in sheep and 18 MSs in goats. Compared with 2016, there was a general increase in the detection of the disease in non-infected flocks/herds (+6.1% and +6.9% in sheep and goats, respectively) and, following disease detection, a relevant increased testing in infected ovine flocks, particularly in Greece, Spain, Italy and Romania.

For CS in sheep, compared with 2016 the described testing activity resulted in an increase in the EU caseload, the proportion of cases per tested animals and the number of index cases. The reasons for this increase may include the increase in the incidence in the general ovine population and the detection of additional cases during the management of existing outbreaks in already affected countries. From a geographical point of view, the disease is reported by a minority of the MSs (eight in 2017, compared with nine in 2016) and only a small proportion (3.5%) of the CS caseload is from MSs other than Greece, Spain, Italy and Romania. In goats, compared with 2016, the EU caseload showed a 10% decrease mainly due to the development of the situation in Cyprus whose caseload accounted for 87% of the total.

When looking at the long-term trends of CS in terms of cases per 10,000 tests in both species, the situation in 2017 confirmed the ten-year statistically significant decreasing trend in sheep and increasing trend in goats respectively, as estimated through modelling of the available epidemiological data.

For AS, compared with 2016 the above described testing activity resulted in both species in a decrease of the caseload, the proportion of cases per tested animals, the number of index cases and the number of involved MSs. It remains to be seen if this tendency will revert or consolidate in the next few years as the last ten-year data do not allow the detection of any statistical trend.

As in previous years, the genotyping data collected in 2017 from ovine CS cases consistently confirms the association between the occurrence of the disease and the susceptible genotypes, with 98.2% of the cases carrying genotypes of the susceptible groups (NSP3, NSP3O, NSP4 or NSP5). However, the 2017 genotyping data from random samples of the EU sheep population (after excluding

Cyprus) did not show any relevant improvement compared with the previous years as there is still an average 26.5% of the genotyped EU sheep carrying genotypes of the susceptible group. This proportion was much higher in the group of four MSs that showed the highest caseloads. The application of the mentioned amendment of the TSE regulation will better allow the monitoring of these temporal changes, potentially affecting the population susceptibility to CS at country level.

After the discovery of CWD in Norway in 2016, TSE testing in cervids has shown some increase in the EU with ten MSs testing in total 3,585 cervids in 2017, 98.5% of them from wild cervids. All animals tested negative. However, the epidemiological relevance is still limited as most of the testing is accounted by Romania that, like in 2016, carried out nearly three quarters of all cervids monitored in the EU. Norway further intensified its monitoring for CWD and tested 25,736 deer leading to the detection of the first case of CWD in a red deer, nine cases in wild reindeer and one in a wild moose.

Whereas the passage from a voluntary to a mandatory surveillance scheme in cervids in a number of MS as per the TSE regulation, as last amended, has not remarkably affected the 2017 EU testing efforts yet, the number of cervids tested in 2018 will increase substantially.

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Abbreviations

AM	ante-mortem
AS	atypical scrapie
BARB	born after the revised feed ban
BSE	bovine spongiform encephalopathy
C-BSE	classical bovine spongiform encephalopathy
CS	classical scrapie
CWD	chronic wasting disease
EM	eradication measures
ES	emergency slaughtered
FS	fallen stock
H-BSE	H-type bovine spongiform encephalopathy
HS	healthy slaughtered
L-BSE	L-type bovine spongiform encephalopathy
MS	Member State
NSHC	not slaughtered for human consumption
NSP	National Scrapie Plan

NUTS	Nomenclature of Units for Territorial Statistics
RR	relative risk
SHC	slaughtered for human consumption
SU	TSE suspect
TSE	transmissible spongiform encephalopathy

Country codes

Austria	AT	Finland	FI	Latvia	LV	Romania	RO
Belgium	BE	France	FR	Lithuania	LT	Slovakia	SK
Bulgaria	BG	Germany	DE	Luxembourg	LU	Slovenia	SI
Croatia	HR	Greece	EL	Malta	MT	Spain	ES
Cyprus	CY	Hungary	HU	Netherlands	NL	Sweden	SE
Czech Republic	CZ	Iceland	IS	Norway	NO	Switzerland	CH
Denmark	DK	Ireland	IE	Poland	PL	United Kingdom	UK
Estonia	EE	Italy	IT	Portugal	PT		

MS countries: AT; BE; BG; HR; CY; CZ; DK; EE; FI; FR; DE; EL; HU; IE; IT; LV; LT; LU; MT; NL; PL; PT; RO; SK; SI; ES; SE; UK.

Non-MS reporting countries: CH (including Lichtenstein); IS; NO.

Appendix A – Number of tested bovine animals by country, age group and target groups

Number of tested bovine animals by country, age group and different surveillance target groups in EU Member States and non-MS reporting countries in 2017.

Table A.1: Bovine animals tested by age group in the EU Member States and non-MS reporting countries in 2017

EU/ non- MSs group	Country code	Age group (months)														Total	
		< 24	24–29	30–35	36–47	48–59	60–71	72–83	84–95	96–107	108–119	120–131	132–143	144–155	> 155		Unknown
EU	AT	0	313	204	286	2,541	2,853	2,553	2,157	1,748	1,289	902	668	493	1,148	0	17,155
	BE	1	5	3	18	7,511	6,218	4,379	2,892	1,702	1,002	600	354	197	337	215	25,434
	BG	0	361	7,937	3,228	2,539	2,727	2,139	2,618	1,605	1,363	1,243	1,065	968	2,145	0	29,938
	CY	0	0	0	0	257	260	223	161	109	72	40	25	9	14	1	1,171
	CZ	16	1,774	1,609	3,281	3,057	2,845	2,070	1,434	1,028	788	622	459	352	823	0	20,158
	DE	175	171	165	857	37,906	36,095	28,139	19,413	12,475	7,947	4,806	2,927	1,906	4,689	94	157,765
	DK	47	6	9	207	6,882	6,292	3,880	2,178	1,075	589	337	256	158	367	108	22,391
	EE	0	0	0	7	1,007	894	607	400	201	124	64	34	15	32	0	3,385
	EL	32	7	124	150	206	168	2,499	2,029	1,611	1,229	861	705	616	2,008	1	12,246
	ES	3	37	3	47	11,116	10,140	7,885	5,768	4,074	3,310	2,597	2,007	1,771	10,244	0	59,002
	FI	3	0	1	35	3,026	3,060	2,127	1,278	778	418	267	177	137	288	0	11,595
	FR	923	666	1,131	4,371	37,749	35,600	29,109	22,372	17,040	13,586	10,497	8,282	6,428	41,509	4,110	233,373
	HR	4	7	62	20	924	952	722	604	534	351	218	174	117	292	118	5,099
	HU	118	1,152	939	2,180	2,192	1,683	1,124	781	494	322	276	209	189	642	0	12,301
	IE	25	23	20	163	8,773	8,294	7,784	7,146	6,430	5,138	4,273	3,396	2,522	5,958	0	59,945
	IT	8	10	49	103	14,580	12,741	9,096	6,205	3,978	2,693	1,771	1,131	829	2,055	1	55,250
	LT	0	0	0	0	752	613	466	360	314	196	139	94	70	127	0	3,131
	LU	0	0	0	0	563	548	433	285	199	128	89	38	46	87	0	2,416
	LV	20	368	357	592	623	532	353	255	208	126	102	63	40	62	0	3,701
	MT	0	0	0	4	45	52	40	23	23	10	3	1	1	0	0	202
NL	18	70	0	198	10,743	10,833	8,931	6,401	4,250	2,399	1,416	691	375	584	233	47,142	
PL	6	1	0	2	7,942	7,788	6,004	4,541	3,505	38,871	29,041	21,841	16,588	26,076	0	162,206	
PT	1	0	0	0	4,126	2,819	2,377	1,800	1,349	1,249	1,341	1,041	1,096	6,151	0	23,350	
RO	34	640	11,995	20,854	18,276	16,531	14,948	13,781	12,596	10,660	10,428	10,634	10,358	27,479	0	179,214	
SE ^(a)	20	88	127	535	1,675	1,650	1,258	768	436	294	181	124	103	300	5	7,564	
SI	14	16	60	19	1,154	1,256	1,052	818	601	467	284	177	138	263	0	6,319	

EU/ non- MSs group	Country code	Age group (months)															Total
		< 24	24–29	30–35	36–47	48–59	60–71	72–83	84–95	96–107	108–119	120–131	132–143	144–155	> 155	Unknown	
EU	SK	2	690	625	1,200	1,294	1,116	767	563	394	260	204	142	83	176	0	7,516
	UK	3	91	172	888	24,239	24,346	20,892	17,006	13,700	10,256	7,504	5,837	4,562	13,117	321	142,934
	Total EU	1,473	6,496	25,592	39,245	211,698	198,906	161,857	124,037	92,457	105,137	80,106	62,552	50,167	146,973	5,207	1,311,903
non- MSs	CH	0	30	47	334	1,461	1,779	1,783	1,550	1,237	933	574	387	282	523	0	10,920
	IS	0	0	0	0	0	1	0	0	248	110	0	0	1	0	429	789
	NO	34	60	0	241	1,905	1,725	1,183	628	343	193	121	89	45	76	174	6,817
	Total non-MSs	34	90	47	575	3,366	3,505	2,966	2,178	1,828	1,236	695	476	328	599	603	18,526
TOTAL	Total	1,507	6,586	25,639	39,820	215,064	202,411	164,823	126,215	94,285	106,373	80,801	63,028	50,495	147,572	5,810	1,330,429

(a): Discrepancy for SE in the total number bovine animals in database and table is due to 811 downer cows not counted as FS.

Table A.2: Bovine animals at risk (animals with clinical signs at *ante-mortem*, animals culled under BSE eradication measures, emergency slaughtered and fallen stock) tested by age group in EU Member States and in non-MS reporting countries in 2017

EU/ non- MSs group	Country code	Age group (months)														Total	
		< 24	24-29	30-35	36-47	48-59	60-71	72-83	84-95	96-107	108-119	120-131	132-143	144-155	> 155		Unknown
EU	AT	0	311	198	272	2522	2828	2540	2144	1729	1273	893	663	490	1140	0	17,003
	BE	1	3	3	14	7510	6217	4376	2890	1702	1002	600	354	197	337	212	25,418
	BG	0	361	654	446	411	383	348	356	300	265	242	201	203	447	0	4,617
	CY	0	0	0	0	257	260	223	161	106	70	40	25	9	14	1	1,166
	CZ	12	1,772	1,604	3,277	3,051	2,838	2,065	1,426	1,021	782	619	452	347	805	0	20,071
	DE	110	166	160	832	37,711	35,948	28,043	19,340	12,403	7,902	4,778	2,905	1,891	4,638	90	156,917
	DK	46	6	9	207	6,868	6,285	3,869	2,172	1,071	584	335	254	157	360	108	22,331
	EE	0	0	0	7	1,007	894	607	400	201	124	64	34	15	32	0	3,385
	EL	20	4	22	21	162	134	533	399	297	228	120	106	86	241	0	2,373
	ES	0	33	2	41	11,077	10,093	7,864	5,744	4,064	3,299	2,586	2,001	1,765	10,142	0	58,711
	FI	3	0	1	35	3,025	3,060	2,127	1,278	778	418	267	177	137	288	0	11,594
	FR	248	490	1108	4330	37211	35192	28794	22153	16817	13440	10385	8159	6366	18537	3749	206,979
	HR	2	7	3	2	919	948	714	592	525	331	207	161	111	290	99	4,911
	HU	116	1150	885	2063	2098	1617	1047	733	422	285	223	158	139	443	0	11,379
	IE	25	23	20	163	8,773	8,294	7,784	7,146	6,430	5,138	4,273	3,396	2,522	5,958	0	59,945
	IT	7	10	12	72	14,541	12,712	9,067	6,186	3,955	2,640	1,714	1,087	803	2,012	1	54,819
	LT	0	0	0	0	752	613	466	360	314	196	139	94	70	127	0	3,131
	LU	0	0	0	0	563	548	433	285	197	128	89	38	46	87	0	2,414
	LV	20	368	357	592	623	532	353	255	207	126	102	63	40	62	0	3,700
	MT	0	0	0	4	45	52	40	23	23	10	3	1	1	0	0	202
	NL	18	70	0	197	10,737	10,829	8,927	6,397	4,250	2,398	1,416	689	375	583	218	47,104
	PL	0	0	0	0	7,942	7,787	6,004	4,540	3,505	2,509	1,687	1,231	950	1,546	0	37,701
	PT	0	0	0	0	4,126	2,819	2,296	1,740	1,307	1,216	1,309	1,016	1,069	5,978	0	22,876
	RO	25	497	644	1,050	1,034	935	784	649	580	477	409	381	452	1,212	0	9,129
	SE	20	88	127	535	1,674	1,650	1,258	767	436	294	181	124	103	300	5	7,562
	SI	7	15	7	14	1,150	1,253	1,051	818	600	466	284	176	138	263	0	6,242
	SK	2	690	625	1,200	1,293	1,116	767	563	394	260	204	142	83	176	0	7,515
	UK	3	91	172	886	24,239	24,343	20,889	17,006	13,700	10,254	7,502	5,837	4,562	13,116	321	142,921

EU/ non- MSs group	Country code	Age group (months)														Total	
		< 24	24–29	30–35	36–47	48–59	60–71	72–83	84–95	96–107	108–119	120–131	132–143	144–155	> 155		Unknown
	Total EU	685	6,155	6,613	16,260	191,321	180,180	143,269	106,523	77,334	56,115	40,671	29,925	23,127	69,134	4,804	952,116
non- MSs	CH	0	28	44	325	1,457	1,776	1,781	1,544	1,236	932	574	386	282	522	0	10,887
	IS	0	0	0	0	0	1	0	0	6	3	0	0	0	0	20	30
	NO	34	60	0	241	1,905	1,725	1,183	628	343	193	121	89	45	76	174	6,817
	Total non-MSs	34	88	44	566	3,362	3,502	2,964	2,172	1,585	1,128	695	475	327	598	194	17,734
TOTAL	Total	719	6,243	6,657	16,826	194,683	183,682	146,233	108,695	78,919	57,243	41,366	30,400	23,454	69,732	5,698	969,850

Table A.3: Healthy slaughtered bovine animals tested by age group in EU Member States and in non-MS reporting countries in 2017

EU/ non- MSs group	Country code	Age group (months)														Total	
		< 24	24–29	30–35	36–47	48–59	60–71	72–83	84–95	96–107	108–119	120–131	132–143	144–155	> 155		Unknown
EU	AT	0	0	5	10	17	22	10	13	18	16	9	5	2	8	0	135
	BE	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2	6
	BG	0	0	7,283	2,782	2,128	2,344	1,791	2,262	1,305	1,098	1,001	864	765	1,698	0	25,321
	CY	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	5
	CZ	4	2	5	4	6	6	4	8	7	6	3	7	5	18	0	85
	DE	63	5	5	23	72	53	32	32	34	18	12	13	7	24	2	395
	DK	1	0	0	0	14	7	11	6	4	5	2	2	1	6	0	59
	EE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EL	12	3	102	129	43	33	1,966	1,630	1,313	1,000	741	599	529	1,766	1	9,867
	ES	1	4	1	6	39	47	21	24	10	10	11	6	6	101	0	287
	FI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	FR	675	175	22	39	538	408	315	219	223	146	112	123	62	22,972	361	26,390
	HR	0	0	59	18	5	4	7	11	9	20	11	13	6	2	19	184
	HU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	912	912
	IE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	IT	1	0	37	31	39	29	29	18	23	53	57	44	26	43	0	430
	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36
	PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	124,492	124,492
	PT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	473	473
	RO	0	137	11,345	19,794	17,234	15,584	14,162	13,126	12,013	10,180	10,013	10,247	9,904	26,246	0	169,985
	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SI	0	0	52	5	2	2	0	0	0	1	0	1	0	0	0	63
	SK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	UK	0	0	0	0	1	4	4	0	0	2	2	0	0	0	0	13
	Total EU	757	326	18,916	22,841	20,138	18,543	18,354	17,351	14,962	12,557	11,974	11,924	11,313	52,884	126,300	359,140

EU/ non- MSs group	Country code	Age group (months)														Total	
		< 24	24–29	30–35	36–47	48–59	60–71	72–83	84–95	96–107	108–119	120–131	132–143	144–155	> 155		Unknown
non- MSs	CH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	IS	0	0	0	0	0	0	0	0	242	107	0	0	1	0	409	759
	NO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total non- MSs	0	0	0	0	0	0	0	0	0	242	107	0	0	1	0	409
TOTAL	Total	757	326	18,916	22,841	20,138	18,543	18,354	17,351	15,204	12,664	11,974	11,924	11,314	52,884	126,709	359,899

Table A.4: BSE suspected bovine animals tested by age group in EU Member States and in non-MS reporting countries in 2017

EU/non-MSs group	Country code	Age group (months)														Total	
		< 24	24–29	30–35	36–47	48–59	60–71	72–83	84–95	96–107	108–119	120–131	132–143	144–155	> 155		Unknown
EU	AT	0	2	1	4	2	3	3	0	1	0	0	0	1	0	0	17
	BE	0	2	0	4	1	1	1	0	0	0	0	0	0	0	1	10
	BG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CZ	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
	DE	2	0	0	2	123	94	64	41	38	27	16	9	8	27	2	453
	DK	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	EE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EL	0	0	0	0	1	1	0	0	1	1	0	0	1	1	0	6
	ES	2	0	0	0	0	0	0	0	0	1	0	0	0	1	0	4
	FI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	FR	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	4
	HR	2	0	0	0	0	0	1	1	0	0	0	0	0	0	0	4
	HU	2	2	1	0	1	2	0	0	2	0	0	0	0	0	0	10
	IE	0	3	1	1	0	1	1	2	2	0	1	0	1	3	0	16
	IT	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
	LV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	MT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
	PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
	PT	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	RO	9	6	6	10	8	12	2	6	3	3	6	6	2	21	0	100
SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	
SI	7	1	1	0	2	1	1	0	1	0	0	0	0	0	0	14	
SK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
UK	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	3	
Total EU		24	18	11	26	139	116	74	51	48	32	23	15	13	55	21	666

EU/non-MSs group	Country code	Age group (months)														Total	
		< 24	24–29	30–35	36–47	48–59	60–71	72–83	84–95	96–107	108–119	120–131	132–143	144–155	> 155		Unknown
non-MSs	CH	0	2	3	9	4	3	2	6	1	1	0	1	0	1	0	33
	IS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total non-MSs	0	2	3	9	4	3	2	6	1	1	0	1	0	1	0	33
TOTAL	Total	24	20	14	35	143	119	76	57	49	33	23	16	13	56	21	699

Table A.5: BSE active monitoring in relation to the adult bovine population (age > 2 years) in 2017

EU/non-MSs group	Country code	Adult cattle (> 2 year) ^(a)	Number of tested bovine animals at risk ^(b)	Proportion (%) of tested bovine animals at risk ^(b)
EU ^(a)	AT	894,050	17,003	1.9%
	BE	1,261,350	25,418	2.0%
	BG	388,240	4,519	1.2%
	CY	28,720	1,166	4.1%
	CZ	653,700	20,071	3.1%
	DE	5,805,970	156,917	2.7%
	DK	726,000	22,331	3.1%
	EE	133,300	3,385	2.5%
	EL	325,000	881	0.3%
	ES	3,071,890	58,706	1.9%
	FI	374,280	11,594	3.1%
	FR	10,327,000	206,979	2.0%
	HR	219,000	4,911	2.2%
	HU	421,000	11,379	2.7%
	IE	2,736,570	59,929	2.2%
	IT	3,098,580	54,819	1.8%
	LT	385,400	3,131	0.8%
	LU	102,330	2,414	2.4%
	LV	229,320	3,700	1.6%
	MT	7,200	202	2.8%
	NL	1,948,000	47,104	2.4%
	PL	2,614,090	37,701	1.4%
	PT	855,800	22,876	2.7%
	RO	1,356,500	9,129	0.7%
	SE	619,010	8,373	1.4%
	SI	202,310	6,242	3.1%
SK	236,330	7,515	3.2%	
UK	4,477,000	142,916	3.2%	
	Total EU	43,497,940	951,311	2.2%
non-MSs ^(a)	CH	812,880	10,887	1.3%
	IS	34,200	30	0.1%
	NO	353,700	6,817	1.9%
		Total non-MSs	1,200,780	17,734
TOTAL		44,698,720	969,045	2.2%

NA: not applicable.

(a): Taken from 2016 EUSR on TSE (EFSA, 2017) and <http://ec.europa.eu/eurostat/documents/3217494/8538823/KS-FK-17-001-EN-N.pdf/c7957b31-be5c-4260-8f61-988b9c7f2316>

(b): 'Animals at risk' is the sum of animals with clinical signs at *ante-mortem*, animals culled under BSE eradication measures, emergency slaughtered and fallen stock.

Appendix B – Geographical distribution of BSE in the period 2001–2017

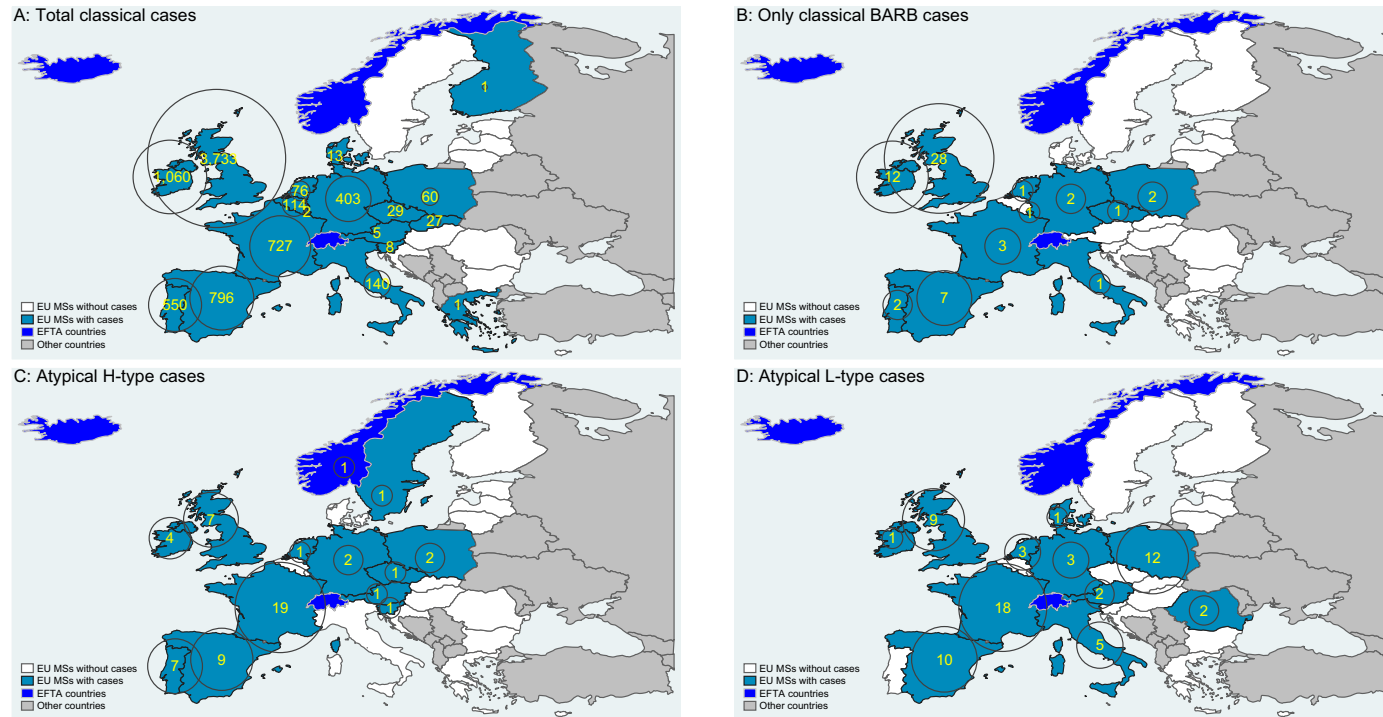


Figure B.1: Geographical distribution of cumulative number of cases of C-BSE (A); BARB cases (B); H-BSE (C); and L-BSE (D) in the period 2001–2017

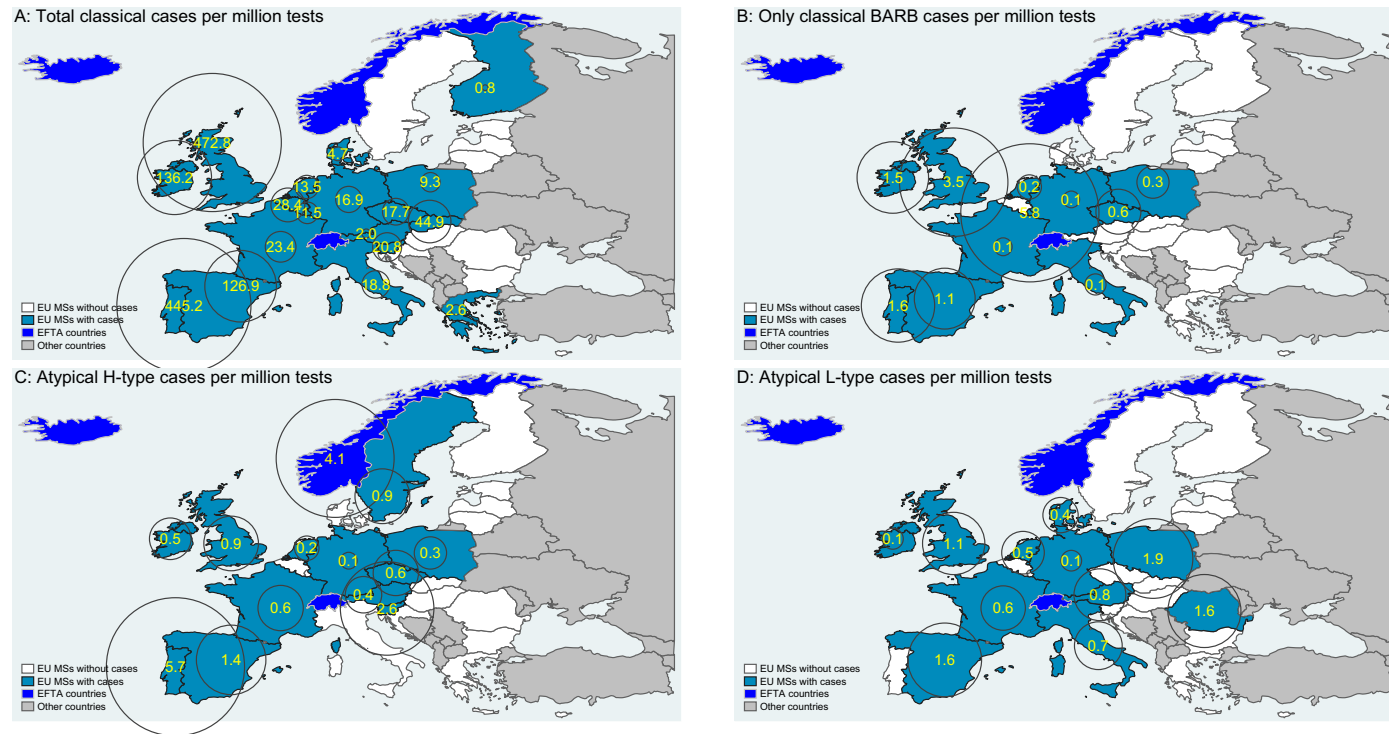


Figure B.2: Country-specific BSE cases per million tests by case type in the period 2001–2017

Appendix C – Geographical distribution of scrapie in 2017

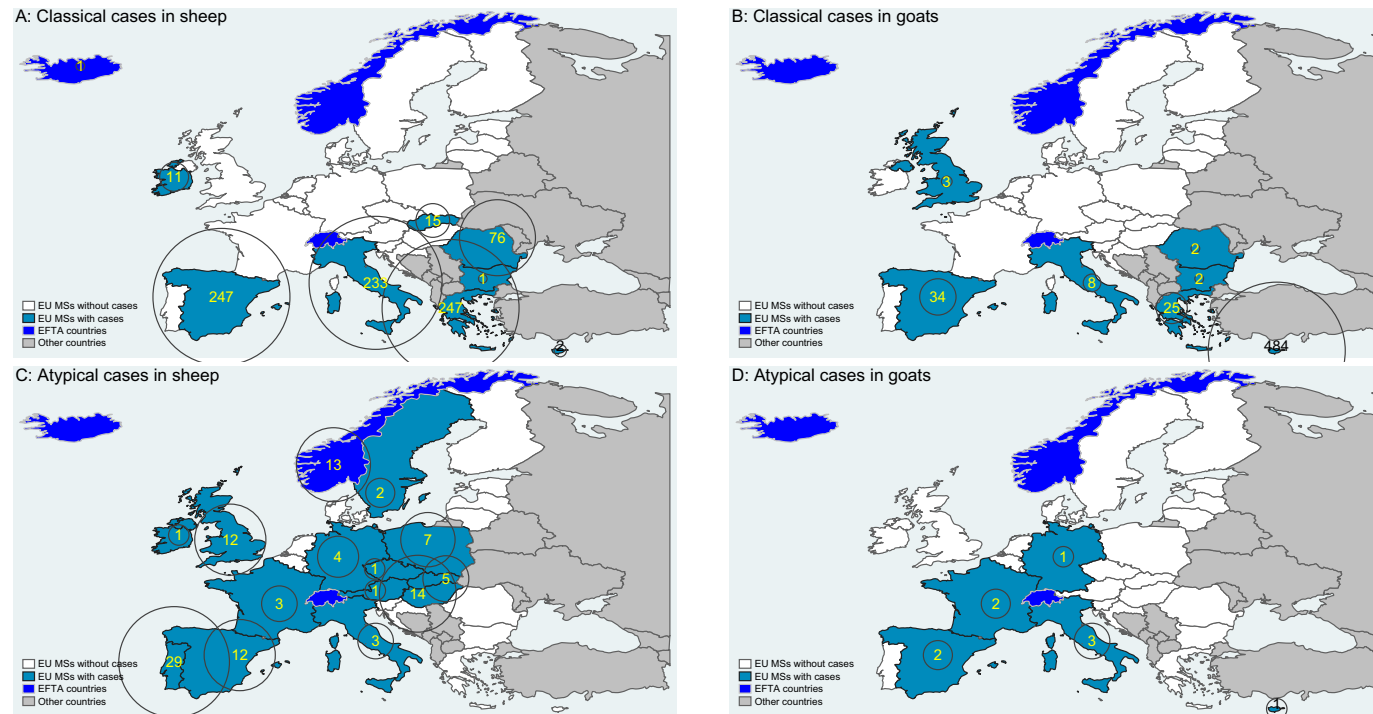
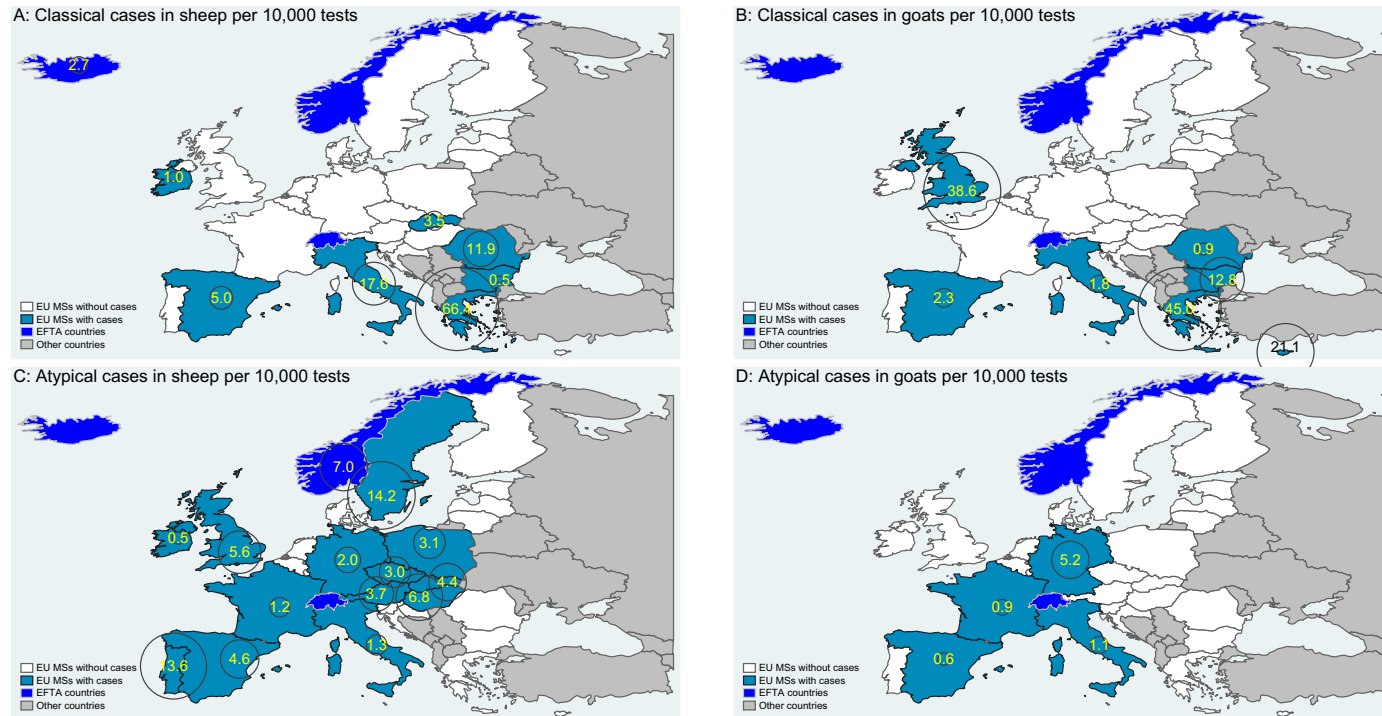


Figure C.1: Geographical distribution of numbers of cases of ovine CS (A); caprine CS (B); ovine AS (C); and caprine AS (D) in 2017



This figure is restricted to active surveillance data, i.e. testing performed in NSHC and SHC target groups from non-infected flocks/herds or not previously known as infected.

Figure C.2: Geographical distribution of proportion of cases per 10,000 tests of ovine CS (A); caprine CS (B); ovine AS (C); and caprine AS (D) in 2017

Appendix D – Additional information asked by EFSA with relation to reporting According Annex III of Regulation 999/2001

According to Annex III, Chapter B, Section 1.A, point 1 of the TSE regulation, MSs must present in their annual report as provided for in Article 6(4), the following information: the number of suspected cases placed under official movement restrictions in accordance with Article 12(1), per animal species. The results are displayed in Table D.1

Table D.1: The number of suspected cases placed under official movement restrictions in accordance with Article 12(1)

Country	Cattle	Sheep	Goats
AT	17	1	0
BE	223	0	0
BG	0	1	2
CY	0	0	5,394
CZ	2	0	0
DE	0	0	0
DK	0	0	0
EE	0	0	0
EL	6	176	50
ES	4	11	0
FI	0	0	0
FR	3	1	0
HR	0	0	0
HU	10	1	1
IE	0	0	0
IT	0	0	0
LV	1	0	0
LU	0	0	0
LT	0	0	0
MT	0	0	0
NL	2	1	0
PL	13	3	0
PT	1	0	0
RO	3,483	15,165	840
SI	1	10	6
SE	0	0	0
SK	0	0	0
UK	1	0	1
Total EU	3,768	15,373	6,298
CH	0	0	0
IS	0	0	0
NO	0	0	0
Total non-EU	0	0	0
Total	3,768	15,373	6,298

According to Annex III, Chapter B, Section 1.A, point 3 of the TSE regulation, MSs must present in their annual report as provided for in Article 6(4), the following information: the number of flocks where suspected cases in ovine and caprine animals have been reported and investigated pursuant to Article 12 (1) and (2). The results are displayed in Table D.2

Table D.2: Number of flocks where suspected cases in ovine and caprine animals have been reported and investigated pursuant to Article 12(1) and (2)

Country	Sheep	Goats
AT	1	0
BE	2	0
BG	0	0
CY	0	17 ^(a)
CZ	0	0
DE	27	7
DK	0	0
EE	0	0
EL	13	6
ES	5	0
FI	0	0
FR	1	0
HR	0	0
HU	1	1
IE	4	0
IT	9	0
LV	0	0
LU	0	0
LT	0	0
MT	0	0
NL	1	0
PL	3	0
PT	0	0
RO	54	7
SI	10	6
SE	Not available yet	Not available yet
SK	0	0
UK	0	1
Total EU	128	28
CH	0	0
IS	0	0
NO	0	0
Total non-EU	0	0
Total	128	28

(a): Ten mixed flocks sheep and goats and seven goat herds.

According to Annex III, Chapter B, Section 1.A, point 5 of the TSE regulation, MSs must present in their annual report as provided for in Article 6(4), the following information: the number of ovine and caprine animals and flocks tested within each subpopulation referred to in Chapter A, Part II, points 2, 3, 5 and 6 together with the method for sample selection and the results of the rapid and confirmatory tests. The results are displayed in Table D.3

Table D.3: Number of ovine and caprine flocks tested within each subpopulation referred to in Chapter A, Part II, points 2, 3, 5 and 6 together with the method for sample selection and the results of the rapid and confirmatory tests

Country	Sheep SHC	Sheep NSCH	Sheep EM	Sheep other	Goats SHC	Goats NSHC	Goats EM	Goats other
AT	105	1,605	2		16	438	0	
BE	Unknown	Unknown	Unknown		Unknown	Unknown	Unknown	
BG	Not reported	Not reported	Not reported		Not reported	Not reported	Not reported	
CY	160	734	0		232	511	21	
CZ	6	1,014	0		0	212	0	
DE	3,392	4,575	68		123	611	8	0
DK	*	*	*		*	*	*	
EE	0	97	0		0	6	0	Not available
EL	596	433	57		218	185	19	
ES	1,013	5,579	98		994	2,698	20	
FI	474	0	0		39	0	0	
FR	2,695	9,325	3		1,403	4,612	35	0
HR	1	1,109	0		0	285	0	
HU	1,366	1,535	0		34	60	0	0
IE	Not available	Not available	Not available		Not available	Not available	Not available	Not available
IT	8,694				6,458			
LV	0	208	0		0	6	0	0
LU	0	0	0		0	0	0	0
LT	0	153	0		0	11	0	0
MT	64	89	0		55	82	0	0
NL	0	0	0		0	0	0	0
PL	Not available yet	Not available yet	Not available yet		Not available yet	Not available yet	Not available yet	Not available yet
PT	988	5,785	0		5	804	0	0
RO	12,172	6,702	70		4,011	3,012	10	0
SI	112	1,043	3		42	330	6	0
SE	Not available yet	Not available yet	Not available yet		Not available yet	Not available yet	Not available yet	0
SK	0	540	12		0	55	1	0
UK	242	5,581	33		0	171	3	0
CH	0	0	0		0	0	0	0

Country	Sheep SHC	Sheep NSCH	Sheep EM	Sheep other	Goats SHC	Goats NSHC	Goats EM	Goats other
IS	209	33	0		6	0	0	0
NO	11,843	6,766	0		0	300	0	0

*: Denmark, as the previous years, forwarded information on the numbers of tested animals. In most cases, there is one flock for each animal, but it is possible that some flocks have been tested more than once for the random testing of fallen stock for sheep and goats, although it is the intention only to test each flock once.